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SINAMICS G130/G150

List Manual

Edition 04/2014

Answers for industry.

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SINAMICS G130/G150

List Manual

Valid for

Drive	Firmware version
SINAMICS	4.7

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Legal information

Warning notice system

This Manual contains information which you must observe to ensure your own personal safety as well as to avoid material damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to equipment damage have no safety alert symbol. Depending on the hazard level, warnings are indicated in a descending order as follows:

⚠ DANGER
indicates that death or serious injury **will** result if proper precautions are not taken.

⚠ WARNING
indicates that death or serious injury **could** result if proper precautions are not taken.

⚠ CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one level of danger is simultaneously applicable, the warning notice for the highest level is used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified personnel

The product/system described in this documentation may only be operated by **personnel qualified** for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper Use of Siemens Products

Note the following:

⚠ WARNING
Siemens products are only permitted to be used for the applications listed in the catalog and in the associated technical documentation. If third-party products and components are used, then they must be recommended or approved by Siemens. These products can only function correctly and safely if they are transported, stored, set up, mounted, installed, commissioned, operated and maintained correctly. The permissible ambient conditions must be adhered to. Notes in the associated documentation must be observed.

Trademarks

All names identified with ® are registered trademarks of Siemens AG. Any other names used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of liability

We have checked the contents of this publication for consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. The information given in this document is reviewed at regular intervals and any corrections that might be necessary are made in the subsequent editions.

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Preface

SINAMICS documentation

The SINAMICS documentation is structured according to the following categories:

- General documentation/catalogs
- Manufacturer/service documentation

Additional information

Information on the following topics is available under the link:

- Ordering documentation/overview of documentation
- Additional links to download documents
- Using documentation online (find and search in manuals/information).

http://www.siemens.com/motioncontrol/docu

My Documentation Manager

Information on how to produce individual contents for your own machine documentation based on Siemens contents is available under the link:

http://www.siemens.com/mdm

Training

Information about SITRAIN (Siemens Training on products, systems and solutions for automation) is available under the following link:

http://www.siemens.com/sitrain

FAQs

You can find Frequently Asked Questions in the Service&Support pages under Product Support:

http://support.automation.siemens.com

SINAMICS

You can find information on SINAMICS at:

http://www.siemens.com/sinamics

Usage phases and their tools/documents (as an example)

Table V-1 Usage phases and the available tools/documents

Usage phase	Tools/documents
Orientation	SINAMICS G Sales Documentation
Planning/configuration	SIZER Engineering Tool Configuration Manuals, Motors
Deciding/ordering	SINAMICS G Catalogs
Installation/assembly	• SINAMICS G150 Operating Instructions • SINAMICS G130 Operating Instructions
Commissioning	• STARTER Commissioning Tool • SINAMICS G150 Operating Instructions • SINAMICS G130 Operating Instructions
Usage/operation	• SINAMICS G150 Operating Instructions • SINAMICS G130 Operating Instructions
Maintenance/servicing	• SINAMICS G150 Operating Instructions • SINAMICS G130 Operating Instructions

Target group

This documentation addresses machine manufacturers, commissioning engineers, and service personnel who use SINAMICS.

Benefits

This documentation contains the comprehensive information about parameters, function diagrams and faults and alarms required to commission and service the system.

This manual should be used in addition to the other manuals and tools provided for the product.

Standard scope

The scope of the functionality described in this document can differ from the scope of the functionality of the drive that is actually supplied.

- Other functions not described in this documentation might be able to be executed in the drive system. However, no claim can be made regarding the availability of these functions when the equipment is first supplied or in the event of servicing.
- Functions that are not available in a particular product version of the drive system may be described in the documentation. The functionalities of the supplied drive system should only be taken from the ordering documentation.
- Supplements or changes made by the machine manufacturer must be documented by the machine manufacturer.

For reasons of clarity, this documentation does not contain all of the detailed information on all of the product types, This documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

Search guides

The following guides are provided to help you locate information in this manual:

1. Table of contents
   – Table of contents for the complete manual (Page 9)
   – Table of contents for function diagrams (Page 1027)
2. List of abbreviations (Page 1813)
3. References (Page 1822)
4. Index (Page 1829)

Technical Support

Country-specific telephone numbers for technical support are provided on the Internet at:

http://www.siemens.com/automation/service&support

Table of contents

Fundamental safety instructions 1

Content

1.1 General safety instructions

WARNING

Risk of death if the safety instructions and remaining risks are not carefully observed

If the safety instructions and residual risks are not observed in the associated hardware documentation, accidents involving severe injuries or death can occur.

- Observe the safety instructions given in the hardware documentation.
- Consider the residual risks for the risk evaluation.

WARNING

Danger to life or malfunctions of the machine as a result of incorrect or changed parameterization

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

- Protect the parameterization (parameter assignments) against unauthorized access.
- Respond to possible malfunctions by applying suitable measures (e.g. EMERGENCY-STOP or EMERGENCY-OFF).

1.2 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, devices, and/or networks. They are important components of a holistic industrial security concept. With this in mind, Siemens' products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

To ensure that Siemens products and solutions are operated securely, suitable preventive measures (e.g. cell protection concept) and each component must be integrated into a state-of-the-art holistic industrial security concept. Third-party products that may be in use should also be considered. You will find more information about industrial security at:

http://www.siemens.com/industrialsecurity

To receive information about product updates on a regular basis, register for our product newsletter. You will find more information at:

http://support.automation.siemens.com

WARNING

Danger as a result of unsafe operating states resulting from software manipulation

Software manipulation (e.g. by viruses, Trojan horses, malware, worms) can cause unsafe operating states to develop in your installation which can result in death, severe injuries and/or material damage.

- Keep the software up to date.

  Information and newsletters can be found at:

  http://support.automation.siemens.com
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.

  For more information, visit:

  http://www.siemens.com/industrialsecurity
- Make sure that you include all installed products into the holistic industrial security concept.

Parameters 2

Content

2.1 Overview of parameters

2.1.1 Explanation of the parameter list

Basic structure of the parameter descriptions

The data in the following example has been chosen at random. The table below contains all the information that can be included in a parameter description. Some of the information is optional.

The "List of parameters" (Page 33) has the following structure:

- - - - - - - - - - - - Start of example -

pxxxx[0...n]	**BICO: Full parameter name / abbreviated name**		
Drive object (function module)	**Can be changed:** C1(x), C2(x), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 2
	Data type: Unsigned32 / Integer16	**Dyn. index:** CDS, p0170	**Func. diagram:** 8070
	P-Group: Closed-loop control	**Unit group:** 7_1	**Unit selection:** p0505
	Not for motor type: FEM	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Nm]	10.00 [Nm]	0.00 [Nm]

Description: Text

Value:
0: Name and meaning of value 0
1: Name and meaning of value 1
2: Name and meaning of value 2
etc.

Recommendation: Text

Index:
[0] = Name and meaning of index 0
[1] = Name and meaning of index 1
[2] = Name and meaning of index 2
etc.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Name and meaning of bit 0	Yes	no	8060
01	Name and meaning of bit 1	Yes	no	
02	Name and meaning of bit 2	Yes	no	8065
	etc.			

Dependency: Text
Refer to: pxxxx, rxxxx
Refer to: Fxxxxx, Axxxxx

Danger: ⚠ **Warning:** ⚠ **Caution:** ⚠ Safety notices with a warning triangle

Notice: Safety notice without a warning triangle

Note: Information that might be useful.

- - - - - - - - - - - - End of example -

The individual pieces of information are described in detail below.

pxxxx[0...n] **Parameter number**

The parameter number is made up of a "p" or "r", followed by the parameter number and the index (optional).

Examples of the representation in the parameter list:

- p... Adjustable parameters (read and write parameters)
- r... Display parameters (read only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944
- r2129.0...15 Display parameter 2129 with bit field from bit 0 (smallest bit) to bit 15 (largest bit)

Other examples of the notation in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- r0945[2](3) Display parameter 945, index 2 of drive object 3
- p0795.4 Adjustable parameter 795, bit 4

The following applies to adjustable parameters:

The parameter value as delivered is specified under "Factory setting" with the relevant unit in square brackets. The value can be adjusted within the range defined by "Min" and "Max".

The term "linked parameterization" is used in cases where changes to adjustable parameters affect the settings of other parameters.

Linked parameterization can occur, for example, as a result of the following actions or parameters:

- Executing macros

  p0015, p0700, p1000, p1500
- Setting the PROFIBUS telegram (BICO interconnection)

  p0922
- Set component lists

  p0230, p0300, p0301, p0400
- Automatic calculation and pre-assignment

  p0112, p0340, p0578, p3900
- Restoring the factory settings

  p0970

The following applies to display parameters:

The fields "Min", "Max" and "Factory setting" are specified with a dash "-" and the relevant unit in square brackets.

Note

The parameter list can contain parameters that are not visible in the expert lists of the particular commissioning software (e.g. parameters for trace functions).

BICO: Full parameter name / abbreviated name

The following abbreviations can appear in front of the parameter name:

- BI: Binector Input
  This parameter is used for selecting the source of a digital signal.
- BO: Binector output
  This parameter is available as a digital signal for interconnection with other parameters.
- CI: Connector Input
  This parameter is used for selecting the source of an "analog" signal.
- CO: Connector output
  This parameter is available as an "analog" signal for interconnection with other parameters.
- CO/BO: Connector/Binector Output
  This parameter is available as an "analog" and digital signal for interconnection with other parameters.

Note

A connector input (CI) cannot be just interconnected with any connector output (CO, signal source).
When interconnecting a connector input using the commissioning software, only the corresponding possible signal sources are listed.

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit that has its own parameters and, in some cases, faults and alarms.

When carrying out commissioning using the commissioning software, you can select/deselect additional functions and their parameters by activating/deactivating function modules accordingly.

The parameter list specifies the associated drive object and function module for each individual parameter.

Examples:

- p1070 CI: Main setpoint
  VECTOR
  The parameter is only available with the VECTOR drive object, regardless of which function modules have been activated.
- p1055 BI: Jog bit 0
  VECTOR
  The parameter is available with the VECTOR drive object, regardless of which function modules have been activated (i.e. it is available with every activated function module belonging to the drive object).

A parameter can belong to a single, multiple, or all drive objects.

The following information relating to "Drive object" and "Function module" can be displayed under the parameter number:

Table 2-1 Data in the "Drive object (function module)" field

Drive object (function module)	Type	Meaning
All objects	-	This parameter is used by all drive objects.
B_INF	30	Basic Infeed closed loop control Unregulated line infeed unit (without regenerative feedback) for rectifying the line voltage of the DC link.
B_INF (parallel)	-	Basic Infeed with "Parallel connection" function module (r0108.15).
B_INF (Brk Mod Ext)	-	Basic Infeed with "Braking Module external" function module (r0108.26).
B_INF (Cooling unit)	-	Basic Infeed with "Cooling unit" function module (r0108.28)
B_INF (PROFINET)	-	Basic Infeed with "PROFINET" function module (r0108.31).
CU_G130_DP		Control Unit SINAMICS G130 with PROFIBUS interface.
CU_G130_DP (CAN)	-	Control Unit SINAMICS G130 with PROFIBUS interface and function module “CAN“ (p0108.29).
CU_G130_DP (COMM BOARD)		Control Unit SINAMICS G130 with PROFIBUS interface and "COMM board" function module (p0108.30).
CU_G130_DP (PROFINET)	-	Control Unit SINAMICS G130 with PROFIBUS interface and function module “PROFINET“ (p0108.31).
CU_G130_PN		Control Unit SINAMICS G130 with PROFINET interface.
CU_G130_PN (CAN)	-	Control Unit SINAMICS G130 with PROFINET interface and function module “CAN“ (p0108.29).
CU_G130_PN (COMM BOARD)		Control Unit SINAMICS G130 with PROFINET interface and "COMM board" function module (p0108.30).
CU_G130_PN (PROFINET)		Control Unit SINAMICS G130 with PROFINET interface and function module “PROFINET“ (p0108.31).
CU_G150_DP		Control Unit SINAMICS G150 with PROFIBUS interface.
CU_G150_DP (CAN)	-	Control Unit SINAMICS G150 with PROFIBUS interface and function module “CAN“ (p0108.29).
CU_G150_DP (COMM BOARD)		Control Unit SINAMICS G150 with PROFIBUS interface and "COMM board" function module (p0108.30).
CU_G150_DP (PROFINET)	-	Control Unit SINAMICS G150 with PROFIBUS interface and function module “PROFINET“ (p0108.31).
CU_G150_PN		Control Unit SINAMICS G150 with PROFINET interface.
CU_G150_PN (CAN)	-	Control Unit SINAMICS G150 with PROFINET interface and function module “CAN“ (p0108.29).
CU_G150_PN (COMM BOARD)		Control Unit SINAMICS G150 with PROFINET interface and "COMM board" function module (p0108.30).
CU_G150_PN (PROFINET)		Control Unit SINAMICS G150 with PROFINET interface and function module “PROFINET“ (p0108.31).
ENC	300	Object for a DRIVE-CLiQ encoder.

Table 2-1 Data in the "Drive object (function module)" field, continued

Drive object (function module)	Type	Meaning
ENC (lin_encoder)	-	Object for a DRIVE-CLiQ encoder with "Linear encoder" function module (r0108.12).
HUB	150	DRIVE-CLiQ Hub Module.
TB30	100	Terminal Board 30.
TM150	208	Terminal Module 150.
TM31	200	Terminal Module 31.
TM54F_MA	205	Terminal Module 54F Master.
TM54F_SL	206	Terminal Module 54F Slave.
VECTOR_G	12	Vector drive for SINAMICS G130/G150.
VECTOR_G (n/M)	-	Vector drive for SINAMICS G130/G150 with "Speed/torque control" function module (r0108.2).
VECTOR_G (Safety red)	-	Vector drive for SINAMICS G130/G150 with "Safety rotary axis" function module (r0108.13).
VECTOR_G (ext. brake)	-	Vector drive for SINAMICS G130/G150 with "Extended brake control" function module (r0108.14).
VECTOR_G (parallel)	-	Vector drive for SINAMICS G130/G150 with "Parallel connection" function module (r0108.15).
VECTOR_G (Tech_ctrl)	-	Vector drive for SINAMICS G130/G150 with "Technology controller" function module (r0108.16).
VECTOR_G (ext. mess.)	-	Vector drive for SINAMICS G130/G150 with "Extended messages/monitoring functions" function module (r0108.17).
VECTOR_G (Cooling unit)	-	Vector drive for SINAMICS G130/G150 with "Cooling unit" function module (r0108.28).
VECTOR_G (CAN)	-	Vector drive for SINAMICS G130/G150 with "CAN" function module (r0108.29).
VECTOR_G (PROFINET)	-	Vector drive for SINAMICS G130/G150 with "PROFINET" function module (r0108.31).

Note

The drive object type is used to identify the drive objects in the drive system (e.g. r0107, r0975[1]).

Can be changed

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The information "C1(x), C2(x), T, U" ((x): optional) means that the parameter can be changed only in the specified drive unit state and that the change will not take effect until the unit switches to another state. This can be a single state or multiple states.

The following states are available:

- C1(x) Device commissioning — C1: **C**ommissioning **1**

  Device is being commissioned (p0009 > 0).

  Pulses cannot be enabled.

  The parameter can only be changed for the following device commissioning settings (p0009 > 0):

  - C1: Can be changed for all settings p0009 > 0.
  - C1(x): Can be changed only when p0009 = x.

  A modified parameter value does not take effect until the device commissioning mode is exited with p0009 = 0.

- C2(x) Drive object commissioning — C2: **C**ommissioning **2**

  Drive commissioning is in progress (p0009 = 0 and p0010 > 0).

  Pulses cannot be enabled.

  The parameter can only be changed in the following drive commissioning settings (p0010 > 0):

  - C2: Can be changed for all settings p0010 > 0.
  - C2(x): Can only be changed for the settings p0010 = x.

  A modified parameter value does not take effect until drive commissioning mode is exited with p0010 = 0.

- U Operation — U: R**u**n

  Pulses are enabled.

- T Ready — T: Ready **t**o run

  The pulses are not enabled and the state "C1(x)" or "C2(x)" is not active.

Note

Parameter p0009 is CU-specific (belongs to the Control Unit).

Parameter p0010 is drive-specific (belongs to each drive object).

The operating state of individual drive objects is displayed in r0002.

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
  - p0340 = 1
  - Project download with commissioning software and send from p0340 = 3
- CALC_MOD_CON
  - p0340 = 1, 3, 4
- CALC_MOD_EQU
  - p0340 = 1, 2
- CALC_MOD_LIM_REF
  - p0340 = 1, 3, 5
  - p0578 = 1
- CALC_MOD_REG
  - p0340 = 1, 3

Note

For p3900 > 0, p0340 = 1 is also called automatically.

After p1910 = 1, p0340 = 3 is also called automatically.

Access level

Specifies the minimum access level required to be able to display and change the relevant parameter. The required access level can be set using p0003.

The system uses the following access levels:

- 1: Standard
- 2: Extended
- 3: Expert
- 4: Service

  Parameters with this access level are password protected.

Note

Parameter p0003 is CU-specific (belongs to the Control Unit).

A higher access level will also include the functions of the lower levels.

Data type

The information on the data type can consist of the following two items (separated by a slash):

- First item

  Data type of the parameter.
- Second item (for binector or connector input only)

  Data type of the signal source to be interconnected (binector/connector output).

Parameters can have the following data types:

- Integer8 I8 8-bit integer number
- Integer16 I16 16-bit integer number
- Integer32 I32 32-bit integer number
- Unsigned8 U8 8 bits without sign
- Unsigned16 U16 16 bits without sign
- Unsigned32 U32 32 bits without sign
- FloatingPoint32 Float 32-bit floating point number

Depending on the data type of the BICO input parameter (signal sink) and BICO output parameter (signal source), the following combinations are possible when creating BICO interconnections:

Table 2-2 Possible combinations of BICO interconnections

	BICO input parameter			
	CI parameter			BI parameter
BICO output parameter	**Unsigned32 / Integer16**	**Unsigned32 / Integer32**	**Unsigned32 / FloatingPoint32**	**Unsigned32 / Binary**
CO: Unsigned8	x	x	–	–
CO: Unsigned16	x	x	–	–
CO: Integer16	x	x	r2050, r8850	–
CO: Unsigned32	x	x	–	–
CO: Integer32	x	x	r2060, r8860	–
CO: FloatingPoint32	x	x	x	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
BO: Integer16	–	–	–	x
BO: Unsigned32	–	–	–	x
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–
Legend: x : BICO interconnection permitted –: BICO interconnection not permitted rxxxx: BICO interconnection is only permitted for the specified CO parameters				

Dynamic index

For parameters with a dynamic index [0...n], the following information is specified here:

- Data set (if available).
- Parameter for the number of indices (n = number - 1).

The following information can be contained in this field:

- "CDS, p0170" (Command Data Set, CDS count)

  Example:

  p1070[0] → main setpoint [command data set 0]

  p1070[1] → main setpoint [command data set 1], etc.
- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)
- "MDS, p0130" (Motor Data Set, MDS count)
- "PDS, p0120" (Power unit Data Set, PDS count)
- "p2615" (traversing blocks count)

Function diagram

The parameter is included in this function diagram. The structure of the parameter function and its relationship with other parameters is shown in the specified function diagram.

Example:

Function diagram: 3060.3	3060:	Function diagram number
	3:	Signal path (optional)

P-Group (only when accessing via BOP (Basic Operator Panel))

Specifies the functional group to which this parameter belongs. The required parameter group can be set via p0004.

Note

Parameter p0004 is CU-specific (belongs to the Control Unit).

Unit, unit group and unit selection

The standard unit of a parameter is specified in square brackets after the values for "Min", "Max", and "Factory setting".

For parameters where the unit can be switched over, the specifications for "Unit group" and "Unit selection" determine the group to which this parameter belongs and with which parameter the unit can be changed over.

Example:

Unit group: 7_1, unit selection: p0505

The parameter belongs to unit group 7_1 and the unit can be changed over using p0505.

Note

Detailed information on changing over units can be found in the following references:

References: /FH1/ SINAMICS S120 Function Manual Drive Functions

References: /BA3/ SINAMICS S150 Operating Instructions

All the potential unit groups and possible unit selections are listed below.

Table 2-3 Unit groups (p0100)

Unit group	Unit selection for p0100 =		Reference variable for %
	0	1	
7_4	Nm	lbf ft	-
8_4	N	lbf	-
14_2	W	HP	-
14_6	kW	HP	-
14_13	W/A	HP/A	-
14_14	W min/1000	HP min/1000	-
14_15	W/A^2	HP/A^2	-
14_16	W $min^2/1000^2$	HP $min^2/1000^2$	-
25_1	kgm^2	lb ft^2	-
27_1	kg	lb	-
28_1	Nm/A	lbf ft/A	-
29_1	N/Arms	lbf/Arms	-
30_1	m	ft	-
47_1	kW s/K	HP s/K	-
48_1	W/K	HP/K	-
48_2	W min/1000 K	HP min/1000 K	-
48_3	W $min^2/1000^2$ K	HP $min^2/1000^2$ K	-
50_1	K/W	K/HP	-

Table 2-4 Unit groups (p0349)

Unit group	Unit selection for p0349 =		Reference variable for %
	1	2	
15_1	mH	%	$\frac{1000 \cdot p0304}{2 \cdot \pi \cdot \sqrt{3} \cdot p0305 \cdot p0310}$
16_1	Ohm	%	$\frac{p0304}{\sqrt{3} \cdot p0305}$

Table 2-5 Unit groups (p0505)

Unit group	Unit selection for p0505 =				Reference variable for %
	1	2	3	4	
2_1	Hz	%	Hz	%	p2000
2_2	kHz	%	kHz	%	p2000
3_1	1 rpm	%	1 rpm	%	p2000
4_1	m/min	%	ft/min	%	p2000
4_2	m/min	m/min	ft/min	ft/min	-
5_1	Vrms	%	Vrms	%	p2001
5_2	V	%	V	%	p2001
5_3	V	%	V	%	p2001
6_1	mArms	%	mArms	%	p2002
6_2	Arms	%	Arms	%	p2002
6_3	mA	%	mA	%	p2002
6_4	A	%	A	%	p2002
6_5	A	%	A	%	p2002
7_1	Nm	%	lbf ft	%	p2003
7_2	Nm	Nm	lbf ft	lbf ft	-
7_3	Nm	%	lbf ft	%	1.0
8_1	N	%	lbf	%	p2003
8_2	N	N	lbf	lbf	-
8_3	N	%	lbf	%	1.0
14_1	W	%	HP	%	r2004 (drive)
14_3	W	%	HP	%	r2004 (infeed)
14_4	W	%	HP	%	r2004 (drive)
14_5	kW	%	HP	%	r2004 (drive)
14_7	kW	%	HP	%	r2004 (infeed)
14_8	kW	%	HP	%	r2004 (drive)
14_9	W	W	HP	HP	-
14_10	kW	kW	HP	HP	-
14_11	var	%	var	%	r2004
14_12	kvar	%	kvar	%	r2004
17_1	Nms/rad	%	lbf ft s/rad	%	p2003/p2000
18_1	V/A	%	V/A	%	p2001/p2002
19_1	A/V	%	A/V	%	p2002/p2001
21_1	°C	°C	°F	°F	-
21_2	K	K	°F	°F	-
22_1	m/s^2	m/s^2	ft/s^2	ft/s^2	-

Table 2-5 Unit groups (p0505), continued

Unit group	Unit selection for p0505 =				Reference variable for %
	1	2	3	4	
22_2	m/s^2	%	ft/s^2	%	p2007
23_1	Vrms s/m	Vrms s/m	Vrms s/ft	Vrms s/ft	-
24_1	Ns/m	Ns/m	lbf s/ft	lbf s/ft	-
24_2	Ns/m	%	lbf s/ft	%	p2003/p2000
26_1	m/s^3	m/s^3	ft/s^3	ft/s^3	-
39_1	$1/s^2$	%	$1/s^2$	%	p2007
49_1	Nm/rad	%	lbf ft/rad	%	p2003

Table 2-6 Unit group (p0595)

Unit group	Unit selection for p0595 =		Reference variable for %
	Value	Unit	
9_1	The values that can be set and the technological units are shown in p0595.		

Parameter values

Min — Minimum value of the parameter [unit]

Max — Maximum value of the parameter [unit]

Factory setting — Value when delivered [unit]

In the case of a binector/connector input, the signal source of the default BICO interconnection is specified. A non-indexed connector output is assigned the index [0].

A different value may be displayed for certain parameters (e.g. p1800) at the initial commissioning stage or when establishing the factory settings.
Reason:
The setting of these parameters is determined by the operating environment of the Control Unit (e.g. depending on converter type, macro, power unit).

Note

For SINAMICS G130/G150, the macros and their settings are provided in the following documentation:

References: /BAx/ x = 1, 2
SINAMICS G150/G130 Operating Instructions

Not for motor type

Specifies for which motor type this parameter has no significance.

ASM: Asynchronous Motor

FEM: Separately excited synchronous motor

PEM: Permanent-magnet synchronous motor

REL: Reluctance motor/SIEMOSYN motor

Scaling

Specification of the reference variable with which a signal value is automatically converted for a BICO interconnection.

The following reference variables are available:

- p2000 ... p2007: Reference speed, reference voltage, etc.
- PERCENT: 1.0 = 100 %
- 4000H: 4000 hex = 100 %

Expert list

Specifies whether this parameter is available in the expert list of the specified drive objects in the commissioning software.

1: Parameter exists in the expert list.

0: Parameter does not exist in the expert list.

NOTICE
Users assume full responsibility for using parameters marked "Expert list: 0" (parameter does not exist in the expert list). These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. description of functions). Moreover, no support is provided for these parameters by "Technical Support" (hotline).

Description

Explanation of the function of a parameter

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

The name and meaning of each individual index is specified for indexed parameters.

The following applies to the values (Min, Max, Factory setting) for indexed adjustable parameters:

- Min, Max:

  The adjustment range and unit apply to all indices.
- Factory setting:

  When all indices have the same factory setting, index 0 is specified with the unit to represent all indices.

  When the indices have different factory settings, they are all listed individually with the unit.

Bit field

For parameters with bit fields, the following information is provided about each bit:

- Bit number and signal name
- Meaning for signal states 0 and 1
- Function diagram (optional)

  The signal is shown in this function diagram.

Dependency

Conditions that must be fulfilled in conjunction with this parameter. Also includes special effects that can occur between this parameter and others.

Where necessary, "Refer to:" indicates the following information:

- List of other relevant parameters to be considered.
- List of faults and alarms to be considered.

Safety guidelines

Important information that must be observed to avoid the risk of physical injury or material damage.

Information that must be observed to avoid any problems.

Information that the user may find useful.

Danger	The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).
Warning	The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Caution ⚠ The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Notice The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Note Information that the user may find useful.

2.1.2 Number ranges of parameters

Note

The following number ranges represent an overview for all the parameters available for the SINAMICS drive family.

The parameters for the product described in this List Manual are described in detail in "List of parameters" (Page 33).

Parameters are grouped into the following number ranges:

Table 2-7 Number ranges for SINAMICS

Range		Description
From	To	
0000	0099	Display and operation
0100	0199	Commissioning
0200	0299	Power section
0300	0399	Motor
0400	0499	Encoder
0500	0599	Technology and units, motor-specific data, probes
0600	0699	Thermal monitoring, maximum current, operating hours, motor data, central probe
0700	0799	Control Unit terminals, measuring sockets
0800	0839	CDS, DDS data sets, motor changeover
0840	0879	Sequence control (e.g. signal source for ON/OFF1)
0880	0899	ESR, parking, control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint channel (e.g. ramp-function generator)
1200	1299	Functions (e.g. motor holding brake)
1300	1399	U/f control
1400	1799	Closed-loop control

Table 2-7 Number ranges for SINAMICS, continued

Range		Description
From	To	
1800	1899	Gating unit
1900	1999	Power unit and motor identification
2000	2009	Reference values
2010	2099	Communication (fieldbus)
2100	2139	Faults and alarms
2140	2199	Signals and monitoring
2200	2359	Technology controller
2360	2399	Staging, hibernation
2500	2699	Position control (LR) and basic positioning (EPOS)
2700	2719	Reference values, display
2720	2729	Load gearbox
2800	2819	Logic operations
2900	2930	Fixed values (e. g. percentage, torque)
3000	3099	Motor identification results
3100	3109	Real-time clock (RTC)
3110	3199	Faults and alarms
3200	3299	Signals and monitoring
3400	3659	Infeed closed-loop control
3660	3699	Voltage Sensing Module (VSM), Braking Module internal
3700	3779	Advanced Positioning Control (APC)
3780	3819	Synchronization
3820	3849	Friction characteristic
3850	3899	Functions (e. g. long stator)
3900	3999	Management
4000	4599	Terminal Board, Terminal Module (e. g. TB30, TM31)
4600	4699	Sensor Module
4700	4799	Trace
4800	4849	Function generator
4950	4999	OA application
5000	5169	Spindle diagnostics
5200	5230	Current setpoint filter 5 ... 10 (r0108.21)
5400	5499	System droop control (e. g. shaft generator)
5500	5599	Dynamic grid support (solar)
5600	5614	PROFIenergy
5900	6999	SINAMICS GM/SM/GL/SL

Table 2-7 Number ranges for SINAMICS, continued

Range		Description
From	To	
7000	7499	Parallel connection of power units
7500	7599	SINAMICS SM120
7700	7729	External messages
7770	7789	NVRAM, system parameters
7800	7839	EEPROM read/write parameters
7840	8399	Internal system parameters
8400	8449	Real-time clock (RTC)
8500	8599	Data and macro management
8600	8799	CAN bus
8800	8899	Communication Board Ethernet (CBE), PROFIdrive
8900	8999	Industrial Ethernet, PROFINET, CBE20
9000	9299	topology
9300	9399	Safety Integrated
9400	9499	Parameter consistency and storage
9500	9899	Safety Integrated
9900	9949	topology
9950	9999	Diagnostics, internal
10000	10199	Safety Integrated
11000	11299	Free technology controller 0, 1, 2
20000	20999	Free function blocks (FBLOCKS)
21000	25999	Drive Control Chart (DCC)
50000	53999	SINAMICS DC MASTER (closed-loop DC current control)
61000	61001	PROFINET

2.2 List of parameters

Product: SINAMICS G130/G150, Version: 4702900, Language: eng
Objects: B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

r0002 Infeed operating display / INF op_display

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	250	-

Description: Operating display for the infeed.

Value:
0: Operation - everything enabled
31: Rdy for sw on - pre-chrg running (p0857)
32: Ready for switching on - set "ON/OFF1" = "0/1" (p0840)
35: Switching on inhibited - carry out first commissioning (p0010)
41: Switching on inhibited - set "ON/OFF1" = "0" (p0840)
42: Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845)
44: Switching on inhibited - connect 24 V to terminal EP (hardware)
45: Switching on inhibited - remove fault cause, acknowledge fault
46: Switching on inhibited - exit comm mode (p0009, p0010)
60: Infeed de-activated/not operational
70: Initialization
200: Wait for booting/partial booting
250: Device signals a topology error

Dependency: Refer to: r0046

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

Note: OC: Operating condition
COMM: Commissioning

r0002 Control Unit operating display / CU op_display

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	117	-

Description: Operating display for the Control Unit (CU).

Value:
0: Operation
10: Ready
20: Wait for run-up
25: Wait for automatic FW update of DRIVE-CLiQ components
31: Commissioning software download active
33: Remove/acknowledge topology error
34: Exit commissioning mode
35: Carry out first commissioning
70: Initialization
80: Reset active
99: Internal software error
101: Specify topology
111: Insert drive object
112: Delete drive object
113: Change drive object number
114: Change component number
115: Run parameter download
117: Delete component

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	**Encoder DO operating display / Enc DO op_display**		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for encoder drive object.

Value:
0: Encoder in cyclic operation
35: Carry out first commissioning (p0010)
45: Remove fault cause, acknowledge fault
46: Exit commissioning mode (p0009, p0010)
60: Encoder de-activated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	**DRIVE-CLiQ Hub Module operating display / Hub op_display**		
HUB	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for the DRIVE-CLiQ Hub Module.

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module de-activated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	**TB30 operating display / TB30 op_display**		
TB30	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for Terminal Board 30 (TB30).

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
60: Fault
70: Initialization
80: Reset active
120: Module de-activated
200: Wait for run-up
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	TM150 operating display / TM150 op_display		
TM150	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for Terminal Module 150 (TM150)

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module de-activated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	TM31 operating display / TM31 op_display		
TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for Terminal Module 31 (TM31).

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module de-activated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002	TM54F operating display / TM54F op_display		
TM54F_MA, TM54F_SL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	250	-

Description: Operating display for Terminal Module 54F (TM54F).

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module de-activated
200: Wait for booting/partial booting
250: Device signals a topology error

r0002 Drive operating display / Drv op_display

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	250	-

Description: Operating display for the drive.

Value:
0: Operation - everything enabled
10: Operation - set "enable setpoint" = "1" (p1142, p1152)
11: Operation - set "enable speed controller" = "1" (p0856)
12: Operation - RFG frozen, set "RFG start" = "1" (p1141)
13: Operation - set "enable RFG" = "1" (p1140)
14: Oper. - MotID, excit. running and/or brake opens, SS2, STOP C
15: Operation - open brake (p1215)
16: Operation - withdraw braking with OFF1 using "ON/OFF1" = "1"
17: Operation - braking with OFF3 can only be interrupted with OFF2
18: Operation - brake on fault, remove fault, acknowledge
19: Operation - armature short-circ./DC brake act. (p1230, p1231)
21: Ready for operation - set "Operation enable" = "1" (p0852)
22: Ready for operation - de-magnetizing running (p0347)
23: Ready for operation - set "Infeed operation" = "1" (p0864)
31: Ready for switching on - set "ON/OFF1" = "0/1" (p0840)
35: Switching on inhibited - carry out first commissioning (p0010)
41: Switching on inhibited - set "ON/OFF1" = "0" (p0840)
42: Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845)
43: Switching on inhibited - set "OC/OFF3" = "1" (p0848, p0849)
44: Switching on inhibited - connect 24 V to terminal EP (hardware)
45: Switching on inhibited - rectify fault, acknowledge fault, STO
46: Switching on inhibited - exit comm mode (p0009, p0010)
60: Drive object de-activated/not operational
70: Initialization
200: Wait for booting/partial booting
250: Device signals a topology error

Dependency: Refer to: r0046

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

Note: OC: Operating condition

EP: Enable Pulses (pulse enable)

RFG: Ramp-function generator

COMM: Commissioning

MotID: Motor data identification

SS2: Safe Stop 2

STO: Safe Torque Off

p0003 BOP access level / BOP acc_level

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	4	1

Description: Sets the access level for reading and writing parameters via the Basic Operator Panel (BOP).

Value:
1: Standard
2: Extended
3: Expert
4: Service

Note: A higher set access level also includes the lower one.

Access level 1 (standard):

Parameters for simplest possible operations.

Access level 2 (extended):

Parameters to operate the basic functions of the drive unit.

Access level 3 (experts):

Expert know-how is required for these parameters (e.g. BICO parameterization).

Access level 4 (service):

For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

p0004 BOP display filter / BOP disp_filter

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	0

Description: Sets the display filter for parameters with the Basic Operator Panel (BOP).

Value:

0: All parameters
1: Displays, signals
2: Power unit
3: Motor
4: Encoder/pos enc
5: Technology/units
7: Digital inputs/outputs, commands, sequence control
8: Analog inputs/outputs
10: Setpoint channel/ramp-fct generator
12: Functions
13: U/f control
14: Control
15: Data sets
17: Basic positioner
18: Gating unit
19: Motor identification
20: Communication
21: Faults, alarms, monitoring functions
25: Cl-loop pos ctrl
28: Free function blocks
47: Trace and function generator
50: OA parameters
90: Topology
95: Safety Integrated
98: Command Data Sets (CDS)
99: Drive Data Sets (DDS)

Dependency: Refer to: p0003

Notice: The display filter via p0004 provides precise filtering and displays the corresponding parameters only when p0009 and p0010 = 0.

Note: The set access level via p0003 is also relevant for the display filter via p0004.

Examples (assumption: p0009 = p0010 = 0):

p0003 = 1, p0004 = 3

--> Only the parameters for the motor with access level 1 are displayed.

p0003 = 2, p0004 = 3

--> Only the parameters for the motor with access levels 1 and 2 are displayed.

p0005[0...1] BOP operating display selection / BOP op_disp sel

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP).

Examples for the SERVO drive object:

p0005[0] = 21, p0005[1] = 0: Actual speed smoothed (r0021)

p0005[0] = 25, p0005[1] = 0: Output voltage smoothed (r0025)

Index: [0] = Parameter number
[1] = Parameter index

Dependency: Refer to: p0006

Note: Procedure:

1.

The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.

If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.

2.

The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0006 BOP operating display mode / BOP op_ disp mode

B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4	4

Description: Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".

Value:
0: Operation --> r0021, otherwise r0020 <--> r0021
1: Operation --> r0021, otherwise r0020
2: Operation --> p0005, otherwise p0005 <--> r0020
3: Operation --> r0002, otherwise r0002 <--> r0020
4: p0005

Dependency: Refer to: p0005

Note: Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.

Mode 4 is available for all drive objects.

p0006 BOP operating display mode / BOP op_ disp mode

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	4	4	4

Description: Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".

Value: 4: p0005

Dependency: Refer to: p0005

Note: Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.
Mode 4 is available for all drive objects.

p0007 BOP background lighting / BOP lighting

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [s]	2000 [s]	0 [s]

Description: Sets the delay time until the background lighting of the Basic Operator Panel (BOP) is switched off.
If no keys are actuated, then the background lighting automatically switches itself off after this time has expired.

Note: p0007 = 0: Background lighting is always switched on (factory setting).

p0008 BOP drive object after booting / BOP DO after boot

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	65535	1

Description: Sets the required drive object that is active at the Basic Operator Panel (BOP) after booting.

Note: The value from p0008 initializes the display on the Basic Operator Panel (BOP) at the top left after booting.
The drive object Control Unit is selected using the value 1.

p0009 Device commissioning parameter filter / Dev comm par_filt

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	10000	1

Description: Sets the device and basic drive commissioning.
By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.

Value:
0: Ready
1: Device configuration
2: Defining the drive type/function module
3: Drive base configuration
4: Data set base configuration
29: Device download
30: Parameter reset
50: OA application configuration
55: OA application installation
101: Topology input
111: Insert drive object
112: Delete drive object
113: Change drive object number
114: Change component number
115: Parameter download
117: Delete component
10000: Ready (asynchron)

Notice: For p0009 = 10000 the following applies:
After the value has been modified, no further parameter modifications can be made and the status is shown in r3996.
Modifications can be made again when r3996 = 0.

Note: The drives can only be powered up outside the device commissioning (the inverter enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010).

p0009 = 1: Device configuration

At the first commissioning of the device, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110).

p0009 = 2: Defines the drive type / function module

In this state, the drive object types and/or the function modules can be changed or selected for the individual drive objects. To do this, the drive object type can be set using p0107[0...15] and the function can be set using p0108[0...15] (refer to p0101[0...15]).

p0009 = 3: Drive basic configuration

In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling times in p0111, p0112, p0115 and the number of data sets in p0120, p0130, p0140, p0170, p0180).

p0009 = 4: Data set basic configuration

In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power unit, motor and encoder to the drive data sets (p0185, ...).

p0009 = 29: Device download

If a download is made using the commissioning software, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.

p0009 = 30: Parameter reset

In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0009 must be set to this value. p0976 can then be changed to the required value.

p0009 = 50: OA application configuration

In this state, after the device has been commissioned for the first time, changes can be made for the individual drive objects regarding the activity (p4956) of the OA applications.

p0009 = 55: OA application installation

OA applications can be installed and/or uninstalled in this state.

p0009 = 101: Topology input

In this state, the DRIVE-CLiQ target topology can be entered using p9902 and p9903.

p0009 = 111: Insert drive object

This state allows a new drive object to be inserted using p9911.

p0009 = 112: Delete drive object

This state allows existing drive objects to be deleted using p9912 after the device has been commissioned for the first time.

p0009 = 113: Change drive object number

This state allows the drive object number of existing drive objects to be changed using p9913 after the device has been commissioned for the first time.

p0009 = 114: Change component number

This state allows the component number of existing components to be changed using p9914 after the device has been commissioned for the first time.

p0009 = 115: Parameter download

This state allows the complete device and drive commissioning using the parameter services.

p0009 = 117: Delete component

This state allows components to be deleted using p9917 after the device has been commissioned for the first time.

p0010 Infeed commissioning parameter filter / INF comm par_filt

B_INF

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	30	1

Description: Sets the parameter filter to commission an infeed unit.

Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

Value:
0: Ready
1: Quick commissioning
2: Power unit commissioning
5: Technological application/units
29: Only Siemens int
30: Parameter reset

Note: The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0.

Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 Encoder DO commissioning parameter filter / EncDO com par_filt

ENC

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	30	0

Description: Sets the parameter filter to commission an encoder drive object.

Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
4: Encoder commissioning
5: Technological application/units
29: Only Siemens int
30: Parameter reset

Note: Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TB30 commissioning parameter filter / TB30 comm.par_filt

TB30

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	30	0

Description: Sets the parameter filter for commissioning a Terminal Board 30 (TB30).

Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010	TM150 commissioning parameter filter / TM150 com par_filt		
TM150	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	30	0

Description: Sets the parameter filter for commissioning a Terminal Module 150 (TM150).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010	TM31 commissioning parameter filter / TM31 comm par_filt		
TM31	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	30	0

Description: Sets the parameter filter for commissioning a Terminal Module 31 (TM31).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010	TM54F commissioning parameter filter / TM54F com par_filt		
TM54F_MA	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2847
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	95	0

Description: Sets the parameter filter for commissioning a Terminal Module 54F (TM54F).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens int
30: Parameter reset
95: Safety Integrated commissioning

Dependency: Refer to: p0970

Note: Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010	**Drive commissioning parameter filter / Drv comm. par_filt**		
VECTOR_G	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2800, 2818
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10000	1

Description: Sets the parameter filter to commission a drive.

Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

Value:
0: Ready
1: Quick commissioning
2: Power unit commissioning
3: Motor commissioning
4: Encoder commissioning
5: Technological application/units
15: Data sets
17: Basic positioner commissioning
25: Position control commissioning
29: Only Siemens int
30: Parameter reset
95: Safety Integrated commissioning
10000: Ready with immediate feedback signal

Notice: For p0010 = 10000 the following applies:

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0.

Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 = 10000 corresponds to p0010 = 0. Unlike with p0010 = 0, the parameter modification is applied immediately and the calculations are made in the background. Further parameter modifications cannot be made while the calculations are being performed.

p0011	**BOP password entry (p0013) / BOP passw ent p13**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the password for the Basic Operator Panel (BOP).

Dependency: Refer to: p0012, p0013

p0012	**BOP password acknowledgement (p0013) / BOP passw ackn p13**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Acknowledges the password for the Basic Operator Panel (BOP).

Dependency: Refer to: p0011, p0013

p0013[0...49]	**BOP user-defined list / BOP list**		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the required parameters to read and write via the Basic Operator Panel (BOP).

Activation:

1. p0003 = 3 (expert).
2. p0013[0...49] = requested parameter number
3. If required, enter p0011 = password in order to prevent non-authorized de-activation.
4. p0016 = 1 --> activates the selected user-defined list.

De-activation/change:

1. p0003 = 3 (expert).
2. If required, p0012 = p0011, in order to be authorized to change or de-activate the list.
3. If required p0013[0...49] = required parameter number.
4. p0016 = 1 --> activates the modified user-defined list.
5. p0003 = 0 --> de-activates the user-defined list.

Dependency: Refer to: p0009, p0011, p0012, p0976

Note: The following parameters can be read and written on the Control Unit drive object:

- p0003 (access stage)
- p0009 (device commissioning, parameter filter)
- p0012 (BOP password acknowledgement (p0013))

The following applies for the user-defined list:

- password protection is only available on the drive object Control Unit and is valid for all of the drive objects.
- p0013 cannot be included in the user-defined list for all drive objects.
- p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list.
- the user-defined list can be cleared and de-activated "restore factory setting".

A value of 0 means: Entry is empty.

p0015	**Macro drive object / Macro DO**		
B_INF, TM150, TM31, VECTOR_G	**Can be changed:** C2(1)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	999999	0

Description: Runs the corresponding macro files.

The selected macro file must be available on the memory card/device memory.

Example:

p0015 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

When executing a specific macro, the corresponding programmed settings are made and become active.

No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

p0015 Macro drive unit / Macro drv unit

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999999	1

Description: Runs the corresponding macro files.

The selected macro file must be available on the memory card/device memory.

Example:

p0015 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

p0016 Activate BOP user-defined list / BOP user list act

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting for activating/de-activating the user-defined list for the Basic Operator Panel (BOP).

If p0016 = 1, then it is only possible to access parameters in the parameter list (p0013).

Value:
0: BOP user-defined list de-activated
1: BOP user-defined list activated

Dependency: Refer to: p0011, p0012, p0013

Note: The user-defined list can only be de-activated with p0011 = p0012

r0018 Control Unit firmware version / CU FW version

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	-

Description: Displays the firmware version of the Control Unit.

Dependency: Refer to: r0128, r0148, r0158, r0197, r0198

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0019.0...14 CO/BO: Control word BOP / STW BOP

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9912
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the control word for the Basic Operator Panel (BOP).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON / OFF (OFF1)	ON	OFF (OFF1)	-
01	No coast-down / coast-down (OFF2)	No coast down	Coast down (OFF2)	-
02	No Quick Stop / Quick Stop (OFF3)	No Quick Stop	Quick Stop (OFF3)	-
07	Acknowledge fault (0 -> 1)	Yes	No	-
13	Motorized potentiometer raise	Yes	No	-
14	Motorized potentiometer lower	Yes	No	-

r0020 Speed setpoint smoothed / n_set smth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5020, 6799
P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the currently smoothed speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).

Dependency: Refer to: r0060

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0021 CO: Actual speed smoothed / n_act smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6799
P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the smoothed actual value of the motor speed.

For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0021.

Dependency: Refer to: r0022, r0063

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The speed actual value is available smoothed (r0021, r0022) and unsmoothed (r0063).

For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated.

r0022 Speed actual value rpm smoothed / n_act rpm smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6799
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the smoothed actual value of the motor speed.

r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.

For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0022.

Dependency: Refer to: r0021, r0063

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The speed actual value is available smoothed (r0021, r0022) and unsmoothed (r0063).

For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated.

r0024 Output frequency smoothed / f_outp smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5300, 5730, 6300, 6799
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the smoothed converter frequency.

Dependency: Refer to: r0066

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The output frequency is available smoothed (r0024) and unsmoothed (r0066).

r0025 CO: Output voltage smoothed / U_outp smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6300, 6799
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the smoothed output voltage of the power unit.

Dependency: Refer to: r0072

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The output voltage is available smoothed (r0025) and unsmoothed (r0072).

r0026	**CO: DC link voltage smoothed / Vdc smooth**		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799, 8750, 8850, 8950
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the smoothed actual value of the DC link voltage.

Dependency: Refer to: r0070

Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

Note: A_INF, B_INF, S_INF: smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0026	**CO: DC link voltage smoothed / Vdc smooth**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6799, 8750, 8850, 8950
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the smoothed actual value of the DC link voltage.

Dependency: Refer to: r0070

Notice: For SINAMICS S120 AC Drive (AC/AC) the following applies:

When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24 V power supply is connected, a value of approx. 24 V is displayed in the display parameter.

Note: SERVO, VECTOR: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0027	**CO: Absolute actual current smoothed / I_act abs val smth**		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8750
	P-Group: Displays, signals	**Units group:** 6_4	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the smoothed absolute actual current value.

Dependency: Refer to: r0068

Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note: Smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

r0027 CO: Absolute actual current smoothed / I_act abs val smth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799, 8850, 8950
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed absolute actual current value.

Dependency: Refer to: r0068

Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

Note: A_INF, S_INF, VECTOR: Smoothing time constant = 300 ms

SERVO: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

r0028 Modulation depth smoothed / Mod_depth smth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799, 8950
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the smoothed actual value of the modulation depth.

Dependency: Refer to: r0074

Note: A_INF: Smoothing time constant = 300 ms

SERVO, VECTOR: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

r0029 Current actual value field-generating smoothed / Id_act smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed field-generating actual current.

Dependency: Refer to: r0076

Note: SERVO: Smoothing time constant = 100 ms

VECTOR: Smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

r0030	Current actual value torque-generating smoothed / Iq_act smooth		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed torque-generating actual current.

Dependency: Refer to: r0078

Note: SERVO: Smoothing time constant = 100 ms

VECTOR: Smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The following applies for SERVO:

The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).

The following applies for VECTOR:

The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

r0031	Actual torque smoothed / M_act smooth		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799
	P-Group: Displays, signals	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the smoothed torque actual value.

Dependency: Refer to: r0080

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The torque actual value is available smoothed (r0031) and unsmoothed (r0080).

r0032	CO: Active power actual value smoothed / P_actv_act smth		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799, 8750, 8850, 8950
	P-Group: Displays, signals	**Units group:** 14_10	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [kW]	- [kW]	- [kW]

Description: Displays the smoothed actual value of the active power.

Dependency: Refer to: r0082

Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note: Significance for the drive: Power output at the motor shaft

Significance for the infeed: Line power drawn

For A_INF, B_INF and S_INF the following applies:

The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).

The following applies for SERVO:

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

For VECTOR and VECTORMV, the following applies:

The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0032 CO: Active power actual value smoothed / P_actv_act smth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6799, 8750, 8850, 8950
P-Group: Displays, signals	**Units group:** 14_10	**Unit selection:** p0505
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the smoothed actual value of the active power.

Dependency: Refer to: r0082

Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

Note: Significance for the drive: Power output at the motor shaft

Significance for the infeed: Line power drawn

For A_INF, B_INF and S_INF the following applies:

The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).

The following applies for SERVO:

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

For VECTOR and VECTORMV, the following applies:

The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0033 Torque utilization smoothed / M_util smooth

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8012
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the smoothed torque utilization as a percentage.

The torque utilization is obtained from the required smoothed torque in reference to the torque limit, scaled using p2196.

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

For M_set total (r0079) > 0, the following applies:

- Required torque = M_set total

- Actual torque limit = M_max upper effective (r1538)

For M_set total (r0079) <= 0, the following applies:

- Required torque = - M_set total

- Actual torque limit = - M_max lower effective (r1539)

For the actual torque limit = 0, the following applies: r0033 = 100 %

For the actual torque limit < 0, the following applies: r0033 = 0 %

r0034 CO: Motor utilization thermal / Mot_util therm

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8017
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the motor utilization from motor temperature model 1 (I2t) or 3.

Dependency: The thermal motor utilization is only determined for permanent-magnet synchronous motors when the motor temperature model 1 (I2t) or 3 is activated.

For motor temperature model 1 (I2t) (p0612.0 = 1), the following applies:

- r0034 = (motor model temperature - 40 K) / (p0605 - 40 K) * 100 %

For motor temperature model 3 (p0612.2 = 1), the following applies:

- r0034 = (motor model temperature - p5397) / (p5398 - p5397) * 100 %

Refer to: p0611, p0612, p0615

Notice: After the drive is switched on, the system starts to determine the motor temperature with an assumed model value. This means that the value for the motor utilization is only valid after a stabilization time.

Note: Smoothing time constant = 100 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

For r0034 = -200.0 %, the following applies:

The value is invalid (e.g. the motor temperature model is not activated or has been incorrectly parameterized).

r0035 CO: Temperature input / Temp_input

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8750
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the temperature currently measured at X21 (booksize) or X41 (chassis).

For a BLM with internal Braking Module, a bimetallic sensor must be connected up to monitor the temperature of the braking resistor. The temperature sensor type is indicated using p0601 and cannot be changed for the existing internal Braking Module.

Temperature within permissible limit values: r0035 = -50°C

Temperature outside the permissible limit values: r0035 = 250°C

Notice: The function in r0192.11 must be available in order to obtain a correct display.

Note: For r0035 equal to -200.0 °C, the following applies:

- "no sensor" selected in p0601!

For r0035 equal to -300.0 °C, the following applies:

- a KTY84 is selected in p0601 but is not connected!
- the temperature display is not valid (temperature sensor error)!

r0035 CO: Motor temperature / Mot temp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8016, 8017
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Display and connector output for the actual temperature in the motor.

Note: For r0035 not equal to -200.0 °C, the following applies:

- this temperature display is valid.
- a KTY sensor is connected.
- the thermal model for the induction motor is activated (p0612 bit 1 = 1 and temperature sensor de-activated: p0600 = 0 or p0601 = 0).

For r0035 equal to -200.0 °C, the following applies:

- this temperature display is not valid (temperature sensor error).
- A PTC sensor or bimetallic NC contact is connected.
- the temperature sensor of the synchronous motor is de-activated (p0600 = 0 or p0601 = 0).

r0036	CO: Power unit overload I2t / PU overload I2t		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the power unit overload determined using the I2t calculation.

A current reference value is defined for the I2t monitoring of the power unit. It represents the current that can be conducted by the power unit without any influence of the switching losses (e.g. the continuously permissible current of the capacitors, inductances, busbars, etc.).

If the I2t reference current of the power unit is not exceeded, then an overload (0 %) is not displayed.

In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.

Dependency: Refer to: p0290, p0294

r0037[0...19]	CO: Power unit temperatures / PU temperatures		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Display and connector output for the temperature in the power unit.

Index:
[0] = Inverter maximum value
[1] = Depletion layer maximum value
[2] = Rectifier maximum value
[3] = Air intake
[4] = Interior of power unit
[5] = Inverter 1
[6] = Inverter 2
[7] = Inverter 3
[8] = Inverter 4
[9] = Inverter 5
[10] = Inverter 6
[11] = Rectifier 1
[12] = Rectifier 2
[13] = Depletion layer 1
[14] = Depletion layer 2
[15] = Depletion layer 3
[16] = Depletion layer 4
[17] = Depletion layer 5
[18] = Depletion layer 6
[19] = Cooling unit liquid intake

Notice: Only for internal Siemens troubleshooting.

Note: The value of -200 indicates that there is no measuring signal.

r0037[0]: Maximum value of the inverter temperatures (r0037[5...10]).

r0037[1]: Maximum value of the depletion layer temperatures (r0037[13...18]).

r0037[2]: Maximum value of the rectifier temperatures (r0037[11...12]).

The maximum value is the temperature of the hottest inverter, depletion layer, or rectifier.

In the case of a fault, the particular shutdown threshold depends on the power unit, and cannot be read out.

r0037[0...1]	**Control Unit temperature / CU temp**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the measured Control Unit temperature.

An appropriate message is output when the permitted operating temperature is exceeded.

Index: [0] = Actual measured value
[1] = Maximum measured value

Notice: Only for internal Siemens troubleshooting.

Note: The value of -200 indicates that there is no measuring signal.

r0038	**Power factor smoothed / Cos phi smooth**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6799, 8850, 8950
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the smoothed actual power factor.

Notice: For infeed units, the following applies:

For active powers < 25 % of the rated power, this does not provide any useful information.

Note: Smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.

Meaning for motor:

- power factor of the basic fundamental signals at the converter output.

Meaning for infeed:

- Power factor at the connection point (r3470, r3471)

r0039[0...2]	**Energy display / Energy displ**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [kWh]	- [kWh]	- [kWh]

Description: Displays the energy values at the output terminals of the power unit.

Index: [0] = Energy balance (sum)
[1] = Energy drawn
[2] = Energy fed back

Dependency: Refer to: p0040

Note: Re index 0:

Sum of the energy drawn and energy that is fed back.

p0040 Reset energy consumption display / Energy usage reset

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Setting to reset the display in r0039 and r0041.

Procedure:

Set p0040 = 0 --> 1

The displays are reset and the parameter is automatically set to zero.

Dependency: Refer to: r0039

r0041 Energy consumption saved / Energy cons saved

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [kWh]	- [kWh]	- [kWh]

Description: Displays the saved energy referred to 100 operating hours.

Dependency: Refer to: p0040

Note: This display is used for a fluid-flow machine.

The flow characteristic is entered into p3320 ... p3329.

For an operating time of below 100 hours, the display is interpolated up to 100 hours.

p0045 Display values smoothing time constant / Disp_val T_smooth

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4715, 5610, 5730, 6714, 8012
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	10000.00 [ms]	1.00 [ms]

Description: Sets the smoothing time constant for the following display values:

SERVO: r0078[1], r0079[1], r0081 (calculated from the quantities smoothed with p0045), r0082[1].

VECTOR: r0063[1], r0068[1], r0080[1], r0082[1].

r0046.0...29 CO/BO: Missing enable sig / Missing enable sig

B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8734
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and BICO output for missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-

26	Infeed inactive or not operational	Yes	No	-
29	Cooling unit ready signal missing	Yes	No	-

Dependency: Refer to: r0002

Note: The value r0046 = 0 indicates that all enable signals for the infeed are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.

- there is a "switching on inhibited".

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- the commissioning mode is selected (p0009 > 0 or p0010 > 0) or there is an OFF2 fault response or the OFF1 signal source (p0840) is changed.

Bit 26 = 1 (enable signal missing), if:

- the infeed is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 29 = 1 (enable signal missing), if:

- the cooling unit ready signal via binector input p0266[1] missing.

r0046.0...31 CO/BO: Missing enable sig / Missing enable sig

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2634
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for missing enable signals that are preventing the closed-loop drive control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	7954
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Operation enable missing	Yes	No	-
04	Armature short-circuit / DC braking enable missing	Yes	No	-
05	STOP2 enable missing	Yes	No	-
08	Safety enable missing	Yes	No	-
09	Infeed enable missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
15	QuickStop enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
20	Armature short-circuit/DC braking internal enable missing	Yes	No	-
21	STOP2 enable internal missing	Yes	No	-
25	Function bypass active	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	De-magnetizing not completed	Yes	No	-
28	Brake open missing	Yes	No	-
29	Cooling unit ready signal missing	Yes	No	-
30	Speed controller inhibited	Yes	No	-
31	Jog setpoint active	Yes	No	-

Dependency: Refer to: r0002

Note: The value r0046 = 0 indicates that all enable signals for this drive are present.

Bit 00 = 1 (enable signal missing), if:
- the signal source in p0840 is a 0 signal.
- there is a "switching on inhibited".

Bit 01 = 1 (enable signal missing), if:
- the signal source in p0844 or p0845 is a 0 signal.

Bit 02 = 1 (enable signal missing), if:
- the signal source in p0848 or p0849 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:
- the signal source in p0852 is a 0 signal.

Bit 04 =1 (armature short-circuit active), if:
- the signal source in p1230 has a 1 signal

Bit 05, Bit 06: Being prepared

Bit 08 = 1 (enable signal missing), if:
- safety functions have been enabled and STO is active.

STO selected via terminals:
- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41), or the signal source in p9620 is for a 0 signal.

STO selected via PROFIsafe or TM54F:
- A safety-relevant signal is present with a STOP A response.

Bit 09 = 1 (enable signal missing), if:
- the signal source in p0864 is a 0 signal.

Bit 10 = 1 (enable signal missing), if:
- the signal source in p1140 is a 0 signal.

Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:
- the signal source in p1141 is a 0 signal.
- the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.

Bit 12 = 1 (enable signal missing), if:
- the signal source in p1142 is a 0 signal.
- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to a 0 signal.

Bit 16 = 1 (enable signal missing), if:
- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:
- commissioning mode is selected (p0009 > 0 or p0010 > 0).
- there is an OFF2 fault response.
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:
- OFF3 has still not been completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:
- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 =1 (internal armature short-circuit active), if:
- the drive is not in the state "S4: Operation" or "S5x" (refer to function diagram 2610).
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the speed setpoint has still not been enabled, because:
- the holding brake opening time (p1216) has still not expired.
- the motor has still not been magnetized (induction motor).
- the encoder has not been calibrated (U/f vector and synchronous motor)

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).
- the function "parking axis" is selected (BI: p0897 = 1 signal)..
- all power units of a parallel connection are deactivated (p0125, p0895).

Bit 27 = 1 (enable signal missing), if:
- de-magnetizing has still not been completed (only for vector).
Bit 28 = 1 (enable signal missing), if:
- the holding brake is closed or has still not been opened.
Bit 29 = 1 (enable signal missing), if:
- the cooling unit ready signal via binector input p0266[1] missing.
Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
- A 0 signal is available via binector input p0856.
- the function generator with current input is active.
- the measuring function "current controller reference frequency characteristic" is active.
- the pole position identification is active.
- motor data identification is active (only certain steps).
Bit 31 = 1 (enable signal missing), if:
- the speed setpoint from jog 1 or 2 is entered.

r0047 Motor data identification and speed controller optimization / MotID and n_opt

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	300	-

Description: Displays the actual status for the motor data identification (stationary measurement) and the speed/velocity controller optimization (rotating measurement).

Value:
0: No measurement
115: Measurement q leakage inductance (part 2)
120: Speed controller optimization (vibration test)
140: Calculate speed controller setting
150: Measurement moment of inertia
170: Measurement magnetizing current and saturation characteristic
190: Speed encoder test
195: Measurement q leakage inductance (part 1)
200: Rotating measurement selected
210: Pole position identification selected
220: identification leakage inductance
230: Identification rotor time constant
240: Identification stator inductance
250: Identification stator inductance LQLD
270: Identification stator resistance
290: Identification valve lockout time
300: Stationary measurement selected

Note: Re r0047 = 300:
This value is also displayed if encoder calibration p1990 is selected.

r0049[0...3] Motor data set/encoder data set effective / MDS/EDS effective

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective Motor Data Set (MDS) and the effective Encoder Data Sets (EDS).

Index:
[0] = Motor Data Set MDS effective
[1] = Encoder 1 Encoder Data Set EDS effective
[2] = Encoder 2 Encoder Data Set EDS effective
[3] = Encoder 3 Encoder Data Set EDS effective

Dependency: Refer to: p0186, p0187, p0188, p0189, r0838

Note: Value 99 means the following: No encoder assigned (not configured).

r0050.0...3 CO/BO: Command Data Set CDS effective / CDS effective

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8560
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective Command Data Set (CDS).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	CDS eff bit 0	ON	OFF	-
01	CDS eff bit 1	ON	OFF	-
02	CDS eff bit 2	ON	OFF	-
03	CDS eff bit 3	ON	OFF	-

Dependency: Refer to: p0810, p0811, r0836

Note: The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.

r0051.0...4 CO/BO: Drive Data Set DDS effective / DDS effective

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective Drive Data Set (DDS).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DDS eff bit 0	ON	OFF	-
01	DDS eff bit 1	ON	OFF	-
02	DDS eff bit 2	ON	OFF	-
03	DDS eff bit 3	ON	OFF	-
04	DDS eff bit 4	ON	OFF	-

Dependency: Refer to: p0820, p0821, p0822, p0823, p0824, r0837

Note: The drive data set changeover is suppressed when selecting the motor identification, during the rotating measurement, the encoder calibration and the friction characteristic record.

r0056.0...15 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2526
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the closed-loop control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Initialization completed	Yes	No	-
01	De-magnetizing completed	Yes	No	-
02	Pulse enable available	Yes	No	-
03	Soft starting present	Yes	No	-
04	Magnetizing completed	Yes	No	-
05	Voltage boost when starting	Active	Inactive	6301
06	Acceleration voltage	Active	Inactive	6301
07	Frequency negative	Yes	No	6719
08	Field weakening active	Yes	No	-
09	Voltage limit active	Yes	No	6714
10	Slip limit active	Yes	No	6310

11	Frequency limit active	Yes	No	6719
12	Current limiting controller voltage output active	Yes	No	-
13	Current/torque limiting	Active	Inactive	6060
14	Vdc_max controller active	Yes	No	6220, 6320
15	Vdc_min controller active	Yes	No	6220, 6320

r0060 CO: Speed setpoint before the setpoint filter / n_set before filt.

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2701, 2704, 5020, 6030, 6799
P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).

Dependency: Refer to: r0020

Note: The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0061 CO: Actual speed unsmoothed / n_act unsmoothed

ENC

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4700, 4710, 4715
P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the unsmoothed actual speed values sensed by the encoders.

Note: The speed actual value within a PROFIBUS cycle (r2064[1]) is averaged and displayed.

r0061 CO: Actual velocity unsmoothed / v_act unsmoothed

ENC (Lin_enc)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4700, 4710, 4715
P-Group: Displays, signals	**Units group:** 4_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [m/min]	- [m/min]	- [m/min]

Description: Displays the unsmoothed actual velocity values sensed by the encoders.

Note: The velocity actual value within a PROFIBUS cycle (r2064[1]) is averaged and displayed.

r0061[0...2] CO: Actual speed unsmoothed / n_act unsmoothed

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4700, 4710, 4715
P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual speed values sensed by the encoders.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: With a parameterized filter time constant p1441, the speed signal from encoder 1 is displayed corrected by the following error.

The speeds from encoder 2 and 3 are only displayed in U/f operating modes if the function module (speed/torque control) (r0108.2) has been activated.

r0062 CO: Speed setpoint after the filter / n_set after filter

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6020, 6030, 6031
	P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the speed setpoint after the setpoint filters.

r0063[0...2] CO: Speed actual value / n_act

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4702, 4715, 6799
	P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual speed of the closed-loop speed control and the U/f control.

For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0063[0].

Index:
[0] = Unsmoothed
[1] = Smoothed with p0045
[2] = Calculated from f_set - f_slip

Dependency: Refer to: r0021, r0022

Note: The speed actual value is calculated in encoderless operation and for U/f control.

For operation with encoder, r0063[0] is smoothed with p1441.

The speed actual value (r0063[0]) is additionally displayed - smoothed with p0045 - in r0063[1].

The speed (r0063[2]) calculated from the output frequency and slip can only be compared with the speed actual value (r0063[0]) in the steady-state.

The actual speed (r0063[0]) is available as a display quantity with additional smoothing in r0021.

r0064 CO: Speed controller system deviation / n_ctrl system dev

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5040, 6040
	P-Group: Displays, signals	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual system deviation of the speed controller.

Note: In servo control mode with active reference model, the system deviation to the P component of the speed controller is displayed.

r0065	Slip frequency / f_Slip		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6310, 6700, 6727, 6730, 6732
	P-Group: Displays, signals	**Units group:** 2_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the slip frequency for induction motors (ASM).

r0066	CO: Output frequency / f_outp		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5300, 5730, 6300, 6310, 6730, 6731, 6799
	P-Group: Displays, signals	**Units group:** 2_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Display and connector output for the output frequency of the Motor Module.

Dependency: Refer to: r0024

Note: The output frequency is available smoothed (r0024) and unsmoothed (r0066).

r0067	CO: Output current maximum / I_outp max		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5722, 6300, 6301, 6640
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the maximum output current of the power unit.

Dependency: The maximum output current is determined by the parameterized current limit and the motor and converter thermal protection.

Refer to: p0290, p0640

r0068	CO: DC current in the DC link / Idc DC link		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014, 8750
	P-Group: Displays, signals	**Units group:** 6_4	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the DC current in the DC link.

Dependency: Refer to: r0027

Notice: For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note: The DC current in the DC link is available smoothed (r0027) and unsmoothed (r0068).

r0068[0...1] CO: Absolute current actual value / I_act abs val

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6300, 6714, 6799, 7017, 8014, 8017, 8018
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays actual absolute current.

Index:
[0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: Refer to: r0027

Notice: The value is updated with the current controller sampling time.

Note: Absolute current value = sqrt(Iq^2 + Id^2)

The absolute value of the current actual value is available smoothed (r0027 with 300 ms, r0068[1] with p0045) and unsmoothed (r0068[0]).

r0069[0...6] CO: Phase current actual value / I_phase act value

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6730, 6731, 6732, 7983, 7987, 8850, 8950
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Display and connector output for the measured actual phase currents as peak value.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W
[3] = Phase U offset
[4] = Phase V offset
[5] = Phase W offset
[6] = Total U, V, W

Note: In indices 3 ... 5, the offset currents of the 3 phases, which are added to correct the phase currents, are displayed.

The sum of the 3 corrected phase currents is displayed in index 6.

r0070 CO: Actual DC link voltage / Vdc act val

B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8750, 8850, 8910, 8940, 8950, 8964
	P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Display and connector output for the measured actual value of the DC link voltage.

Dependency: Refer to: r0026

Note: The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0070 CO: Actual DC link voltage / Vdc act val

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6723, 6724, 6730, 6731, 6799
P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Display and connector output for the measured actual value of the DC link voltage.

Dependency: Refer to: r0026

Notice: For SINAMICS S120 AC Drive (AC/AC) the following applies:

When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed.

Note: The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0071 Maximum output voltage / U_output max

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6301, 6640, 6700, 6722, 6723, 6724, 6725, 6727
P-Group: Displays, signals	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the maximum output voltage.

Dependency: The maximum output voltage depends on the actual DC link voltage (r0070) and the maximum modulation depth (p1803).

Note: As the (driven) motor load increases, the maximum output voltage drops as a result of the reduction in DC link voltage.

r0072 CO: Output voltage / U_output

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5700, 5730, 6730, 6731, 6799
P-Group: Displays, signals	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Display and connector output for the actual output voltage of the power unit (Motor Module).

Dependency: Refer to: r0025

Note: The output voltage is available smoothed (r0025) and unsmoothed (r0072).

r0073 Maximum modulation depth / Modulat_depth max

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6723, 6724, 6725
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the maximum modulation depth.

Dependency: Refer to: p1803

r0074	CO: Modulat_depth / Modulat_depth		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5730, 6730, 6731, 6799, 8940, 8950
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the actual modulation depth.

Dependency: Refer to: r0028

Note: For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol.
Values above 100 % indicate an overcontrol condition - values below 100% have no overcontrol.
The phase voltage (phase-to-phase, rms) is calculated as follows:(r0074 x r0070) / (sqrt(2) x 100 %).
The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

r0075	CO: Current setpoint field-generating / Id_set		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6700, 6714, 6725
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the field-generating current setpoint (Id_set).

Note: This value is irrelevant for the U/f control mode.

r0076	CO: Current actual value field-generating / Id_act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5700, 5714, 5730, 6700, 6714, 6799
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the field-generating current actual voltage (Id_act).

Dependency: Refer to: r0029

Note: This value is irrelevant for the U/f control mode.
The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

r0077	CO: Current setpoint torque-generating / Iq_set		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6700, 6710
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the torque/force-generating current setpoint.

Note: This value is irrelevant for the U/f control mode.

r0078 CO: Current actual value torque-generating / Iq_act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6310, 6700, 6714, 6799
P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the torque-generating current actual voltage (Iq_act).

Dependency: Refer to: r0030

Note: This value is irrelevant for the U/f control mode.

The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

r0079 CO: Torque setpoint / M_set

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6020, 6060, 6710
P-Group: Displays, signals	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the torque setpoint at the output of the speed controller.

r0080[0...1] CO: Torque actual value / M_act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714, 6799
P-Group: Displays, signals	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for actual torque value.

Index: [0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: Refer to: r0031, p0045

Note: The value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).

r0081 CO: Torque utilization / M_Utilization

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8012
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the torque utilization as a percentage.

The torque utilization is obtained from the required smoothed torque referred to the torque limit.

Dependency: Refer to: r0033

Note: The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

The torque utilization is obtained from the required torque referred to the torque limit as follows:

- Positive torque: r0081 = (r0079 / r1538) * 100 %
- Negative torque: r0081 = (-r0079 / -r1539) * 100 %

r0082 — CO: Active power actual value / P_act

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8750, 8850, 8950
P-Group: Displays, signals	**Units group:** 14_7	**Unit selection:** p0505
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the instantaneous active power.

Dependency: Refer to: r0032

Notice: For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note: The active power is available smoothed (r0032) and unsmoothed (r0082).

r0082[0...2] — CO: Active power actual value / P_act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714, 6799
P-Group: Displays, signals	**Units group:** 14_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the instantaneous active power.

Index:
[0] = Unsmoothed
[1] = Smoothed with p0045
[2] = Electric power

Dependency: Refer to: r0032

Note: The mechanical active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

r0083 — CO: Flux setpoint / Flex setp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the flux setpoint.

r0084[0...1] — CO: Flux actual value / Flux act val

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6726, 6730, 6732
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the flux actual value.

Index:
[0] = Unsmoothed
[1] = Smoothed

Note: The flux actual value (index 1) smoothed with p1585 is only displayed for separately-excited synchronous motors. In the following cases, the unsmoothed flux actual value is also displayed:

- in the range of the current model.
- during the pole position identification.

- for I/f control.
- for a stalled drive.

r0087 CO: Actual power factor / Cos phi act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714, 6730, 6732, 6799
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual active power factor.

r0088 CO: DC link voltage setpoint / Vdc setpoint

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the setpoint for the DC link voltage.

r0089[0...2] Actual phase voltage / U_phase act val

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6719
P-Group: Displays, signals	**Units group:** 5_3	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the actual phase voltage.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

Note: The values are determined from the transistor power-on duration.

p0092 Clock synchronous operation pre-assignment/check / Cl sync op pre-as

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock-synchronous PROFIdrive operation.

Re p0092 = 1:

The controller clock cycles are set so that clock synchronous PROFIdrive operation is possible. If it is not possible to change the controller clock cycles of the clock-cycle synchronous PROFIdrive operation, then an appropriate message is output.

The pre-setting of the controller clock cycles can result in a derating of the Motor Module (e.g. p0115[0] = 400 µs --> 375 µs).

When calculating the drive unit utilization (r9976), when using the fixed DCC runtime groups "Receive AFTER IF1 PROFIdrive PZD", "Send BEFORE IF1 PROFIdrive PZD", "Receive AFTER IF2 PZD" (from V4.4) and "Send BEFORE IF2 PZD" (from V4.4), then its maximum computing time load has already been calculated during ramp-up for isochronous operation and taken into account in r9976 (from V4.3).

Re p0092 = 0:

The controller clock cycles are set without any restrictions by the clock-cycle PROFIdrive operation (same as for up to V2.3).

When calculating the drive unit utilization (r9976), when using the fixed DCC runtime groups "Receive AFTER IF1 PROFIdrive PZD", "Send BEFORE IF1 PROFIdrive PZD", "Receive AFTER IF2 PZD" (from V4.4) and "Send BEFORE IF2 PZD" (from V4.4), then its maximum computing time load has already been calculated during ramp-up for isochronous operation and taken into account in r9976 (from V4.3).

Value:
0: No isochronous PROFIBUS
1: Isochronous PROFIBUS

Dependency: Refer to: r0110, p0115

Caution:

Only current controller sampling times (p0115[0]) which are integers of 125 µs are permitted for isochronous mode.

For SERVO the following current controller sampling times are also possible:

187.5, 150, 100, 93.75, 75, 62.5, 50, 37.5, 31.25 µs

For VECTOR the following current controller sampling times are also possible:

312.5, 218.75, 200, 187.5, 175, 156.25, 150, 137.5 µs

The additional current controller sampling times must be taken into account when parameterizing the bus for Ti, To and Tdp.

Notice: p0092 only affects the automatic default for the sampling times (p0115) in the drive.

If the sampling times are modified subsequently in expert mode (p0112 = 0), p0092 = 0 should be set so that the new values are not overwritten again by the automatic default when the parameters are downloaded.

The conditions for current controller sampling time for isosynchronous operation must still be carefully ensured (refer under Caution!).

r0094 CO: Transformation angle / Transformat_angle

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 4700, 4702, 4710, 6300, 6714, 6730, 6731, 6732
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2005	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°]	- [°]	- [°]

Description: Displays the transformation angle.

Dependency: Refer to: p0431, r1778

Note: The transformation angle corresponds to the electrical commutation angle.

If no pole position identification is carried out (p1982), and the encoder is adjusted, the following applies:

The encoder supplies the value and indicates the electrical angle of the flux position (d axis).

p0097 Select drive object type / Select DO type

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	24	0

Description: Executes an automatic device configuration.

In so doing, p0099, p0107 and p0108 are appropriately set.

Value:
0: No selection
1: Drive object type SERVO
2: Drive object type VECTOR
3: SINAMICS GM (DFEMV & VECTORMV)
4: SINAMICS SM (AFEMV & VECTORMV)
5: SINAMICS GL (VECTORGL)
6: SINAMICS SL (VECTORSL)
12: Drive object type VECTOR parallel circuit
13: Drive object type VECTORMV - GM parallel circuit
14: Drive object type VECTORMV - SM parallel circuit

15: Drive object type DC_CTRL
16: Drive object type SERVO HMI
17: Drive object type VECTOR HMI
24: Drive object type VECTORMV - SM parallel circuit

Dependency: Refer to: r0098, p0099

Note: For p0097 = 0, p0099 is automatically set to the factory setting.

The possible settings are dependent upon the device type.

r0098[0...5] Actual device topology / Device_act topo

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the automatically detected actual device topology in coded form.

Index:
[0] = DRIVE-CLiQ socket X100
[1] = DRIVE-CLiQ socket X101
[2] = DRIVE-CLiQ socket X102
[3] = DRIVE-CLiQ socket X103
[4] = DRIVE-CLiQ socket X104
[5] = DRIVE-CLiQ socket X105

Dependency: Refer to: p0097, p0099

Note: Topology coding: abcd efgh hex

a = number of Active Line Modules

b = number of Motor Modules

c = number of motors

d = number of encoders (or the line supply voltage sensing for Active Line Modules)

e = number of additional encoders (or the line supply voltage sensing for Active Line Modules)

f = number of Terminal Modules

g = number of Terminal Boards

h = reserved

if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ.

If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has occurred.

p0099[0...5] Device target topology / Device_target topo

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning.

De-activated or non-available components are also counted

Index:
[0] = DRIVE-CLiQ socket X100
[1] = DRIVE-CLiQ socket X101
[2] = DRIVE-CLiQ socket X102
[3] = DRIVE-CLiQ socket X103
[4] = DRIVE-CLiQ socket X104
[5] = DRIVE-CLiQ socket X105

Dependency: The parameter can only be written into for p0097 = 0.

To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgement. An index of the device actual topology with a value other than 0 must be selected.

Refer to: p0097, r0098

Note:	The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex. If the value 0 is displayed in all of the indices, then the system has still not been commissioned. The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration but was commissioned using the commissioning software (e.g. using parameter download).

p0100 IEC/NEMA mot stds / IEC/NEMA mot stds

VECTOR_G

Can be changed: C2(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Defines whether the motor and drive converter power settings (e.g. rated motor power, p0307) are expressed in [kW] or [hp].

Depending on the selection, the rated motor frequency (p0310) is either set to 50 Hz or 60 Hz.

For p0100 = 0, the following applies: The power factor (p0308) should be parameterized.

For p0100 = 1, the following applies: The efficiency (p0309) should be parameterized.

Value:
0: IEC-Motor (50 Hz, SI units)
1: NEMA motor (60 Hz, US units)

Dependency: If p0100 is changed, all of the rated motor parameters are reset. Only then are possible unit changeovers made.

The units of all motor parameters are changed that are involved in the selection of IEC or NEMA (e.g. r0206, p0307, p0316, r0333, r0334, p0341, p0344, r1493, r1969).

Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0309, p0310, p0311, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p1800

Note: The parameter can only be changed for vector control (p0107).

The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).

p0101[0...n] Drive object numbers / DO numbers

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	62	0

Description: The parameter contains the object number via which every drive object can be addressed.

The number of an existing drive object is entered into each index.

Value = 0: No drive object is defined.

Note: The numbers are automatically allocated.

For the commissioning software, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object.

r0102[0...1] Number of drive objects / DO count

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of existing or existing and prepared drive objects.

Index:
[0] = Existing drive objects
[1] = Existing and prepared drive objects

Dependency: Refer to: p0101

Note: The numbers of the drive objects are in p0101.

Index 0:

Displays the number of drive objects that have already been set up.

Index 1:

Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up.

r0103 Application-specific view / Appl_spec view

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	-

Description: Displays the application-specific view of the individual drive object.

Dependency: Refer to: p0107, r0107

p0103[0...n] Application-specific view / Appl_spec view

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999	0

Description: The application-specific view of an existing drive object is entered into each index.

The parameter cannot be changed.

Dependency: Refer to: p0107, r0107

Note: In the non-volatile memory, the application-specific views are defined in files with the following structure:

PDxxxyyy.ACX

xxx: Application-specific view (p0103)

yyy: Type of drive object (p0107)

Example:

PD052011.ACX

--> "011" stands for the drive object, type SERVO

--> "052" is the number of the view for this drive object

p0105 Activate/de-activate drive object / DO act/deact

B_INF, ENC, HUB, TB30, TM150, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Setting to activate/de-activate a drive object.

Value:
0: De-activate drive object
1: Activate drive object
2: Drive object de-activate and not present

Recommend.: After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.

Dependency: When activating drive objects with the safety functions enabled, the following applies:

After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.

Refer to: r0106

Notice: The following applies when activating:

If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: Re value = 0, 2:

When a drive object is deactivated it no longer outputs any errors.

If value = 0:

All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.

If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.

If value = 1:

All components of the drive object must be available for error-free operation.

If value = 2:

Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

p0105 Activate/de-activate drive object / DO act/deact

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: Setting to activate/de-activate a drive object.

Value:
0: De-activate drive object
1: Activate drive object

Dependency: Refer to: r0106

Notice: The following applies when activating:

If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

p0105 Activate/de-activate drive object / DO act/deact

TM31

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Setting to activate/de-activate a drive object.

Value:
0: De-activate drive object
1: Activate drive object
2: Drive object de-activate and not present

Recommend.: After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.

Dependency: Refer to: r0106

Warning: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while this parameter is being changed over.

Notice: The following applies when activating:

If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: Re value = 0, 2:

When a drive object is deactivated it no longer outputs any errors.

If value = 0:

All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.

If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.

If value = 1:

All components of the drive object must be available for error-free operation.

If value = 2:

Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

p0105 Activate/de-activate drive object / DO act/deact

TM54F_MA, TM54F_SL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Setting to activate/de-activate a drive object.

Value:
0: De-activate drive object
1: Activate drive object
2: Drive object de-activate and not present

Recommend.: After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.

Dependency: TM54F can only be de-activated if all of the drives assigned to it via p10010 have been de-activated or safety on the assigned drives has not be enabled.

When activating drive objects with the safety functions enabled, the following applies:

After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.

Refer to: r0106

Notice: The following applies when activating:

If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: Re value = 0, 2:

When a drive object is deactivated it no longer outputs any errors.

If value = 0:

All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.

If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.

If value = 1:

All components of the drive object must be available for error-free operation.

If value = 2:

Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0106 Drive object active/inactive / DO act/inact

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	-

Description: Displays the "active/inactive" state of a drive object.

Value:
0: Drive object inactive
1: Drive object active

Dependency: Refer to: p0105

r0107	Drive object type / DO type		
B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	600	-

Description: Displays the type of each drive object.

Value:

0: -
1: SINAMICS S
2: SINAMICS G
3: SINAMICS I
4: SINAMICS NX/CX32
6: SINAMICS DC
9: SINAMICS S110
10: ACTIVE INFEED CONTROL
11: SERVO
12: VECTOR
13: VECTORMV
14: VECTORGL
15: VECTOR3P
16: VECTORSL
17: DC_CTRL
18: VECTORM2C
19: VECTORDM
20: SMART INFEED CONTROL
21: RENEWABLE INFEED CONTROL
30: BASIC INFEED CONTROL
35: BRAKE MODULE M2C
40: ACTIVE INFEED CONTROLMV
41: BASIC INFEED CONTROLMV
42: ACTIVE INFEED CONTROLM2C
51: SINAMICS G120 230 (SingleDO-Drive which combines Device+Vector)
52: SINAMICSG120 240_2 (SingleDO-Drive which combines Device+Vector)
53: SINAMICS_G120_CU250S_V (SingleDO Drive combines Device+Vector)
54: SINAMICSG120 G120D(SingleDO-Drive which combines Device+Vector)
55: SINAMICS_G120_CU250S_S (SingleDO Drive combines Device+Servo)
56: SINAMICSG110M (SingleDO-Drive which combines Device+Vector)
57: SINAMICS ET200
58: Link variant for Sinamics Microbasissystem
70: HLA
100: TB30 (Terminal Board)
102: SINAMICS MV
150: DRIVE-CLiQ Hub Module
200: TM31 (Terminal Module)
201: TM41 (Terminal Module)
202: TM17 High Feature (Terminal Module)
203: TM15 (Terminal Module)
204: TM15 (Terminal Module for SINAMICS)
205: TM54F - Master (Terminal Module)
206: TM54F - Slave (Terminal Module)
207: TM120 (Terminal Module)
208: TM150 (Terminal Module)
254: CU-LINK
300: ENCODER
600: SINAMICS V60-G2 V80-G2

Dependency: Refer to: p0103, r0103

p0107[0...n]	**Drive object type / DO type**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(2)	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	600	0

Description: The type of an existing drive object is entered into each index.

Value:
0: -
1: SINAMICS S
2: SINAMICS G
3: SINAMICS I
4: SINAMICS NX/CX32
6: SINAMICS DC
9: SINAMICS S110
10: ACTIVE INFEED CONTROL
11: SERVO
12: VECTOR
13: VECTORMV
14: VECTORGL
15: VECTOR3P
16: VECTORSL
17: DC_CTRL
18: VECTORM2C
19: VECTORDM
20: SMART INFEED CONTROL
21: RENEWABLE INFEED CONTROL
30: BASIC INFEED CONTROL
35: BRAKE MODULE M2C
40: ACTIVE INFEED CONTROLMV
41: BASIC INFEED CONTROLMV
42: ACTIVE INFEED CONTROLM2C
51: SINAMICS G120 230 (SingleDO-Drive which combines Device+Vector)
52: SINAMICSG120 240_2 (SingleDO-Drive which combines Device+Vector)
53: SINAMICS_G120_CU250S_V (SingleDO Drive combines Device+Vector)
54: SINAMICSG120 G120D(SingleDO-Drive which combines Device+Vector)
55: SINAMICS_G120_CU250S_S (SingleDO Drive combines Device+Servo)
56: SINAMICSG110M (SingleDO-Drive which combines Device+Vector)
57: SINAMICS ET200
58: Link variant for Sinamics Microbasissystem
70: HLA
100: TB30 (Terminal Board)
102: SINAMICS MV
150: DRIVE-CLiQ Hub Module
200: TM31 (Terminal Module)
201: TM41 (Terminal Module)
202: TM17 High Feature (Terminal Module)
203: TM15 (Terminal Module)
204: TM15 (Terminal Module for SINAMICS)
205: TM54F - Master (Terminal Module)
206: TM54F - Slave (Terminal Module)
207: TM120 (Terminal Module)
208: TM150 (Terminal Module)
254: CU-LINK
300: ENCODER
600: SINAMICS V60-G2 V80-G2

Dependency: Refer to: p0103, r0103

Caution: If you change this parameter and exit the device commissioning mode, then the complete software will be set up again and all of the previous drive parameter settings are deleted.

Note: The number (p0101) and the associated drive object type are in the same index.

For SINAMICS S a drive object type can only be changed between SERVO and VECTOR. If you change the parameter and exit drive start-up (p0009 from 2 to 0) the drive parameters are set up again.

r0108 Drive objects function module / DO fct_mod

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
05	Recorder / Recorder	Activated	Not activated	-
15	Parallel connection / Parallel	Activated	Not activated	-
18	Free function blocks / FBLOCKS	Activated	Not activated	-
26	Braking Module external / Brk Mod ext	Activated	Not activated	-
28	Cooling unit / Cool_unit	Activated	Not activated	-
31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0108[0...n] Drive objects function module / DO fct_mod

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (see p0101, p0107).

The following bits are available for the Control Unit (Index 0):

Bit 18: Free function blocks

Bit 29: CAN

Bit 30: COMM BOARD

Bit 31: PROFINET

For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0108 of the drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-

20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive objects function module / DO fct_mod

ENC

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
12	Linear encoder / Lin_enc	Activated	Not activated	-
18	Free function blocks / FBLOCKS	Activated	Not activated	-
31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive objects function module / DO fct_mod

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
18	Free function blocks / FBLOCKS	Activated	Not activated	-
31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive objects function module / DO fct_mod

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Closed-loop speed/torque control / n/M	Activated	Not activated	-
05	Recorder / Recorder	Activated	Not activated	-
08	Extended setpoint channel / Ext setp	Activated	Not activated	-
10	Moment of inertia estimator / J_estimator	Activated	Not activated	-
13	Safety rotary axis / Safety rot	Activated	Not activated	-
14	Extended brake control / Ext brake	Activated	Not activated	-

15	Parallel connection / Parallel	Activated	Not activated	-
16	Techn controller / Tech_ctrl	Activated	Not activated	-
17	Extended messages/monitoring / Ext msg	Activated	Not activated	-
18	Free function blocks / FBLOCKS	Activated	Not activated	-
20	Software gating unit / SW_gating unit	Activated	Not activated	-
24	PM330 / PM330	Activated	Not activated	-
28	Cooling unit / Cool_unit	Activated	Not activated	-
29	CAN / CAN	Activated	Not activated	-
31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

The following bits are only automatically set, if the power units are detected with the appropriate properties.

Bit 16: Parallel connection of the same power units (only automatically set for G130/G150).

Bit 20: Software gating unit (only automatically set when power units are connected in parallel).

Bit 24: Type PM330 power units are presently not supported.

Bit 26: Type PM250 power units with F3E energy recovery are only supported for S120 CRANES.

Bit 28: Power units with liquid cooling.

r0110[0...2] Basic sampling times / t_basis

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	10000.00 [µs]	- [µs]

Description: Displays the basic sampling times.

The sampling times are set using p0112 and p0115. The values for the basic sampling times are determined as a result of these settings.

Index:
[0] = Basic sampling time 0
[1] = Basic sampling time 1
[2] = Basic sampling time 2

r0111 Basic sampling time selection / t_basis sel

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, HUB, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	-

Description: Displays the selected basic sampling time for this drive object.

Dependency: Refer to: r0110

r0111 Basic sampling time selection / t_basis sel

TB30, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	-

Description: Displays the selected basic sampling time for this drive object.

Dependency: Refer to: r0110

Note: For TB30 and the Terminal Module, this parameter has no significance.

For TB30 and certain Terminal Modules, the sampling times can be set using p4099 (see description of p4099 for the Module in question).

p0112	**Sampling times pre-setting p0115 / t_sample for p0115**		
B_INF	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	5	3

Description: Pre-assignment of the sampling times in p0115.

The clock cycles for the current controller / speed controller / flux controller / setpoint channel / position controller / positioning / technology controller are pre-assigned as follows:

SINAMICS S, servo drive:

p0112 = 1: 250 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs (for chassis units)

p0112 = 2: 125 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs

p0112 = 3: 125 / 125 / 125 / 4000 / 1000 / 4000 / 4000 µs

p0112 = 4: 62.5 / 62.5 / 62.5 / 1000 / 1000 / 2000 / 1000 µs

p0112 = 5: 31.25 / 31.25 / 31.25 / 1000 / 1000 / 2000 / 1000 µs

SINAMICS S, Active Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)

p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)

p0112 = 3: 125 / - / - / 2000 µs

p0112 = 4: 125 / - / - / 1000 µs

p0112 = 5: 125 / - / - / 500 µs

SINAMICS S, Smart Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)

p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)

p0112 = 3: 250 / - / - / 2000 µs

p0112 = 4: 250 / - / - / 1000 µs

p0112 = 5: Not possible

SINAMICS S, Basic Infeed, booksize:

p0112 = 4: 250 / - / - / 2000 µs

SINAMICS S, Basic Infeed, chassis:

p0112 = 1: 2000 / - / - / 2000 µs

p0112 = 2: 2000 / - / - / 2000 µs (pre-setting)

p0112 = 3: 2000 / - / - / 2000 µs

p0112 = 4: Not possible

p0112 = 5: Not possible

SINAMICS S/G, vector drive (p0112 = 1 not for p0092 = 1 and not for PM340):

p0112 = 1: 400 / 1600 / 1600 / 1600 / 3200 / 3200 / 3200 µs (for rated pulse frequency = 1.25, 2.5 kHz)

p0112 = 2: 250 / 1000 / 2000 / 1000 / 2000 / 4000 / 4000 µs

p0112 = 3: 250 / 1000 / 1000 / 1000 / 2000 / 4000 / 4000 µs (for rated pulse frequency = 2.0, 4.0 kHz)

SINAMICS S, vector drive:

p0112 = 4: 250 / 500 / 1000 / 500 / 1000 / 2000 / 2000 µs

p0112 = 5: 250 / 250 / 1000 / 500 / 1000 / 2000 / 1000 µs

Value:
0: Expert
1: xLow
2: Low
3: Standard
4: High
5: xHigh

Recommend.: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Dependency: It is prohibited to select a parameter value from p0112 if the associated current controller clock cycle cannot set (e.g. p0112 = 1 is not possible for a vector drive and PM340 power unit).

If, for a servo drive, p112 = 5 is set, then the pulse frequency p1800 is preassigned 8 kHz. For D410-2 and vector drive, the current controller sampling time can only be permanently changed for p0112 = 0.

Refer to: p0092

Note: For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.

The setting p0112 = 1 cannot be set for a vector drive with power unit type PM340 (refer to r0203).

---

p0112 Sampling times pre-setting p0115 / t_sample for p0115

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	3

Description: Pre-assignment of the sampling times in p0115.

The clock cycles for the current controller / speed controller / flux controller / setpoint channel / position controller / positioning / technology controller are pre-assigned as follows:

SINAMICS S, servo drive:

p0112 = 1: 250 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs (for chassis units)

p0112 = 2: 125 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs

p0112 = 3: 125 / 125 / 125 / 4000 / 1000 / 4000 / 4000 µs

p0112 = 4: 62.5 / 62.5 / 62.5 / 1000 / 1000 / 2000 / 1000 µs

p0112 = 5: 31.25 / 31.25 / 31.25 / 1000 / 1000 / 2000 / 1000 µs

SINAMICS S, Active Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)

p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)

p0112 = 3: 125 / - / - / 2000 µs

p0112 = 4: 125 / - / - / 1000 µs

p0112 = 5: 125 / - / - / 500 µs

SINAMICS S, Smart Infeed (p0112 = 1 not for p0092 = 1):

p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)

p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)

p0112 = 3: 250 / - / - / 2000 µs

p0112 = 4: 250 / - / - / 1000 µs

p0112 = 5: Not possible

SINAMICS S, Basic Infeed, booksize:

p0112 = 4: 250 / - / - / 2000 µs

SINAMICS S, Basic Infeed, chassis:

p0112 = 1: 2000 / - / - / 2000 µs

p0112 = 2: 2000 / - / - / 2000 µs (pre-setting)

p0112 = 3: 2000 / - / - / 2000 µs

p0112 = 4: Not possible

p0112 = 5: Not possible

SINAMICS S/G, vector drive (p0112 = 1 not for p0092 = 1 and not for PM340):

p0112 = 1: 400 / 1600 / 1600 / 1600 / 3200 / 3200 / 3200 µs (for rated pulse frequency = 1.25, 2.5 kHz)

p0112 = 2: 250 / 1000 / 2000 / 1000 / 2000 / 4000 / 4000 µs

p0112 = 3: 250 / 1000 / 1000 / 1000 / 2000 / 4000 / 4000 µs (for rated pulse frequency = 2.0, 4.0 kHz)

SINAMICS S, vector drive:

p0112 = 4: 250 / 500 / 1000 / 500 / 1000 / 2000 / 2000 µs

p0112 = 5: 250 / 250 / 1000 / 500 / 1000 / 2000 / 1000 µs

Value:

0: Expert
1: xLow
2: Low
3: Standard

Recommend.: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Dependency: It is prohibited to select a parameter value from p0112 if the associated current controller clock cycle cannot set (e.g. p0112 = 1 is not possible for a vector drive and PM340 power unit).

If, for a servo drive, p112 = 5 is set, then the pulse frequency p1800 is preassigned 8 kHz. For D410-2 and vector drive, the current controller sampling time can only be permanently changed for p0112 = 0.

Refer to: p0092

Note: For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.

The setting p0112 = 1 cannot be set for a vector drive with power unit type PM340 (refer to r0203).

p0113 Minimum pulse frequency, selection / f_puls min sel

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.000 [kHz]	2.000 [kHz]	2.000 [kHz]

Description: The current controller sampling time (p0115[0]) is pre-assigned by selecting the minimum pulse frequency.

Dependency: The parameter can only be changed with p0112 = 0 (expert). For isochronous operation (p0092 = 1) the parameter can only be set so that a current controller sampling time of 125 µs is obtained as an integer number.

The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0), assuming that this has not been restricted by other conditions (e.g. as a result of p1082, p0310).

Refer to: p0112, r0114, p0115, p1800

Note: The current controller sampling time (p0115[0]) is set to the inverse value of twice the minimum pulse frequency. For p0113 = 1.0 kHz, p0115[0] = 500 µs is set, for p0113 = 2.0 kHz, p0115[0] = 250 µs is set. The current controller sampling time (p0115[0]), calculated from the pulse frequency, is set in a grid of 1.25 µs.

For a power unit type PM340 (refer to r0203), only the values 1.0 and 2.0 kHz can be set. A value of 1.0 kHz can be set in order to achieve a current controller sampling time of 500µs. However, in this case, the minimum pulse frequency p1800 is limited to 2 kHz.

r0114[0...9] Minimum pulse frequency recommended / f_puls min recom

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kHz]	- [kHz]	- [kHz]

Description: Displays the recommended values (indices 0 and 1) for the minimum pulse frequency (p0113).

If the system rejects a change to p0113 because the value to be used lies outside the permitted value range, then instead the recommended value from r0114 can be used.

Index:
[0] = If only the actual drive is changed
[1] = If all drives connected to the DRIVE-CLiQ line are changed
[2] = 2. possible pulse frequency
[3] = 3. possible pulse frequency
[4] = 4. possible pulse frequency
[5] = 5. possible pulse frequency
[6] = 6. possible pulse frequency
[7] = 7. possible pulse frequency
[8] = 8. possible pulse frequency
[9] = 9. possible pulse frequency

Dependency: Refer to: p0113

Note: After exiting commissioning (p0009 = p0010 = 0), the pulse frequencies calculated from the sampling time p115[0] are displayed in indices 1 to 9. If additional restrictions do not apply (e.g. due to having selected an output filter), these can be entered into p1800. The maximum pulse frequency of the power units was already taken into account in r0114.

A value of 0 kHz does not define a recommended pulse frequency.

p0115[0...6] **Sampling times for internal control loops / t_sample int ctrl**

B_INF

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	16000.00 [µs]	[0] 125.00 [µs] [1] 125.00 [µs] [2] 125.00 [µs] [3] 4000.00 [µs] [4] 1000.00 [µs] [5] 4000.00 [µs] [6] 4000.00 [µs]

Description: Sets the sampling times for the control loops.

The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).

Recommend.: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Index:
[0] = Current controller
[1] = Speed controller
[2] = Flux controller
[3] = Setpoint channel
[4] = Pos controller
[5] = Positioning
[6] = Techn controller

Dependency: The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.

Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]).

For servo drives, the maximum sampling time of the current controller is 250 µs and for vector drives, 500 µs.

The sampling times for setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) must have at least 2x the value of the current controller sampling time (p0115[0]).

Refer to: r0110, r0111, p0112

Note: For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.

For the Active Line Module (ALM) and Smart Line Module (SLM), the current and DC link voltage controllers operate with the same sampling time. For ALM/SLM the maximum current controller clock cycle is 400 µs.

For the Basic Line Module (BLM), the DC link voltage measurement operates in the current controller sampling time.

For BLM booksize, only the current controller sampling time of 250 µs is permitted. For BLM chassis, only the current controller sampling time of 2000 µs is permitted.

For power unit type PM340 (r0203), only current controller sampling times of 62.5 µs, 125 µs, 250 µs and 500 µs can be set. The maximum current controller clock cycle for servo drives and the minimum current controller clock cycle for vector drives is 250 µs.

If sampling times in p0115 are individually changed for p0112 = 0 (expert) then it must always be observed that the selected sampling times of the setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) are always greater than or equal to twice the current controller sampling time (p0115[0]).

p0115[0]	Sampling time for supplementary functions / t_samp suppl_fct		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	16000.00 [µs]	4000.00 [µs]

Description: Sets the basic sampling time for supplementary functions (DCC, free function blocks) on this object.
Only setting values that are an integer multiple of 125 µs are permissible.

Index: [0] = Basic sampl time

p0115[0]	Sampling time for speed detection / t_sample n_det		
ENC	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	125.00 [µs]	500.00 [µs]	125.00 [µs]

Description: Sets the sampling times for speed detection.

Index: [0] = Basic sampl time

p0115[0]	Sampling time for supplementary functions / t_samp suppl_fct		
TB30, TM150, TM31	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	16000.00 [µs]	4000.00 [µs]

Description: Sets the sampling times for supplementary functions (DCC, free function blocks) on this object.
Only setting values that are an integer multiple of 125 µs are permissible.

Index: [0] = Basic sampl time

Note: This parameter only applies to set the sampling times of possible supplementary functions.
The sampling times for inputs/outputs must be set in p4099.

p0115[0...6]	Sampling times for internal control loops / t_sample int ctrl		
VECTOR_G	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	16000.00 [µs]	[0] 250.00 [µs] [1] 1000.00 [µs] [2] 1000.00 [µs] [3] 1000.00 [µs] [4] 2000.00 [µs] [5] 4000.00 [µs] [6] 4000.00 [µs]

Description: Sets the sampling times for the control loops.
The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).

Recommend.: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

When adjusting the current controller sampling time, it is recommended to use values that are an integer multiple of 6.25 µs. The sampling times of analog or digital inputs/outputs (see p0799, p4099) should be set to an integer multiple of the current controller sampling time.

If the current controller sampling time is to be reduced with respect to the default setting (e.g. < 250 µs), then it is recommended that the motor data identification (standstill measurement) is executed beforehand, in order to avoid a thermal overload of the power unit as a result of high pulse frequencies (p1800).

Index: [0] = Current controller
[1] = Speed controller
[2] = Flux controller
[3] = Setpoint channel
[4] = Pos controller
[5] = Positioning
[6] = Techn controller

Dependency: Depending on the number and type of vector drives, the sampling times are preset differently.

The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.

Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]).

The sampling times for setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) must have at least 2x the value of the current controller sampling time (p0115[0]).

The sampling time of the current controller p0115[0] and pulse frequency p1800 are checked at each parameter download, and when necessary changed, if, for p0092 = 1, the current controller sampling time is not an integral multiple of 125 µs or if p0112 is set > 1. For p0092 = 0, the check with p0112 = 0 (= expert) can be deactivated.

Refer to: r0110, r0111, p0112

Note: For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.

For power unit type PM340 (r0203), only current controller sampling times of 250 µs or 500 µs can be set. The minimum current controller clock cycle is otherwise 125 µs (SINAMICS G: 250 µs), the maximum current controller clock cycle is 500 µs. The minimum speed controller clock cycle for SINAMICS G is 1 ms.

Current controller clock cycles less than 250 µs are restricted by the number of drives or by the number of power units connected in parallel (also see F01340).

For chassis power units connected in parallel, it is recommended to connect the DRIVE-CLiQ cables (partially) in parallel between the Control Unit and the individual Motor Modules.

For D410-2, the current controller sampling times can only be permanently changed with p0112 = 0 (e.g. to 250 µs).

r0116[0...1] Drive object clock cycle recommended / DO_clock recom

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, TB30, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [µs]	- [µs]	- [µs]

Description: Displays the recommended sampling time for the drive objects.

r00116[0] = recommended sampling time:

Recommended value which would then make the complete system operational.

r00116[1] = recommended sampling time:

Recommended value, which after changing other clock cycles on the DRIVE-CLiQ line, would result in an operational system.

Index: [0] = Change only for the actual drive object
[1] = Changing all objects on the DRIVE-CLiQ line

Dependency: Refer to: p0115

p0117	Current controller computing dead time mode / I_ctrl t_dead mode		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	6	6

Description: Sets the mode for the computing dead time of the current controller.

0: Offset (shifted) clocking, minimum computing dead time of each drive, automatic setting

1: Clocking at the same time, the dead time aligns itself to the dead time of the latest drive, automatic setting

2: Manual setting of the computing dead time, early transfer

3: Manual setting of the computing dead time, late transfer

4-6: As for 0-2, however, no early transfers are set for vectors

Dependency: Refer to: p0118

Note: The mode change is not effective until the drive unit is powered up again.

Re p0117 = 0:

The times when the setpoints become effective for the individual controls is automatically and individually determined. Another computing dead time is set for each control (closed-loop) (p0118). Current is impressed for the individual controls without any offset with respect to time (improved EMC compatibility).

Re p0117 = 1:

The latest closed-loop control determines when the setpoints for each of the individual controls become active. The same computing dead time is set for each control (p0118). Current is impressed (flows) for the individual controls without any offset with respect to time.

Re p0117 = 2:

The computing dead time is manually set. The user must optimize the value in p0118.

Re p0117 = 3:

The computing dead time is manually set. The user must optimize the value in p0118.

Re p0117 = 4 ... 6:

Behavior as for p0117 = 0 ... 2, however for vectors, the earliest times are not determined.

p0118	Current controller computing dead time / I_ctrl t_dead		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	2000.00 [µs]	0.00 [µs]

Description: This parameter is pre-set as a function of the current controller sampling time (p0115[0]) and normally does not have to be changed.

Dependency: Refer to: p0117

Note: For p0118 <= 0.005 µs, the current controller output is delayed by a complete current controller clock cycle (p0115[0]).

After p0118 has been changed, we recommend that the current controller is adapted (p1715).

p0120	Number of Power unit Data Sets (PDS) / PDS count		
B_INF, VECTOR_G	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	8	1

Description: Sets the number of Power unit Data Sets (PDS).

The value corresponds to the number of power units connected together for a parallel circuit configuration.

Dependency: Refer to: p0107, r0107

Note: This parameter is only significant for drive objects A_INFEED and VECTOR with a parallel circuit configuration.

p0121[0...n] Power unit component number / PU comp_no

B_INF, VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: The power unit data set is assigned to a power unit using this parameter.
This unique component number is assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to a power unit.

Dependency: Refer to: p0107, r0107

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

p0124[0...n] Power unit detection via LED / PU detection LED

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Detects the power unit assigned to this drive and data set.

Note: While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate power unit.
For parallel circuit configurations, the parameter index is assigned to a power unit.

p0124[0...n] Main component detection using LED / M_comp detect LED

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Detection of the main components of the drive object selected via the index.

p0125[0...n] Activate/de-activate power unit components / PU_comp act/deact

B_INF, VECTOR_G

Can be changed: C1(4), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Setting to activate/de-activate a power unit component.

Value:
0: De-activate component
1: Activate component
2: Component de-activate and not present

Recommend.: After inserting a component, before activating, first wait for Alarm A01317.

Dependency: Refer to: r0126

Caution: For a parallel connection, the following applies:
When deactivating individual power units using p0125, it is not permissible that the power units of the parallel connection involved are connected. Infeed units should be disconnected from the line supply (for example, using a contactor). Motor feeder cables should be disconnected. In addition, defective power units should be disconnected from the DC link.

Notice: It is not permissible to de-activate drive objects with safety functions enabled.

Note: The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

For units connected in parallel, when one of the power units is de-activated, then the enable in p7001 is withdrawn.

Re value = 0, 2:

When a component is deactivated it no longer outputs any errors.

If value = 0:

The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.

If value = 1:

The component must be available for error-free operation.

If value = 2:

A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the component is marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0126[0...n] Power unit components active/inactive / PU comp act/inact

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	-

Description: Displays the "active/inactive" state of a power unit component.

Value:
0: Component inactive
1: Component active

Dependency: Refer to: p0105, p0125, p0897

r0127[0...n] Power unit EEPROM data version / PU EEPROM version

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the EEPROM data of the power unit.

Dependency: Refer to: r0147, r0157

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0128[0...n] Power unit firmware version / PU FW version

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the firmware version of the power unit.

Dependency: Refer to: r0018, r0148, r0158, r0197, r0198

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0130 Number of Motor Data Sets (MDS) / MDS count

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8575
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	16	1

Description: Sets the number of Motor Data Sets (MDS).

p0131[0...n] Motor component number / Mot comp_no

VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: The motor data set is assigned to a motor using this parameter.

This unique component number is assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to a motor.

p0133[0...n] Motor configuration / Motor config

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Configuration of the motor when commissioning the motor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor connection type	Delta	Star	-

Dependency: For standard induction motors (p0301 > 10000), bit 0 is automatically preassigned the connection type of the selected data set.

For p0100 > 0 (60 Hz rated motor frequency), it is not possible to select bit 1.

Refer to: p0304, p0305

Note: Re bit 00:

When changing the bits, the rated motor voltage p0304 and the rated motor current p0305 are automatically converted to the selected connection type (star/delta).

For instance, this can be necessary if an 1LE1 motor is selected using the order number (MLFB) or code number (p0300 = 100, p0301 = 1x0xx), and the motor connection type does not correspond to that of the data set.

p0139[0...2] Copy Motor Data Set MDS / Copy MDS

VECTOR_G

Can be changed: C2(15)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8575
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	31	0

Description: Copying a Motor Data Set (MDS) into another.

Index:
[0] = Source motor data set
[1] = Target motor data set
[2] = Start copying procedure

Note: Procedure:
1. In Index 0, enter which motor data set should be copied.
2. In Index 1, enter the motor data set data that is to be copied into.
3. Start copying: Set index 2 from 0 to 1.

p0139[2] is automatically set to 0 when copying is completed.
When copying, p0131 is not taken into account.

p0140 Number of Encoder Data Sets (EDS) / EDS count

ENC

Can be changed: C1(3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	1	1

Description: Sets the number of Encoder Data Sets (EDS).

Note: When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).

p0140 Number of Encoder Data Sets (EDS) / EDS count

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	16	1

Description: Sets the number of Encoder Data Sets (EDS).

Note: When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).

p0141[0...n] Encoder interface (Sensor Module) component number / Enc_interf comp_no

ENC, VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704, 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC).
This unique component number is assigned when parameterizing the topology.
Only a component number can be entered that corresponds to an encoder evaluation.

Note: If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.
For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).
SMC: Sensor Module Cabinet

p0142[0...n] Encoder component number / Encoder comp_no

ENC, VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: This parameter is used to assign the encoder data set to an encoder.
This assignment is made using the unique component number that was assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to an encoder.

Note: If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.
For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

p0144[0...n] Sensor Module detection via LED / SM detection LED

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Detects the Sensor Module assigned to this drive and data set.

Note: While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.

p0145[0...n] Activate/de-activate encoder interface / Enc_intf act/deact

ENC, VECTOR_G

Can be changed: C1(4), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Setting to activate/de-activate an encoder interface (Sensor Module).

Value:
0: De-activate component
1: Activate component
2: Component de-activate and not present

Recommend.: After inserting a component, before activating, first wait for Alarm A01317.

Dependency: Refer to: r0146

Note: The de-activation of an encoder interface corresponds to the"parking encoder" function and has the same effect.

The activation of a component can be rejected if the component was inserted for the first time.

In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

With the encoder interface for encoder 1 (motor encoder), the relevant drive object for writing the parameter must be in the "Ready for operation" state.

With the encoder interface for encoders 2 and 3, the parameter can also be written during operation.

Re value = 0, 2:

When a component is deactivated it no longer outputs any errors.

If value = 0:

The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.

If value = 1:

The component must be available for error-free operation.

If value = 2:

A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0146[0...n] Encoder interface active/inactive / Enc_intf act/inact

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	-

Description: Displays the "active" or "inactive" state of an encoder interface (Sensor Module).

Value: 0: Component inactive
1: Component active

Dependency: Refer to: p0105, p0145, p0480, p0897

r0147[0...n] Sensor Module EEPROM data version / SM EEPROM version

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the EEPROM data of the Sensor Module.

Dependency: Refer to: r0127, r0157

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0148[0...n] Sensor Module firmware version / SM FW version

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the firmware version of the Sensor Module.

Dependency: Refer to: r0018, r0128, r0158, r0197, r0198

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0150 Number of VSM data sets / VSM dat_sets qty.

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	1

Description: Sets the number of VSM data sets.

p0151[0...1] DRIVE-CLiQ Hub Module component number / Hub comp_no

HUB

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: This parameter is used to assign the data set to a DRIVE-CLiQ Hub Module.
This unique component number is assigned when parameterizing the topology.
Only the numbers of components operated as hubs can be entered in these parameters.
[0] = DRIVE-CLiQ node 1
[1] = DRIVE-CLiQ node 2

p0151	Terminal Module component number / TM comp_no		
TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	199	0

Description: Sets the component number for the Terminal Module.
This unique component number is assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to a Terminal Module.

p0151[0...n]	Voltage Sensing Module component number / VSM comp_no		
VECTOR_G	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** p0150	**Func. diagram:** -
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	199	0

Description: The VSM data set is assigned to a VSM evaluation using this parameter.

Note: If two VSM are connected at the Motor Module, then the first (p0151[0]) is assigned to the line voltage measurement (see p3801) and the second, to the motor voltage measurement (see p1200).

p0154	DRIVE-CLiQ Hub Module detection via LED / Hub detection LED		
HUB	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Detects any DRIVE-CLiQ Hub Module that has been assigned.

p0154	Terminal Module detection via LED / TM detection LED		
TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Detects the Terminal Module assigned to this drive and data set.

Note: While p0154 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Terminal Module.

p0155[0...n]	Voltage Sensing Module activate/de-activate / VSM act/deact		
VECTOR_G	**Can be changed:** C1(4), T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** p0150	**Func. diagram:** -
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	2	1

Description: Setting to activate/de-activate a Voltage Sensing Module (VSM).

Value:
0: De-activate component
1: Activate component
2: Component de-activate and not present

Recommend.: After inserting a component, before activating, first wait for Alarm A01317.
Dependency: Refer to: r0156

r0156[0...n] Voltage Sensing Module active/inactive / VSM act/inact

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	-

Description: Displays the "active" or "inactive" state of a Voltage Sensing Module (VSM).
Value:
0: Component inactive
1: Component active
Dependency: Refer to: p0155

r0157 DRIVE-CLiQ Hub Module EEPROM data version / Hub EEPROM version

HUB

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the EEPROM data for the DRIVE-CLiQ Hub Module.
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0157 Terminal Module EEPROM data version / TM EEPROM version

TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the EEPROM data of the Terminal Module.
Dependency: Refer to: r0127, r0147
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0157[0...n] Voltage Sensing Module EEPROM data version / VSM EEPROM version

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the EEPROM data of the Voltage Sensing Module (VSM).
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0158	DRIVE-CLiQ Hub Module firmware version / Hub FW version		
HUB	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the firmware version of the DRIVE-CLiQ Hub Module.

r0158	Terminal Module firmware version / TM FW version		
TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the firmware version of the Terminal Module.

Dependency: Refer to: r0018, r0128, r0148, r0197, r0198

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0158[0...n]	Voltage Sensing Module firmware version / VSM FW version		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** p0150	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the firmware version of the Voltage Sensing Module (VSM).

Dependency: Refer to: r0018, r0128, r0197, r0198

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0161	Option board component number / Opt board comp_no		
TB30	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	199	0

Description: Sets the component number for the option board (e.g. Terminal Board 30).
This unique component number is assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to an option board.

p0170	**Number of Command Data Sets (CDS) / CDS count**		
B_INF	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	2	1

Description: Sets the number of Command Data Sets (CDS).

Note: It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

p0170	**Number of Command Data Sets (CDS) / CDS count**		
VECTOR_G	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	2	4	2

Description: Sets the number of Command Data Sets (CDS).

Note: It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

p0180	**Number of Drive Data Sets (DDS) / DDS count**		
VECTOR_G	**Can be changed:** C1(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	32	1

Description: Sets the number of Drive Data Sets (DDS).

p0186[0...n]	**Motor Data Sets (MDS) number / MDS number**		
VECTOR_G	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** 8575
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	15	0

Description: Using the parameter, each Drive Data Set (= index) is assigned the associated Motor Data Set (MDS).
The parameter value therefore corresponds to the number of the assigned motor data set.

p0187[0...n]	**Encoder 1 encoder data set number / Enc 1 EDS number**		
VECTOR_G	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** 4700, 8570
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	99	99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1.
The value corresponds to the number of the assigned encoder data set.
Example:
Encoder data set 0 should be assigned to encoder 1 in drive data set 2.
--> p0187[2] = 0

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0188[0...n] Encoder 2 encoder data set number / Enc 2 EDS number

VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** 4700, 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 2.
The value corresponds to the number of the assigned encoder data set.
Example:
Encoder data set 1 should be assigned to encoder 2 in drive data set 2.
--> p0188[2] = 1

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0189[0...n] Encoder 3 encoder data set number / Enc 3 EDS number

VECTOR_G

Can be changed: C1(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** 4700, 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 3.
The value corresponds to the number of the assigned encoder data set.

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

r0192 Power unit firmware properties 1 / PU FW property 1

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties supported by the power unit firmware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Edge modulation possible	Yes	No	-
01	Free telegram can be selected	Yes	No	-
02	Smart mode possible for Active Line Module	Yes	No	-
03	Safety Integrated possible for VECTOR	Yes	No	-
05	Thermal model expanded	Yes	No	-
06	Liquid cooling	Yes	No	-
07	SERVO pulse frequency changeover DDS-dependent	Yes	No	-
08	Simulation mode possible	Yes	No	-
09	Internal armature short-circuit possible	Yes	No	-
10	Autonomous internal armature short-circuit possible	Yes	No	-
11	Infeed temperature inputs X21.1/2	Yes	No	-
12	Integral scaled to half the gating unit clock cycle freq.	Yes	No	-
13	Filtering thermal power unit current limit possible	Yes	No	-
14	DC link compensation possible in power unit	Yes	No	-
15	PT100 temperature evaluation possible	Yes	No	-
16	Gating unit with pulse frequency wobbulation possible	Yes	No	-

17	Compound braking possible	Yes	No	-
18	Extended voltage range possible	Yes	No	-
19	Gating unit available with current limitation control	Yes	No	-
20	Component status possible	Yes	No	-
21	Temperature evaluation via Motor Module / CU terminals possible	Yes	No	-
22	Reduced device supply voltage possible	Yes	No	-
23	Current measurement oversampling available	Yes	No	-
24	Parking keeping the relevant data is available	Yes	No	-
25	Internal fan operating hours counter available	Yes	No	-
26	Software gating unit supported in the Control Unit	Yes	No	-
27	Current controller dynamics higher	Yes	No	-
28	Reserved			-
29	Voltage measurement	Yes	No	-
30	Gating unit with all-phase current limiting	Yes	No	-

Dependency: Refer to: r0193

Notice: This information represents the characteristics/features of the power unit firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "liquid cooling", a power unit with liquid cooling does not have to be used).

Note: Re bit 09:

The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).

Re bit 10:

The Motor Module supports the autonomous internal voltage protection.

If the "internal voltage protection" function is activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.

Re bit 23:

The component supports the detection of current actual values (and the detection of valve close durations) with double clocking and phase shift.

r0193 Power unit firmware properties 2 / PU FW property 2

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties supported by the power unit firmware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Component trace	Yes	No	-

Dependency: Refer to: r0192

r0194[0...n] VSM properties / VSM properties

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties supported by the Voltage Sensing Module (VSM).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Reserved	Yes	No	-

r0196[0...255] Topology component status / Top comp stat

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the components.

r0196[0]: group status of all components

r0196[1]: Status of component with component number 1

...

r0196[255]: Status of component with component number 255

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Component status bit 0	High	Low	-
01	Component status bit 1	High	Low	-
02	Component status bit 2	High	Low	-
03	Component status bit 3	High	Low	-
04	Component state	Active	Inactive/parking	-
07	Part of the target topology	Yes	No only act topo	-
08	Alarm present	Yes	No	-
09	Safety message present	Yes	No	-
10	Fault present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note: Re bit 03 ... 00:

Bit 3, 2, 1, 0 = 0, 0, 0, 0 --> component not available.

Bit 3, 2, 1, 0 = 0, 0, 0, 1 --> power-up, non-cyclic DRIVE-CLiQ communication (LED = orange).

Bit 3, 2, 1, 0 = 0, 0, 1, 0 --> operating mode, cyclic DRIVE-CLiQ communication (LED = green).

Bit 3, 2, 1, 0 = 0, 0, 1, 1 --> alarm (LED = green).

Bit 3, 2, 1, 0 = 0, 1, 0, 0 --> fault (LED = red).

Bit 3, 2, 1, 0 = 0, 1, 0, 1 --> detection via LED and operating mode (LED = green/orange).

Bit 3, 2, 1, 0 = 0, 1, 1, 0 --> detection via LED and alarm (LED = green/orange).

Bit 3, 2, 1, 0 = 0, 1, 1, 1 --> detection via LED and fault (LED = red/orange).

Bit 3, 2, 1, 0 = 1, 0, 0, 0 --> firmware being downloaded (LED = green/red with 0.5 Hz).

Bit 3, 2, 1, 0 = 1, 0, 0, 1 --> firmware download completed, wait for POWER ON (LED = green/red with 2.0 Hz).

Re bits 12 ... 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r0197[0...1] Bootloader version / Bootloader vers

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bootloader version.

Index 0:

Displays the bootloader version.

Index 1:

Displays the bootloader version 3 (for CU320-2 and CU310-2)

Value 0 means that boot loader 3 is not available.

Dependency: Refer to: r0018, r0128, r0148, r0158, r0198

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

---

r0198[0...2] BIOS/EEPROM data version / BIOS/EEPROM vers

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the BIOS and EEPROM data version.

r0198[0]: BIOS version

r0198[1]: EEPROM data version EEPROM 0

r0198[2]: EEPROM data version EEPROM 1

Dependency: Refer to: r0018, r0128, r0148, r0158, r0197

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

---

p0199[0...24] Drive object name / DO name

All objects

Can be changed: C1	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Freely assignable name for a drive object.

In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

Note: The parameter is not influenced by setting the factory setting.

---

r0200[0...n] Power unit code number actual / PU code no. act

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the unique code number of the power unit.

Note: r0200 = p0201: No power unit found

For parallel circuit configurations, the parameter index is assigned to a power unit.

---

p0201[0...n] Power unit code number / PU code no

B_INF

Can be changed: C2(2)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the actual code number from r0200 to acknowledge the power unit being used.

When commissioned for the first time, the code number is automatically transferred from r0200 into p0201.

Note: The parameter is used to identify when the drive is being commissioned for the first time.

The power unit commissioning can only be exited (p0201 = r0200), if the actual and acknowledged code numbers are identical (p0010 = 2).

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0201[0...n] Power unit code number / PU code no

VECTOR_G

Can be changed: C2(2)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the actual code number from r0200 to acknowledge the power unit being used.

When commissioned for the first time, the code number is automatically transferred from r0200 into p0201.

Notice: When p0201 = 10000, the rated power unit data is reloaded and dependent parameters are set (e.g. p0205, p0210, p0230, p0857, p1800). p0201 is then automatically assigned the value of r0200 if the code number of the power unit could be read. A warm start must be performed after this procedure (automatically if necessary).

Note: The parameter is used to identify when the drive is being commissioned for the first time.

The power unit commissioning can only be exited (p0201 = r0200), if the actual and acknowledged code numbers are identical (p0010 = 2). However, if the comparator in p9906 or p9908 is at 2 (low) or 3 (minimum), the power unit commissioning is automatically set to p0201 = r0200 upon exiting.

When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0203[0...n] Actual power unit type / PU actual type

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2	400	-

Description: Displays the type of power unit found.

Value:

2: MICROMASTER 440
3: MICROMASTER 411
4: MICROMASTER 410
5: MICROMASTER 436
6: MICROMASTER 440 PX
7: MICROMASTER 430
100: SINAMICS S
101: SINAMICS S (value)
102: SINAMICS S (combi)
103: SINAMICS S120M (distributed)
112: PM220 (SINAMICS G120)
113: PM230 (SINAMICS G120)
114: PM240 (SINAMICS G120)
115: PM250 (SINAMICS G120 / S120)
116: PM260 (SINAMICS G120)
118: SINAMICS G120 Px
120: PM340 (SINAMICS S120)
126: SINAMICS ET200PRO
130: PM250D (SINAMICS G120D)
133: SINAMICS G120C
135: SINAMICS PMV40
136: SINAMICS PMV60
137: SINAMICS PMV80
138: SINAMICS G110M
150: SINAMICS G
151: PM330 (SINAMICS G120)
200: SINAMICS GM

250: SINAMICS SM
260: SINAMICS MC
300: SINAMICS GL
350: SINAMICS SL
400: SINAMICS DCM

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0203[0...15] Firmware package name / FW pkg name

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the name of the firmware package on the memory card/device memory.

r0203[0]: Name character 1

...

r0203[15]: Name character 16

For the commissioning software, the ASCII characters are displayed uncoded.

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r0204[0...n] Power unit hardware properties / PU HW property

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties supported by the power unit hardware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Device type	DC/AC device	AC/DC device	-
01	RFI filter available	Yes	No	-
02	Active Line Module available	Yes	No	-
03	Smart Line Module available	Yes	No	-
04	Basic Line Module available with thyristor bridge	Yes	No	-
05	Basic Line Module available with diode bridge	Yes	No	-
06	Liquid cooling with cooling unit (chassis PU)	Yes	No	-
07	F3E regenerative feedback into the line supply	Yes	No	-
08	Internal Braking Module	Yes	No	-
09	Different cooling type supported	Yes	No	-
12	Safe Brake Control (SBC) supported	No	Yes	-
13	Safety Integrated supported	Yes	No	-
14	Internal LC output filter	Yes	No	-
15	Line voltage	1-phase	3-phase	-

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0204[0...n] Power unit hardware properties / PU HW property

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties supported by the power unit hardware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Device type	DC/AC device	AC/AC device	-
01	RFI filter available	Yes	No	-
02	Active Line Module available	Yes	No	-
03	Smart Line Module available	Yes	No	-
04	Basic Line Module available with thyristor bridge	Yes	No	-
05	Basic Line Module available with diode bridge	Yes	No	-
06	Liquid cooling with cooling unit (chassis PU)	Yes	No	-
07	F3E regenerative feedback into the line supply	Yes	No	-
08	Internal Braking Module	Yes	No	-
09	Different cooling type supported	Yes	No	-
12	Safe Brake Control (SBC) supported	No	Yes	-
13	Safety Integrated supported	Yes	No	-
14	Internal LC output filter	Yes	No	-
15	Line voltage	1-phase	3-phase	-

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

p0205 Power unit application / PU application

VECTOR_G

Can be changed: C2(1, 2)	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	7	6

Description: Overloading the load duty cycles applies under the prerequisite that before and after the overload, the drive converter is operated with its base load current - in this case, a load duty cycle of 300 s is used as basis.

For booksize drive units, the following applies:

Only the setting p0205 = 0 can be selected. In this particular case, the base load current has a load duty cycle of 150 % for 60 s and 176 % for 30 s.

For chassis units, the following applies:

The base load current for a low overload condition is based on a load duty cycle 110 % for 60 s and 150 % for 10 s.

The base load current for a high overload condition is based on a load duty cycle 150 % for 60 s and 160 % for 10 s.

Value:
0: Load duty cycle with high overload for vector drives
1: Load duty cycle with low overload for vector drives
6: S1 duty cycle for servo drives (feed drive)
7: S6 duty cycle for servo drives (spindle drive)

Note: When the parameter is changed, all of the motor parameters and the control mode are pre-assigned according to the selected application.

The parameter has no influence when calculating the thermal overload.

p0205 can only be changed to the settings that are saved in the power unit EEPROM.

The parameter value is not reset when the factory setting is restored (see p0010 = 30, p0970).

r0206[0...4] Rated power unit power / PU P_rated

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** 14_6	**Unit selection:** p0100
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the rated power unit power for various load duty cycles.

Index:
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 cont duty cyc
[4] = S6 load duty cycle

Dependency: IECdrives (p0100 = 0): Units kW
NEMA drives (p0100 = 1): Units hp
Refer to: p0100, p0205

r0207[0...4] Rated power unit current / PU PI_rated

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the rated power unit power for various load duty cycles.

Index:
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 cont duty cyc
[4] = S6 load duty cycle

Dependency: Refer to: p0205

r0208 Rated power unit line supply voltage / PU U_rated

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the rated line supply voltage of the power unit.

r0208 = 400 : 380 - 480 V +/-10 %

r0208 = 500 : 500 - 600 V +/-10 %

r0208 = 690 : 660 - 690 V +/-10 %

For the Basic Line Module (BLM) the following applies:

r0208 = 690 : 500 - 690 V +/-10 %

r0209[0...4] Power unit maximum current / PU I_max

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8750, 8850, 8950
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum output current of the power unit.

Index:
[0] = Catalog
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 load duty cycle
[4] = S6 load duty cycle

Dependency: Refer to: p0205

p0210	**Drive unit line supply voltage / V_connect**		
B_INF	**Can be changed:** C2(1)	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8760
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	70 [Vrms]	1000 [Vrms]	400 [Vrms]

Description: Sets the drive unit supply voltage (3-ph. AC).

The value corresponds to the rms value of the phase-to-phase rated line supply voltage.

Dependency: The parameter can be reduced to p0210 = 70 V if p0212.0 is set.

Notice: When connected to 3-ph. 230 V AC (only booksize units) the following must be observed:

- the undervoltage and overvoltage limits change (r0296, r0297).

- when using the internal braking chopper of Basic Line Modules (20 or 40 kW) the threshold when the braking chopper becomes active is reduced to 385 V. When using an external braking chopper, it must be ensured that a suitable activation threshold is used.

- all of the components connected to this DC link must also be adapted to the low line supply voltage. It is especially important that the rated DC voltage of all of the drives connected to this DC link is set with p0210 (e.g. p0210(SERVO) = 1.35 x p0210(B_INF) = 310 V).

- it is not possible to use a Control Supply Module (CSM) to generate a 24 V supply from the DC link, as the minimum continuous DC link voltage should not be below 430 V.

Note: The supply voltage range depends on the voltage class of the power unit.

400 V chassis units: 380 V <= p0210 <= 480 V

690 V chassis units: 500 V <= p0210 <= 690 V

400 V booksize units can also be connected to 3-ph. 230 V AC:

400 V booksize units: 180 V <= p0210 <= 480 V

A reduced supply voltage up to 70 V is possible if p0212.0 = 1 has been set.

p0210	**Drive unit line supply voltage / V_connect**		
VECTOR_G	**Can be changed:** C2(2), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1 [V]	63000 [V]	600 [V]

Description: Sets the drive unit supply voltage.

AC/AC unit: The rms value of the phase-to-phase line supply voltage should be entered.

DC/AC unit: The rated DC voltage of the connection busbar should be entered.

Dependency: Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0.

The switch-in thresholds of the Vdc_max controller (r1242, r1282) are then directly determined using p0210.

The parameter can be reduced to p0210 = 100 V if p0212.0 = 1 has been set.

Refer to: p0212

Notice: If, in the switched-off state (pulse inhibit), the supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating the next time the system is switched on. In this case, an appropriate alarm A07401 is output.

Note: Setting ranges for p0210 as a function of the rated power unit voltage:

U_rated = 400 V:

- p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V (DC/AC)

U_rated = 500 V:

- p0210 = 500 ... 600 V (AC/AC), 675 ... 900 V (DC/AC)

U_rated = 660 ... 690 V:

- p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC)

U_rated = 500 ... 690 V:

- p0210 = 500 ... 690 V (AC/AC), 675 ... 1035 V (DC/AC)

The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210:

Vdc_pre = p0210 * 0.82 * 1.35 (AC/AC)

Vdc_pre = p0210 * 0.82 (DC/AC)

The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage:

U_rated = 400 V:

- U_min = p0210 * 0.78 (AC/AC) > 330 V, p0210 * 0.60 (DC/AC) > 380 V

U_rated = 500 V:

- U_min = p0210 * 0.76 (AC/AC) > 410 V

U_rated = 660 ... 690 V:

- U_min = p0210 * 0.82 (AC/AC) > 565 V, p0210 * 0.63 (DC/AC) > 650 V

U_rated = 500 ... 690 V:

- U_min = p0210 * 0.82 (AC/AC) > 420 V, p0210 * 0.63 (DC/AC) > 480 V

p0212 Power unit configuration / PU config

B_INF

Can be changed: C2(2)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the power unit configuration.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Drive unit line supply voltage reduced	Yes	No	-
02	Supply voltage tolerance range extended	Yes	No	-
05	Contactor display inputs/outputs status	Yes	No	9814

Dependency: Re bit 00:

Reduced supply voltages are only possible on booksize power units.

Bit 0 = 1 can only be set if r0192.22 = 1.

Refer to: r0192, p0210

Caution: Re bit 00:

Working with reduced input voltages de-activates undervoltage detection.

This function may only be used by personnel with expert knowledge!

Re bit 03:

If the automatic setting of the Vdc max limit is deactivated, then all of the components connected to the DC link must be suitable for the maximum DC link voltage of the power unit (e.g. 820 V for 400 V units).

Note: Re bit 00 = 0:

It is not possible to reduce the supply voltage in p0210 to below 180 V.

Re bit 00 = 1:

With this setting the supply voltage in p0210 can be reduced to 70 V. Bit 0 = 1 can only be set for booksize power units with a rated power of up to 40 kW.

The activation of this function is retentively saved in the unit and for incorrect design of the application can result in loss of warranty!

Re bit 05 = 1:

The status of the inputs/outputs for the power unit contactors is displayed in r0256.

This only applies to chassis power units with 3 AC line connection and line contactors.

The status display is only effective after parameter save and POWER ON.

p0212 Power unit configuration / PU config

VECTOR_G	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dyn. index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 bin

Description: Sets the power unit configuration.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Drive unit line supply voltage reduced	Yes	No	-
01	External pre-charging present	Yes	No	-
03	Automatically adapt Vdc_max limit	No	Yes	-
05	Contactor display inputs/outputs status	Yes	No	9814

Dependency: Re bit 00:

Reduced supply voltages are only possible for booksize and chassis power units (DC/AC).

Bit 0 = 1 can only be set if r0192.22 = 1.

Re bit 01 = 1:

The external pre-charging setting only affects the DC/AC power units.

Re bit 03 = 1:

The automatic adaptation (reduction) of the Vdc max limit is deactivated (only for chassis power units). Bit 3 only has an effect, if bit 0 is simultaneously set.

Refer to: r0192, p0210

Caution: Re bit 00:

Working with reduced input voltages de-activates undervoltage detection.

Re bit 03:

If the automatic setting of the Vdc max limit is deactivated, then all of the components connected to the DC link must be suitable for the maximum DC link voltage of the power unit (e.g. 820 V for 400 V units).

Note: Re bit 00 = 0:

It is not possible to reduce the supply voltage in p0210.

Re bit 00 = 1:

With this setting the supply voltage in p0210 can be reduced to 100 V.

Booksize PU: only for operating mode p1300 = 19

Chassis PU: only for operating mode p1300 > 19 and closed-loop DC voltage control

Re bit 01 = 0:

There is no external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is bypassed.

Re bit 01 = 1:

There is external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is calculated.

Re bit 03 = 0:

The DC link voltage limit is calculated from p0210.

Re bit 03 = 1:

The DC link voltage limit is set to the maximum value of the power unit.

Re bit 05 = 1:

The status of the inputs/outputs for the power unit contactors is displayed in r0256.

This only applies to chassis power units with 3 AC line connection and line contactors.

The status display is only effective after parameter save and POWER ON.

p0230 Drive filter type motor side / Drv filt type mot

VECTOR_G	Can be changed: C2(1, 2)	Calculated: -	Access level: 1
	Data type: Integer16	Dyn. index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	0	4	0

Description: Sets the type of the filter at the motor side.

Value:
0: No filter
1: Motor reactor
2: dv/dt filter
3: Sine-wave filter Siemens
4: Sine-wave filter third-party

Dependency: The following parameters are influenced using p0230:

p0230 = 1:

--> p0233 (power unit, motor reactor) = filter inductance

p0230 = 3:

--> p0233 (power unit, motor reactor) = filter inductance

--> p0234 (power unit sine-wave filter capacitance) = filter capacitance

--> p0290 (power unit overload response) = inhibit pulse frequency reduction

--> p1082 (maximum speed) = Fmax filter / pole pair number

--> p1800 (pulse frequency) >= nominal pulse frequency of the filter

--> p1802 (modulator modes) = space vector modulation without overcontrol

--> p1811 (modulator configuration) = wobbulation amplitude

--> p1909 (motor data identification, control word) = only Rs measurement

p0230 = 4:

--> p0290 (power unit overload response) = inhibit pulse frequency reduction

--> p1802 (modulator modes) = space vector modulation without overcontrol

--> p1811 (modulator configuration) = wobbulation amplitude

--> p1909 (motor data identification, control word) = only Rs measurement

The user must set the following parameters according to the data sheet of the sine-wave filter and also the user must check whether they are permitted.

--> p0233 (power unit, motor reactor) = filter inductance

--> p0234 (power unit sine-wave filter capacitance) = filter capacitance

--> p1082 (maximum speed) = Fmax filter / pole pair number

--> p1800 (pulse frequency) >= nominal pulse frequency of the filter

Refer to: p0233, p0234, p0290, p1082, p1800, p1802

Note: if a filter type cannot be selected, then this filter type is not permitted for the Motor Module.

p0230 = 1:

The output frequency of booksize power units with output reactors is restricted to 120 Hz, for blocksize and chassis power units, to 150Hz. The maximum pulse frequency for booksize and blocksize power units is 4 kHz, for chassis power units, twice the rated pulse frequency (2.5 kHz or 4 kHz).

p0230 = 2:

Chassis power units with dv/dt filter, depending on the rated pulse frequency, may be operated with a maximum pulse frequency of p1800 = 2.5 kHz or 4 kHz. The output frequency is limited to 150 Hz.

p0230 = 3:

Sine-wave filters with a rated pulse frequency of 1.25 or 2.5 kHz should only be operated with a current controller sampling rate p0115[0] = 400 µs, sine-wave filters with a rated pulse frequency of 2 or 4 kHz with p0115[0] = 250 µs.

The sine-wave filter cannot be selected if the current controller sampling rate has not been appropriately set.

Chassis power units with sine-wave filter are limited to output frequencies of 115 Hz or 150 Hz.

p0233 Power unit motor reactor / PU mot reactor

VECTOR_G			
	Can be changed: C2(2), U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [mH]	1000.000 [mH]	0.000 [mH]

Description: Enter the inductance of a filter connected at the power unit output.

Dependency: This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit.

Refer to: p0230

Note: When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0) and then the controller calculation (p0340 = 3) is carried out.

p0234 Power unit sine-wave filter capacitance / PU sine filter C

VECTOR_G

Can be changed: C2(2), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [µF]	1000.000 [µF]	0.000 [µF]

Description: Enters the capacitance of a sine-wave filter connected at the power unit output.

Dependency: This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit.

Refer to: p0230

Note: The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground).

When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0).

p0235 Motor reactor in series number / L_mot in SeriesQty

VECTOR_G

Can be changed: C2(1, 2)	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	3	1

Description: Sets the number of reactors connected in series at the power unit output.

Dependency: Refer to: p0230

Notice: If the number of motor reactors connected in series does not correspond to this parameter value, then this can result in an unfavorable control behavior.

r0238 Internal power unit resistance / PU R internal

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the internal resistance of the power unit (IGBT and line resistance).

Note: For a parallel circuit, the value corresponds to the resistance of a power unit.

p0247 Voltage measurement configuration / U_mes config

VECTOR_G

Can be changed: C2(2), U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the configuration for the voltage measurement.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
05	Use voltage measured values for flying restart	Yes	No	-

Warning:

Re p0247.5 = 1 (only for induction motors):

If the Voltage Sensing Module (VSM) is connected to the line voltage, then the line frequency is interpreted as speed. In this case, the flying restart function cannot be used together with VSM and the bit should be set to 0.

If only one VSM is connected at the Motor Module, line synchronization must be deactivated (p3800 = 0), in order to be able to use flying restart together with VSM. If two VSMs are connected, the second VSM is used for flying restart.

Note: The functions are only available if a Voltage Sensing Module (VSM) is assigned to the Motor Module (p0150, p0151).

p0249 Power unit cooling type / PU cool type

VECTOR_G

Can be changed: C2(1, 2)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the cooling type for booksize compact power units.

This therefore defines whether for these power units, the internal air cooling is shut down and instead, the "Cold-Plate" cooling type is used.

Value:
0: Air cooling int
1: Cold-Plate

Note: For booksize compact power units, there is a 4 at the 5th position in the Order No.

The parameter is irrelevant for all other power unit types.

p0251[0...n] Operating hours counter power unit fan / PU fan t_oper

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [h]	4294967295 [h]	0 [h]

Description: Displays the power unit fan operating hours.

The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).

Dependency: Refer to: p0252

Note: For liquid-cooled chassis power units, the operating hours of the inner fan are displayed in p0251 and not in p0254.

p0252 Maximum operating time power unit fan / PU fan t_oper max

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [h]	100000 [h]	40000 [h]

Description: Sets the maximum operating time of the power unit fan.

The pre-alarm (warning) is output 500 hours before this set value.

The monitoring is de-activated with p0252 = 0.

Dependency: Refer to: p0251

p0254[0...n] Operating hours counter power unit fan inside the converter / PU inner fan t_op

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [h]	4294967295 [h]	0 [h]

Description: Displays the power unit fan operating hours of the internal fan in the power unit.

The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).

Note: For liquid-cooled chassis power units, the operating hours of the inner fan are displayed in p0251 and not in p0254.

p0255[0...7] Power unit contactor monitoring time / PU cont t_monit

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1 [ms]	65535 [ms]	[0] 0 [ms] [1] 0 [ms] [2] -1 [ms] [3] -1 [ms] [4...7] 0 [ms]

Description: Sets the monitoring time for internal monitoring of the contactor feedback contacts.

For a value 0.0 or negative values, the particular monitoring is deactivated.

Re index 0 ... 3:

Is used to monitor the delay time between the control and feedback signals of the particular contactor.

Re index 4 ... 7:

Is used for simultaneity monitoring for a parallel connection. After a contactor has been opened or closed, this checks whether, after the monitoring time has expired, all contactors of the parallel connection have assumed the same state.

Re Index 2, 3:

The value -1.0 means that the particular opening time is taken from Index 0 or 1.

Index:
[0] = Pre-charging contactor closing time
[1] = Bypass contactor closing time
[2] = Pre-charging contactor opening time
[3] = Bypass contactor opening time
[4] = Simultaneity pre-charging contactor closing time
[5] = Simultaneity bypass contactor closing time
[6] = Simultaneity pre-charging contactor opening time
[7] = Simultaneity bypass contactor opening time

Dependency: Refer to: r0256

Notice: Re index 4 ... 7:

The simultaneity monitoring is only activate after parameter save and POWER ON.

Note: - This parameter is only effective for chassis power units with 3 AC line connection and line contactors.

- The simultaneity monitoring can only be activated for a parallel connection.
- The feedback signal input of an open bypass contactor must be displayed in r0256 = 0.
- The feedback signal input of an open pre-charging contactor must be displayed in r0256 = 1.
- Determining practical monitoring times can be supported by a tracing r0256.

For power unit firmware version less than 4.6, the following applies:

There are no separate monitoring times for the delay time between opening and closing. In this case, the maximum of the opening time and closing time is effective.

r0256.0...31 CO/BO: Power unit contactor inputs/outputs status / PU contact IO stat

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9814
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status of the inputs/outputs of the power unit contactors.

The display is activated in p0212.5.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	PDS0 pre-charging/line contactor control output	High	Low	-
01	PDS0 pre-charging/line contactor feedback signal input	High	Low	-
02	PDS0 bypass contactor control output	High	Low	-
03	PDS0 bypass contactor feedback signal input	High	Low	-
04	PDS1 pre-charging/line contactor control output	High	Low	-
05	PDS1 pre-charging/line contactor feedback signal input	High	Low	-
06	PDS1 bypass contactor control output	High	Low	-
07	PDS1 bypass contactor feedback signal input	High	Low	-
08	PDS2 pre-charging/line contactor control output	High	Low	-
09	PDS2 pre-charging/line contactor feedback signal input	High	Low	-
10	PDS2 bypass contactor control output	High	Low	-
11	PDS2 bypass contactor feedback signal input	High	Low	-
12	PDS3 pre-charging/line contactor control output	High	Low	-
13	PDS3 pre-charging/line contactor feedback signal input	High	Low	-
14	PDS3 bypass contactor control output	High	Low	-
15	PDS3 bypass contactor feedback signal input	High	Low	-
16	PDS4 pre-charging/line contactor control output	High	Low	-
17	PDS4 pre-charging/line contactor feedback signal input	High	Low	-
18	PDS4 bypass contactor control output	High	Low	-
19	PDS4 bypass contactor feedback signal input	High	Low	-
20	PDS5 pre-charging/line contactor control output	High	Low	-
21	PDS5 pre-charging/line contactor feedback signal input	High	Low	-
22	PDS5 bypass contactor control output	High	Low	-
23	PDS5 bypass contactor feedback signal input	High	Low	-
24	PDS6 pre-charging/line contactor control output	High	Low	-
25	PDS6 pre-charging/line contactor feedback signal input	High	Low	-
26	PDS6 bypass contactor control output	High	Low	-
27	PDS6 bypass contactor feedback signal input	High	Low	-
28	PDS7 pre-charging/line contactor control output	High	Low	-
29	PDS7 pre-charging/line contactor feedback signal input	High	Low	-
30	PDS7 bypass contactor control output	High	Low	-
31	PDS7 bypass contactor feedback signal input	High	Low	-

Dependency: Refer to: p0212

Note: This parameter is only effective for chassis power units with 3 AC line connection and line contactors.

PDS: Power unit Data Set

p0260 Cooling unit starting time 1 / RKA start time 1

B_INF (Cool_unit), VECTOR_G (Cool_unit)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9795
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	60.0 [s]	5.0 [s]

Description: Sets starting time 1 to monitor the cooling unit after power-on command.

After powering up, the following signals must be present within starting time 1:

- "RKA powered up"
- "RKA liquid flow OK"

When a fault occurs, an appropriate message is output.

Note: RKA: Cooling unit

p0261 Cooling unit starting time 2 / RKA start time 2

B_INF (Cool_unit), VECTOR_G (Cool_unit)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9795
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	1200.0 [s]	180.0 [s]

Description: Sets starting time 2 to monitor the cooling unit after power-on command.

After powering up, the following signals must be present within starting time 2:

- "RKA conductivity, no fault"
- "RKA conductivity, no alarm"

When a fault occurs, an appropriate message is output.

Dependency: Refer to: p0266

p0262 Cooling unit fault conductivity delay time / RKA cond t_del

B_INF (Cool_unit), VECTOR_G (Cool_unit)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9795
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	30.0 [s]	0.0 [s]

Description: Sets the delay time for the fault "RKA: Conductive limit value exceeded" during operation.

The fault is only output if, during operation, the conductivity exceeds the permissible fault value and the value remains for a longer time than is set in this parameter.

p0263 Cooling unit fault liquid flow delay time / RKA flow t_del

B_INF (Cool_unit), VECTOR_G (Cool_unit)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9795
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	20.0 [s]	3.0 [s]

Description: Sets the delay time for the fault "RKA: Liquid flow too low".

The fault is only output if the cause is present for a time longer than is set in this parameter.

p0264	**Cooling unit run-on time / RKA run-on time**		
B_INF (Cool_unit), VECTOR_G (Cool_unit)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9795
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [s]	180.0 [s]	30.0 [s]

Description: Sets the run-up time of the cooling unit after a power-off command.

r0265.0...3	**BO: Cooling unit control word / RKA STW**		
B_INF (Cool_unit), VECTOR_G (Cool_unit)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the control word for the cooling unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Power up cooling unit	Activating	De-activating	-
01	Message converter off	OFF	ON	-
02	Acknowledge faults	Acknowledgement	No acknowledgement	-
03	Leakage sensing OK	No leaked liquid	Leaked liquid	-

p0266[0...7]	**BI: Cooling unit feedback signals signal source / RKA fdbk S_src**		
B_INF (Cool_unit), VECTOR_G (Cool_unit)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal sources for the feedback signals from the cooling unit.

Index:
[0] = Cooling unit powered up
[1] = Cooling unit ready to be powered up
[2] = Cooling unit no alarm present
[3] = Cooling unit no fault present
[4] = Cooling unit no leaked liquid
[5] = Cooling unit liquid flow OK
[6] = Cooling unit conductivity < fault threshold
[7] = Cooling unit conductivity < alarm threshold

r0267.0...7	**BO: Cooling unit status word / RKA ZSW**		
B_INF (Cool_unit), VECTOR_G (Cool_unit)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the status word of the cooling unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	RKA powered up	Yes	No	-
01	RKA ready to be powered up	Yes	No	-
02	RKA no alarm present	Yes	No	-
03	RKA no fault present	Yes	No	-
04	RKA no leaked fluid	Yes	No	-

05	RKA liquid flow OK	Yes	No	-
06	RKA conductivity no fault	Yes	No	9974
07	RKA conductivity no alarm	Yes	No	9974

Dependency: Refer to: p0266

p0278 DC link voltage undervoltage threshold reduction / Vdc U_under red

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-80 [V]	0 [V]	0 [V]

Description: Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.

Dependency: Refer to: p0210, r0296

Notice: When using a Control Supply Module (CSM) for 24 V supply from the DC link, the minimum continuous DC link voltage may not lie below 430 V. DC link voltages in the range 300 ... 430 V are permissible up to a duration of 1 min.

For chassis power units, this parameter has no significance.

Note: The resulting shutdown threshold can be read in r0296 and is dependent on the selected rated voltage (p0210) and the power unit being used.

p0279 DC link voltage offset alarm threshold / Vdc offs A thresh

B_INF

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8760, 8864, 8964
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [V]	500 [V]	0 [V]

Description: Sets the voltage threshold to initiate alarm A06810.

The value represents an offset so that the alarm threshold is obtained from the total of r0296 and p0279.

Dependency: Refer to: p0210, r0296

Note: The absolute value of the undervoltage threshold r0296 depends on the selected unit supply voltage (p0210).

p0287[0...1] Ground fault monitoring thresholds / Gnd flt threshold

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	100.0 [%]	[0] 6.0 [%] [1] 16.0 [%]

Description: Sets the shutdown thresholds for the ground fault monitoring.

The setting is made as a percentage of the maximum current of the power unit (r0209).

Index: [0] = Threshold at which pre-charging starts
[1] = Threshold at which pre-charging stops

Note: The parameter only applies to booksize and chassis power units.

De-activating the ground fault monitoring:

- Sequence: --> p0287[1] = 0 --> p0287[0] = 0

- irrespective of the firmware version of the power unit.

Sets the thresholds:

- the prerequisite is at least firmware version 2.2 of the power unit.

r0289	**CO: Maximum power unit output current / PU I_outp max**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the actual maximum output current of the power unit taking into account derating factors.

p0290	**Power unit overload response / PU overld response**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	13	0

Description: Sets the response to a thermal overload condition of the power unit.

The following quantities can result in a response to thermal overload:

- heat sink temperature (r0037[0]).

- chip temperature (r0037[1]).

- power unit overload I2t (r0036).

Possible measures to avoid thermal overload:

- reduce the output current limit r0289 and r0067 (for closed-loop speed/velocity or torque/force control) or the output frequency (for U/f control) indirectly via the output current limit and the intervention of the current limiting controller).

- reduce the pulse frequency (only for vector control).

A reduction, if parameterized, is always realized after an appropriate alarm is output.

Value:

0: Reduce output current or output frequency
1: No reduction shutdown when overload threshold is reached
2: Reduce I_output or f_output and f_pulse (not using I2t)
3: Reduce the pulse frequency (not using I2t)
12: I_output or f_output and automatic pulse frequency reduction
13: Automatic pulse frequency reduction

Dependency: If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).

For a thermal power unit overload, an appropriate alarm or fault is output, and r2135.15 or r2135.13 set.

p0290 = 12, 13 are applicable only for blocksize power units.

Refer to: r0036, r0037, p0108, r0108, p0230, r2135

Notice: If the thermal overload of the power unit is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power unit is always protected irrespective of the setting of this parameter.

Note: The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).

Under overload conditions, the current and torque limit are reduced, and therefore the motor is braked and forbidden speed ranges (e.g. minimum speed p1080 and suppression [skip] speeds p1091 ... p1094) can be passed through.

For p0290 = 2, 3, 12, 13, the I2t overload detection of the power unit does not influence the response "Reduce pulse frequency".

When the motor data identification routine is selected, p0290 cannot be changed.

r0293	**CO: Power unit alarm threshold model temperature / PU A_thr mod_temp**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Converter	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Temperature alarm threshold for the difference from the chip and heat sink temperature in the thermal model.

Dependency: Refer to: r0037

Note: The parameter is only relevant for chassis power units.

p0294	**Power unit alarm with I2t overload / PU I2t alrm thresh**		
B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.0 [%]	100.0 [%]	95.0 [%]

Description: Sets the alarm threshold for the I2t power unit overload.

Dependency: Refer to: r0036

Note: The parameter is only relevant for booksize units!

p0294	**Power unit alarm with I2t overload / PU I2t alrm thresh**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8014
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.0 [%]	100.0 [%]	95.0 [%]

Description: Sets the alarm threshold for the I2t power unit overload.

Drive:

If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.

Infeed:

When the threshold value is exceeded, only an overload alarm is output.

Dependency: Refer to: r0036, p0290

Note: The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.

p0295	**Fan run-on time / Fan run-on time**		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [s]	600 [s]	0 [s]

Description: Sets the fan run-on time after the pulses for the power unit have been canceled.

Note: - Under certain circumstances, the fan can continue to run for longer than was set (e.g. as a result of the excessively high heat sink temperature).

- For values less than 1 s, a 1 s run on time for the fan is active.

r0296	DC link voltage undervoltage threshold / Vdc U_lower_thresh		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8750, 8760, 8850, 8864, 8950, 8964
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Threshold to detect a DC link undervoltage.

If the DC link voltage falls below this threshold, the drive unit is tripped due to a DC link undervoltage condition.

Note: The value depends on the device type and the selected device rated voltage (p0210).

r0296	DC link voltage undervoltage threshold / Vdc U_lower_thresh		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Threshold to detect a DC link undervoltage.

If the DC link voltage falls below this threshold, the drive unit is tripped due to a DC link undervoltage condition.

Dependency: Refer to: p0278

Note: The value depends on the device type and the selected device rated voltage (p0210).

For booksize drive units, the following applies:

The undervoltage threshold can be reduced with p0278.

r0297	DC link voltage overvoltage threshold / Vdc U_upper_thresh		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8750, 8760, 8850, 8864, 8950, 8964
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Threshold to detect a DC link overvoltage.

If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.

p0300[0...n]	Motor type selection / Mot type sel		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 6310
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10001	0

Description: Selects the motor type or starts to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000 or 10001, if there is a second data set).

For p0300 < 10000 the following applies:

The first digit of the parameter value always defines the general motor type and corresponds to the third-party motor belonging to a motor list:

1 = Rotating induction motor

2 = Rotating synchronous motor

3 = Linear induction motor (reserved)

4 = Linear synchronous motor

5 = Synchronous motor separately-excited

7 = SIEMOSYN motor

8 = Reluctance motor (for textile applications)

The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/AOP).

Value:

0: No motor
1: Induction motor
2: Synchronous motor
7: SIEMOSYN synchronous motor
8: Reluctance motor textile
10: 1LE1 induction motor
11: 1LA1 induction motor
12: 1LE2 induction motor
13: 1LG6 induction motor
14: 1xx1 SIMOTICS FD induction motor
15: 1LA5 induction motor
16: 1LA6 induction motor
17: 1LA7 induction motor
18: 1xx8 SIMOTICS TN induction motor
19: 1LA9 induction motor
100: 1LE1 induction motor
102: 1PH2 induction motor
104: 1PH4 induction motor
107: 1PH7 induction motor
108: 1PH8 induction motor
111: xxxx induction motor OEM
134: 1PM4 induction motor
136: 1PM6 induction motor
166: 1PL6 induction motor
222: xxxx synchronous motor OEM
264: 1FW4 synchronous motor
283: 1FW3 synchronous motor
10000: Motor with DRIVE-CLiQ
10001: Motor with DRIVE-CLiQ 2nd data set

Dependency:

Motors, selection 206, 236, 237 cannot be operated (also not as motor with DRIVE-CLiQ).

p0300 = 5 cannot be selected with SINAMICS G.

When the motor type is changed, the code number in p0301 may be reset to 0.

p0300 = 12 can only be selected for p0100 = 1 (NEMA).

When selecting a motor type from the 1LA5 and 1LA7 series, parameters p0335, p0626, p0627 and p0628 of the thermal motor model are pre-assigned as a function of p0307 and p0311.

When selecting a 1FW4 motor, if the motor database permits this, when exiting commissioning then p1750.5 is automatically set. This is the reason that after exiting commissioning, all parameters must be saved and a warm restart must be initiated (e.g. p0009 = 30, p0976 = 3).

Refer to: p0301

Caution:

A permanent-magnet synchronous motor cannot be operated with an SSI encoder without HTL/TTL track.

A separately-excited synchronous motor can only be operated with an SSI encoder if this is used as the second encoder and an HTL/TTL encoder is used as the first encoder.

Notice:

If a catalog motor is selected (p0300 >= 100) and an associated motor code number (p0301), then the parameters that are associated with this list cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx). Write protection is automatically canceled when the results of motor data identification are copied to the motor parameters.

The motor type of a catalog motor corresponds to the upper three digits of the code number or the following assignment (if the particular motor type is listed):

Type/code number ranges

100 / 100xx, 110xx, 120xx, 130xx, 140xx, 150xx

102 / 102xx, 112xx, 122xx

104 / 104xx, 114xx, 124xx

107 / 107xx, 117xx, 127xx

108 / 108xx, 118xx, 128xx, 138xx, 148xx, 158xx

134 / 134xx, 144xx, 154xx

136 / 136xx, 146xx, 156xx

166 / 166xx, 176xx, 186xx

264 / 264xx, 274xx, 284xx, 294xx

283 / 283xx, 293xx

For 1PQ8 motors (p0300 = 18) the fan type p0335 should be set to 5.

Note: With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).

If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.

A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.

Motor types with a value below p0300 < 100 correspond to the selection of a third-party motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for a third-party motor.

This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

p0301[0...n] Motor code number selection / Mot code No. sel

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: The parameter is used to select a motor from a motor parameter list.

When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.

Dependency: Code numbers can only be selected for motor types that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1.

Refer to: p0300

Note: The motor code number can only be changed if the matching catalog motor was first selected in p0300.

For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read in (r0302) if p0300 is set to 10000.

When selecting a catalog motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected.

r0302[0...n] Motor code number of motor with DRIVE-CLiQ / Mot code mot w/ DQ

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the motor code number from the saved motor data from a motor with DRIVE-CLiQ.

Note: Drive commissioning can only be exited if the code number that was downloaded (r0302) matches the stored code number (p0301). If the numbers differ, then the motor data set should be re-loaded using p0300 = 10000.

The motor data are always expected from the first encoder that is assigned to the drive data sets (refer to p0187 = encoder 1) data set number.

The value is not updated cyclically but only on specific events (e.g. update DRIVE-CLiQ device).

r0302 = 0: No motor with DRIVE-CLiQ found

r0303[0...n] Motor with DRIVE-CLiQ status word / Motor w DQ ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the automatic motor parameter sensing of a motor with DRIVE-CLiQ.

Motor parameter sensing takes place in the following events if the SMI is connected to the Motor Module and the encoder is activated (p0145):

- Warm restart
- downloading projects.
- POWER ON (off/on).
- where p0300 = 10000, 10001.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor data set selected	MDS1	MDS0	-
01	Motor connection type	Delta	Star	-
02	Windings can be changed	Yes	No	-
03	Windings can be changed number	2	0	-

Dependency: Refer to: p0145, p0300

Note: SMI: SINAMICS Sensor Module Integrated

p0304[0...n] Rated motor voltage / Mot U_rated

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6301, 6724
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [Vrms]	20000 [Vrms]	0 [Vrms]

Description: Sets the rated motor voltage (rating plate).

Dependency: Refer to: p0349

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When the parameter value is entered the connection type of the motor (star-delta) must be taken into account.

p0305[0...n] Rated motor current / Mot I_rated

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6301
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the rated motor current (rating plate).

Dependency: Refer to: p0349

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

If the rated motor current exceeds twice the maximum drive converter current (r0209), then the maximum current is reduced due to the current harmonics that increase overproportionally (r0067).

Note: When the parameter value is entered the connection type of the motor (star-delta) must be taken into account.

p0306[0...n]	Number of motors connected in parallel / Motor qty		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned8	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	50	1

Description: Number of motors that can be operated in parallel using one motor data set.

Depending on the motor number entered, internally an equivalent motor is calculated.

The following should be carefully observed for motors connected in series:

The following rating plate data should only be entered for one motor:

- resistances and inductances: p0350 ... p0361
- currents: p0305, p0320, p0323, p0325, p0329, p0389, p0390, p0391, p0392
- power ratings: p0307
- masses/moments of inertia: p0341, p0344

All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0333).

Recommend.: For motors connected in parallel, external thermal protection should be provided for each individual motor.

Dependency: Refer to: r0331

Caution: The motors to be connected in parallel must be of the same type and size (same order no. (MLFB)).

The mounting regulations when connecting motors in parallel must be carefully maintained! Especially for synchronous motors, the pole position of motors that are rigidly coupled with one another (mechanically) must be identical.

The number of motors set must correspond to the number of motors that are actually connected in parallel.

After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1).

For synchronous motors connected in parallel with p1300 >= 20, be following applies:

- the individual motors must be mechanically coupled with one another and the EMF must be aligned to one another.

For induction motors that are connected in parallel, but which are not mechanically coupled with one another, then the following applies:

- an individual motor must not be loaded beyond its stall point.

Notice: If p0306 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).

Note: Only operation with U/f characteristic makes sense if more than 10 identical motors are connected in parallel.

Separately-excited synchronous motors must not be connected in parallel.

Synchronous and reluctance motors that are not coupled with one another align themselves when the pulses are switched in. If the motors have different load levels, then equalization currents flow between the motors.

p0307[0...n]	Rated motor power / Mot P_rated		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** 14_6	**Unit selection:** p0100
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-100000.00 [kW]	100000.00 [kW]	0.00 [kW]

Description: Sets the rated motor power (rating plate).

Dependency: IECdrives (p0100 = 0): Units kW

NEMA drives (p0100 = 1): Units hp

Refer to: p0100

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: For generators, a negative rated power should be entered.

p0308[0...n] Rated motor power factor / Mot cos phi rated

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	1.000	0.000

Description: Sets the rated motor power factor (cos phi, rating plate).

For a parameter value of 0.000, the power factor is internally calculated and displayed in r0332.

Dependency: This parameter is only available for IEC motors (p0100 = 0).

Refer to: p0100, p0309, r0332

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

p0309[0...n] Rated motor efficiency / Mot eta_rated

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	99.9 [%]	0.0 [%]

Description: Sets the rated motor efficiency (rating plate).

For a parameter value of 0.0, the power factor is internally calculated and displayed in r0332.

Dependency: This parameter is only visible for NEMA motors (p0100 = 1, 2).

Refer to: p0100, p0308, r0332

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

p0310[0...n] Rated motor frequency / Mot f_rated

VECTOR_G

Can be changed: C2(1, 3)	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6301
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: Sets the rated motor frequency (rating plate).

Dependency: The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0.

The rated frequency is restricted to values between 1.00 Hz and 650.00 Hz.

Refer to: p0311, r0313, p0314

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0310 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

p0311[0...n]	**Rated motor speed / Mot n_rated**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the rated motor speed (rating plate).

For VECTOR the following applies (p0107):

For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330.

It is especially important to correctly enter the rated motor speed for vector control and slip compensation for U/f control.

Dependency: If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.

Refer to: p0310, r0313, p0314

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0311 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

r0313[0...n]	**Motor pole pair number, actual (or calculated) / Mot PolePairNo act**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** 5300
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the number of motor pole pairs. The value is used for internal calculations.

r0313 = 1: 2-pole motor

r0313 = 2: 4-pole motor, etc.

Dependency: For p0314 > 0, the entered value is displayed in r0313.

For p0314 = 0, the pole pair number (r0313) is automatically calculated from the rated power (p0307), rated frequency (p0310) and rated speed (p0311).

Refer to: p0307, p0310, p0311, p0314

Note: For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.

p0314[0...n]	**Motor pole pair number / Mot pole pair No.**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	0

Description: Sets the motor pole pair number.

p0314 = 1: 2-pole motor

p0314 = 2: 4-pole motor, etc.

Dependency: For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.

Notice: If p0314 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

For induction motors, the value need only be input if the rated data of a generator is entered therefore resulting in a negative rated slip. In this case, the number of pole pairs in r0313 is too low by 1 and must be manually corrected.

p0316[0...n] Motor torque constant / Mot kT

VECTOR_G

Can be changed: C2(1, 3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 28_1	**Unit selection:** p0100
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm/A]	400.00 [Nm/A]	0.00 [Nm/A]

Description: Sets the torque constant of the synchronous motor.

p0316 = 0:

The torque constant is calculated from the motor data.

p0316 > 0:

The selected value is used as torque constant.

Dependency: Refer to: r0334

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: This parameter is not used for induction motors (p0300 = 1xx).

p0318[0...n] Motor stall current / Mot I_standstill

VECTOR_G

Can be changed: C2(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the stall current for synchronous motors (p0300 = 2xx).

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is used for the I2t monitoring of the motor (refer to p0611).

This parameter is not used for induction motors (p0300 = 1xx).

p0320[0...n] Motor rated magnetizing current/short-circuit current / Mot I_mag_rated

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 5722
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [Arms]	5000.000 [Arms]	0.000 [Arms]

Description: Induction motors:

Sets the rated motor magnetizing current.

For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331.

Synchronous motors:

Sets the rated motor short-circuit current.

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The magnetization current p0320 for induction motors (not for catalog motors) is reset when quick commissioning is exited with p3900 > 0.

VECTOR:

If, for induction motors, the magnetizing current p0320 is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance p0360 is changed so that the EMF r0337 remains constant.

p0322[0...n]	**Maximum motor speed / Mot n_max**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the maximum motor speed.

Dependency: Refer to: p1082

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0322 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

Note: The parameter has no significance for a value of p0322 = 0.

p0323[0...n]	**Maximum motor current / Mot I_max**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	20000.00 [Arms]	0.00 [Arms]

Description: Sets the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

Note: The parameter has no effect for induction motors.

The parameter has not effect for synchronous motors if a value of 0.0 is entered. The user-selectable current limit is entered into p0640.

p0324[0...n]	**Winding maximum speed / Winding n_max**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the maximum speed for the winding.

The following applies when calculating the maximum speed (p1082):

- for p0324 = 0 or p0532 = 0, p0322 is used.

- for p0324 > 0 and p0532 > 0, the minimum value from the two parameters is used.

Dependency: Refer to: p0322, p0532, p1082

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

If p0324 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3).

p0325[0...n] Motor pole position identification current 1st phase / Mot PolID I 1st ph

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [Arms]	10000.000 [Arms]	0.000 [Arms]

Description: Sets the current for the 1st phase of the two-stage technique for pole position identification routine.

The current of the 2nd phase is set in p0329.

The two-stage technique is selected with p1980 = 4.

Dependency: Refer to: p0329, p1980, p1982, r1984, r1985, r1987, p1990

Notice: When the motor code (p0301) is changed, it is possible that p0325 is not pre-assigned.

p0325 can be pre-assigned using p0340 = 3.

Note: The value is automatically pre-assigned for the following events:

- For p0325 = 0 and automatic calculation of the closed-loop control parameters (p0340 = 1, 2, 3).
- for quick commissioning (p3900 = 1, 2, 3).

p0327[0...n] Optimum motor load angle / Mot phi_load opt

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 5722, 6721
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [°]	135.0 [°]	90.0 [°]

Description: Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE motors).

SERVO: The load angle is measured at 1.5 x rated motor current.

VECTOR: The load angle is measured at the rated motor current.

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: This parameter has no significance for induction motors.

For synchronous motors without reluctance torque, a angle of 90 degrees must be set.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0328[0...n] Motor reluctance torque constant / Mot kT_reluctance

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000.00 [mH]	1000.00 [mH]	0.00 [mH]

Description: Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors).

This parameter has no significance for induction motors.

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: For synchronous motors without reluctance torque, the value 0 must be set.

p0329[0...n] Motor pole position identification current / Mot PolID current

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the current for the pole position identification routine (p1980 = 1).

For a two-stage technique (p1980 = 4) , the current is set for the 2nd phase.

The current for the 1st phase is set in p0325.

Dependency: The following applies for vector drives:

If a maximum current (p0323) was not parameterized, then p0329 is limited to the rated motor current.

Refer to: p0325, p1980, p1982, r1984, r1985, r1987, p1990

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

r0330[0...n] Rated motor slip / Mot slip_rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the rated motor slip.

Dependency: The rated slip is calculated from the rated frequency, rated speed and number of pole pairs.

Refer to: p0310, p0311, r0313

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0331[0...n] Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 5722, 6722, 6724
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Induction motor:

Displays the rated magnetizing current from p0320.

For p0320 = 0, the internally calculated magnetizing current is displayed.

Synchronous motor:

Displays the rated short-circuit current from p0320.

Dependency: If p0320 was not entered, then the parameter is calculated from the rating plate parameters.

Note: In the case of multi-motor operation r0331 is increased by the factor p0306 compared to p0320.

r0332[0...n] Rated motor power factor / Mot cos phi rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the rated power factor for induction motors.

For IEC motors, the following applies (p0100 = 0):
For p0308 = 0, the internally-calculated power factor is displayed.
For p0308 > 0, this value is displayed.
For NEMA motors, the following applies (p0100 = 1, 2):
For p0309 = 0, the internally-calculated power factor is displayed.
For p0309 > 0, this value is converted into the power factor and displayed.

Dependency: If p0308 is not entered, the parameter is calculated from the rating plate parameters.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0333[0...n] Rated motor torque / Mot M_rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 7_4	**Unit selection:** p0100
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the rated motor torque.

Dependency: IEC drives (p0100 = 0): unit Nm
NEMA drives (p0100 = 1): unit lbf ft

Note: For induction and reluctance motors, r0333 is calculated from p0307 and p0311.
For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.
In the case of multi-motor operation r0333 is increased by the factor p0306 compared to the rated torque of an individual motor.

r0334[0...n] Actual motor-torque constant / Mot kT act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 28_1	**Unit selection:** p0100
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm/A]	- [Nm/A]	- [Nm/A]

Description: Displays the torque constant of the synchronous motor used.

Dependency: IEC drives (p0100 = 0): unit Nm / A
NEMA drives (p0100 = 1): unit lbf ft / A
Refer to: p0316

Note: This parameter is not used for induction motors (p0300 = 1xx).
For synchronous motors, parameter r0334 = p0316 is displayed. For p0316 = 0, r0334 is calculated from p0305 and p0312 or p0305, p0307, and p0311.

p0335[0...n] Motor cooling type / Mot cool type

VECTOR_G

Can be changed: C2(1, 3), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	128	0

Description: Sets the motor cooling system used.

Value:
0: Non-ventilated
1: Forced cooling
2: Liquid cooling
4: Non-ventilated and internal fan
5: Forced cooling and internal fan
6: Liquid cooling and internal fan
128: No fan

Dependency: For 1LA5 and 1LA7 motors (p0300), the parameter is pre-set as a function of p0307 and p0311.

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter influences the thermal 3-mass motor model.

1LA1 and 1LA8 motors are characterized by the fact that they have an internal rotor fan. This "internal cooling" lies within the motor frame and is not visible. Air is not directly exchanged with the motor ambient air.

For 1PQ8 motors, p0335 should be set to 5 as these motors are force-ventilated motors.

The setting p0335 = 128 applies for 1LA7 motors, frame size 56 (these are operated without a fan).

r0336[0...n] Actual rated motor frequency / Mot f_rated act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the rated frequency of the motor.

For p0310 > 0, this value is displayed.

Dependency: Refer to: p0311, p0314

Note: For p0310 = 0 or for synchronous motors, the rated motor frequency r0336 is calculated from the rated speed and the pole pair number.

For p0310 > 0, this value is displayed (not for synchronous motors).

r0337[0...n] Rated motor EMF / Mot EMF_rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the rated EMF of the motor.

Note: EMF: Electromotive force

r0339[0...n] Rated motor voltage / Mot U_rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the rated motor voltage.

Note: For induction motors (p0300 = 1xx) the parameter is set to p0304.

For synchronous motors, parameter r0339 = p0304 is displayed. If p0304 = 0, then r0339 is calculated from p0305 and p0316.

p0340[0...n] Automatic calculation motor/control parameters / Calc auto par

VECTOR_G

Can be changed: C2(3), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	5	0

Description: Setting to automatically calculate motor parameters and U/f open-loop and closed-loop control parameters from the rating plate data.

Value:

0: No calculation
1: Complete calculation
2: Calculation of equivalent circuit diagram parameters
3: Calculation of closed-loop control parameters
4: Calculation of controller parameters
5: Calculation of technological limits and threshold values

Notice:

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

The following parameters are influenced using p0340:

The parameters designated with (*) are not overwritten for catalog motors (p0300 > 100).

SERVO:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (*)

--> p0342, p0344, p0600, p0640, p1082, p2000, p2001, p2002, p2003, p2005, p2007

p0340 = 2:

--> p0350 (*), p0354 (*), p0356 (*), p0358 (*), p0360 (*)

--> p0625 (matching p0350), p0626 ... p0628

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0325 (is only calculated for p0325 = 0)

--> p0348 (*) (is only calculated for p0348 = 0)

--> p0441, p0442, p0443, p0444, p0445 (only for 1FT6, 1FK6, 1FK7 motors)

--> p0492, p1082, p1980, p1319, p1326, p1327, p1612, p1752, p1755

p0340 = 4:

--> p0118, p1441, p1460, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1596, p1656, p1657, p1658, p1659, p1715, p1717

--> p1461 (for p0348 > p0322, p1461 is set to 100 %)

--> p1463 (for p0348 > p0322, p1463 is set to 400 %)

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p2140 ... p2142, p2148, p2150, p2155, p2161 ... p2164, p2175, p2177, p2194, p3820 ... p3829

VECTOR:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (*)

--> p0342, p0344, p0600, p0640, p1082, p1145, p1231, p1232, p1333, p1349, p1360, p1362, p1441, p1442, p1576, p1577, p1609, p1610, p1611, p1619, p1620, p1621, p1654, p1726, p1825, p1828 ... p1832, p1901, p1909, p1959, p2000, p2001, p2002, p2003, p2005, p2007, p3806. p3927, p3928

p0340 = 2:

--> p0350 (*), p0354 ... p0361 (*), p0652 ... p0660

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0492, p0622, p1262, p1320 ... p1327, p1582, p1584, p1612, p1616, p1744, p1748, p1749, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1299, p1338, p1339, p1340, p1341, p1345, p1346, p1460, p1461, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1600, p1628, p1629, p1630, p1643, p1703, p1715, p1717, p1740, p1756, p1757, p1760, p1761, p1764, p1767, p1780, p1781, p1783, p1785, p1786, p1795, p7036, p7037, p7038

p0340 = 5:

--> p0260 ... p0264, p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1750, p1802, p1803, p2140, p2142, p2148, p2150, p2161 ... p2164, p2175, p2177, p2194, p3207, p3208, p3236, p3237, p3806, p3815, p3820 ... p3829

Note: The calculation is not performed, if the power unit is deactivated.

p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5 without overwriting the motor parameters from the Siemens motor lists (p0301 > 0).

p0340 = 2 calculates the motor parameters (p0350 ... p0360), but only if it does involve a Siemens catalog motor (p0301 = 0).

p0340 = 3 contains the calculations of p0340 = 4, 5.

p0340 = 4 only calculates the controller parameters.

p0340 = 5 only calculates the controller limits.

When quick commissioning is exited using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

If the STARTER commissioning software writes a 3 into p0340 when "downloading to target device", then this corresponds to a "complete calculation of the motor/control parameters without equivalent circuit diagram data". The same calculations are carried out as for p0340 = 1, however, without the equivalent circuit diagram parameters of the motor (p0340 = 2), the motor moment of inertia (p0341) and the motor mass (p0344).

For third-party linear synchronous motors (p0300 = 4) equivalent circuit diagram data are not calculated (p0340 = 2).

p0341[0...n] Motor moment of inertia / Mot M_mom of inert

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 5042, 5210, 6020, 6030, 6031
P-Group: Motor	**Units group:** 25_1	**Unit selection:** p0100
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000000 [kgm²]	100000.000000 [kgm²]	0.000000 [kgm²]

Description: Sets the motor moment of inertia (without load).

Dependency: IEC drives (p0100 = 0): unit kg m^2

NEMA drives (p0100 = 1): unit lb ft^2

The parameter value is included, together with p0342, in the rated starting time of the motor.

Refer to: p0342, r0345

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: SERVO:

p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation.

VECTOR:

The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

p0342[0...n] Ratio between the total and motor moment of inertia / Mot MomInert Ratio

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 5042, 5210, 6020, 6030, 6031
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.000	10000.000	1.000

Description: Sets the ratio between the total moment of inertia/mass (load + motor) and the intrinsic motor moment of inertia/mass (no load).

Dependency: This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive.

Refer to: p0341, r0345, p1498

Note: SERVO:

p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation.

VECTOR:

The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

r0343[0...n] Rated motor current identified / Mot I_rated ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	- [Arms]

Description: Displays the identified rated motor current.

p0344[0...n] Motor weight (for the thermal motor model) / Mot weight th mod

VECTOR_G

Can be changed: C2(3), T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 27_1	**Unit selection:** p0100
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [kg]	50000.0 [kg]	0.0 [kg]

Description: Sets the motor weight.

Dependency: IEC drives (p0100 = 0): unit kg

NEMA drives (p0100 = 1): unit lb

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter influences the thermal 3 mass model of the induction motor.

The parameter is not used for synchronous motors (p0300 = 2xx).

r0345[0...n] Nominal motor starting time / Mot t_start_rated

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [s]	- [s]	- [s]

Description: Displays the rated motor starting time.

This time corresponds to the time from standstill up to reaching the motor rated speed and the acceleration with motor rated torque (r0333).

Dependency: Refer to: r0313, r0333, r0336, p0341, p0342

p0346[0...n] Motor excitation build-up time / Mot t_excitation

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000 [s]	20.000 [s]	0.000 [s]

Description: Sets the excitation build-up time of the motor.

This involves the delay time between enabling the pulses and enabling the ramp-function generator. The induction motor is magnetized during this time.

Caution: If there is insufficient magnetization under load or if the acceleration rate is too high, then an induction motor can stall (refer to the note). This is especially true for sensorless vector control or U/f control.

Notice: If the parameter is set to 0 s for separately-excited synchronous motors (p0300 = 5), then an excitation current setpoint is generated even if the drive is powered down. In the base speed range, this is the no-load excitation current (p0389). In the field-weakening range, the value is reduced with the inverse value of the actual speed. An excitation current setpoint is not generated during de-magnetizing (p0347) and if an encoder fault is detected.

When starting or executing a flying restart for a separately-excited synchronous motor without encoder or with incremental encoder, then the voltage induced in the stator by the excitation current pulse is used to determine the rotor position. The length of the ramp is pre-assigned from the motor data for p0346 = 0 s. If it crystallizes out that this time is too short, then it can be extended by entering a negative value in p0346, whereby otherwise, the excitation behavior corresponds with that for p0346 = 0 s. For all other motor types, p0346 is internally limited downwards to 0 s.

Note: The parameter is calculated using p0340 = 1, 3.

For induction motors, the result depends on the rotor time constant (r0384). If this time is excessively reduced, this can result in an inadequate magnetizing of the induction motor. This is the case if the current limit is reached while building up magnetizing. For induction motors, the parameter cannot be set to 0 s (internal limit: 0.1 * r0384).

For permanent-magnet synchronous motors and vector control, the value depends on the stator time constant (r0386). Here, it defines the time to establish the current for encoderless operation immediately after the pulses have been enabled.

The current to excite the induction motor can be limited in p0644.

p0347[0...n] Motor de-excitation time / Mot t_de-excitat

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	20.000 [s]	0.000 [s]

Description: Sets the de-magnetizing time (for induction motors) after the inverter pulses have been canceled.

The inverter pulses cannot be switched in (enabled) within this delay time.

Note: The parameter is calculated using p0340 = 1, 3.

For induction motors, the result depends on the rotor time constant (r0384).

if this time is shortened too much, then this can result in an inadequate de-magnetizing of the induction motor and in an overcurrent condition when the pulses are subsequently enabled (only when the flying restart function is activated and the motor is rotating).

p0349 System of units motor equivalent circuit diagram data / Unit_sys mot ESB

VECTOR_G

Can be changed: C2(3)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	1

Description: Sets the actual system of units for motor equivalent circuit diagram data.

Value:
1: System of units, physical
2: System of units referred

Dependency: The parameter can only be changed in an offline project using the commissioning software.

Refer to: p0304, p0305, p0310

Note: The reference parameter for resistances of the rated motor impedance Z = p0304 / (1.732 * p0305) is in the % units system.

Inductances are converted into a resistance using the factor 2 * Pi * p0310.

If a reference parameter (p0304, p305, p0310) is zero, then it is not possible to make a changeover to "referred" values (per unit values).

p0350[0...n] Motor stator resistance cold / Mot R_stator cold

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ohm]	2000.00000 [ohm]	0.00000 [ohm]

Description: Sets the stator resistance of the motor at ambient temperature p0625 (phase value).

Dependency: Refer to: p0625, r1912

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).

p0352[0...n] Cable resistance / R_cable

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ohm]	120.00000 [ohm]	0.00000 [ohm]

Description: Resistance of the power cable between the Motor Module and motor.

Dependency: Refer to: p7003

Caution: The cable resistance should be entered prior to motor data identification. If it is used subsequently, the difference by which p0352 was changed must be subtracted from the stator resistance p0350 or motor data identification must be repeated.

Notice: Parallel circuits with one winding system (p7003 = 0):

p0352 includes the feeder cable resistance of an individual Motor Module. The total feeder cable resistance is obtained from p0352 divided by the number of activated Motor Modules (refer to r0395).

Parallel circuits with multi-winding system (p7003 = 1):

p0352 includes the complete feeder cable resistance and is directly added to the stator resistance (refer to r0395).

Note: The parameter influences the temperature adaptation of the stator resistance.

The motor identification sets the cable resistance to 20% of the measured total resistance if p0352 is zero at the time that the measurement is made. If p0352 is not zero, then the value is subtracted from the measured total stator resistance to calculate stator resistance p0350. In this case, p0350 is a minimum of 10% of the measured value.

Exception:

For parallel circuit configurations with one winding system (p07003 = 0), the cable resistance is directly measured. It is important to note that only the component of an individual Motor Module is entered into p0352.

The cable resistance is reset when quick commissioning is exited with p3900 > 0.

p0353[0...n] Motor series inductance / Mot L_series

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [mH]	1000000.000 [mH]	0.000 [mH]

Description: Sets the series inductance.

Note: For the automatic calculation with p0340 = 1, 3 or 4, the calculation of p1715 is influenced by p0353.

The series inductance is reset when quick commissioning is exited with p3900 > 0.

p0354[0...n] Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ohm]	300.00000 [ohm]	0.00000 [ohm]

Description: Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625.

For separately-excited synchronous motors: Sets the damping resistance in the rotor direction (d-axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor data identification routine (p1910) (not for separately-excited synchronous motors).

Dependency: Refer to: p0625

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

p0355[0...n] Motor damping resistance q axis / Mot R_damp q

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ohm]	300.00000 [ohm]	0.00000 [ohm]

Description: Sets the damping resistance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2).

p0356[0...n] Motor stator leakage inductance / Mot L_stator leak.

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Induction motor, separately-excited synchronous motor: Sets the rotor leakage inductance of the motor.

Synchronous motor: Sets the stator quadrature axis inductance of the motor.

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: If the stator leakage inductance (p0356) for induction motors is changed outside the commissioning phase (p0010 > 0), the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). You are then advised to repeat the measurement for the saturation characteristic (p1960).

For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is, therefore, ideal for a low current.

p0357[0...n] Motor stator inductance d axis / Mot L_stator d

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: Sets the stator direct-axis inductance of the synchronous motor.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Note: The parameter is not used for separately-excited synchronous motors (p0300 = 5).

For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is ideal for a low current.

p0358[0...n] Motor rotor leakage inductance / damping inductance d axis / Mot L_r leak / LDd

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: Sets the rotor/secondary section leakage inductance of the motor.

For separately-excited synchronous motors: Sets the damping inductance in the rotor direction (d-axis).

This value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

VECTOR:

If the rotor leakage inductance (p0358) for induction motors is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). You are then advised to repeat the measurement for the saturation characteristic (p1960).

p0359[0...n] Motor damping inductance q axis / Mot L_damp q

VECTOR_G			
	Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: Sets the damping inductance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2).

p0360[0...n] Motor magnetizing inductance/magn. inductance d axis saturated / Mot Lh/Lh d sat

VECTOR_G			
	Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00000 [mH]	10000.00000 [mH]	0.00000 [mH]

Description: Sets the magnetizing inductance of the motor.

For separately-excited synchronous motors: Sets the saturated magnetizing inductance in the rotor direction (d-axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

p0361[0...n] Motor magnetizing inductance q axis saturated / Mot L_magn q sat

VECTOR_G			
	Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00000 [mH]	10000.00000 [mH]	0.00000 [mH]

Description: Sets the saturated magnetizing inductance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).

This parameter value is automatically calculated using the motor model (p0340 = 1, 2).

p0362[0...n]	Motor saturation characteristic flux 1 / Mot saturat.flux 1		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.0 [%]	800.0 [%]	60.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the y coordinate (flux) for the 1st value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the first motor flux as a [%] referred to the rated motor flux.

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the first stator quadrature axis flux as a [%] referred to the product of the unsaturated quadrature inductance (p0356) and the rated motor current.

Dependency: The following applies for the flux values:

p0362 < p0363 < p0364 < p0365

The following applies for the stator quadrature axis flux values (PESM):

20 % < p0362 < p0363 < p0364 < p0365

Refer to: p0366

Notice: For permanent-magnet synchronous motors (PESM):

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: For induction motors, p0362 = 100 % corresponds to the rated motor flux.

For separately-excited synchronous motors p0362 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).

With permanent-magnet synchronous motors, p0362 = 100 % corresponds to the product of the unsaturated quadrature inductance (p0356) and the rated motor current (p0305).

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0363[0...n]	Motor saturation characteristic flux 2 / Mot saturat.flux 2		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.0 [%]	800.0 [%]	85.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the y coordinate (flux) for the 2nd value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the second motor flux as a [%] referred to the rated motor flux.

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the second stator quadrature axis flux as a [%] referred to the product of the unsaturated quadrature inductance (p0356) and the rated motor current.

Dependency: The following applies for the flux values:

p0362 < p0363 < p0364 < p0365

The following applies for the stator quadrature axis flux values (PESM):

20 % < p0362 < p0363 < p0364 < p0365

Refer to: p0367

Notice: For permanent-magnet synchronous motors (PESM):

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: For induction motors, p0363 = 100 % corresponds to the rated motor flux.

For separately-excited synchronous motors p0363 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).

With permanent-magnet synchronous motors, p0362 = 100 % corresponds to the product of the unsaturated quadrature inductance (p0356) and the rated motor current (p0305).

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0364[0...n] Motor saturation characteristic flux 3 / Mot saturat.flux 3

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	800.0 [%]	115.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the y coordinate (flux) for the 3rd value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the third motor flux as a [%] referred to the rated motor flux.

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the third stator quadrature axis flux as a [%] referred to the product of the unsaturated quadrature inductance (p0356) and the rated motor current.

Dependency: The following applies for the flux values:

p0362 < p0363 < p0364 < p0365

The following applies for the stator quadrature axis flux values (PESM):

20% < p0362 < p0363 < p0364 < p0365

Refer to: p0368

Notice: For permanent-magnet synchronous motors (PESM):

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: For induction motors, p0364 = 100 % corresponds to the rated motor flux.

For separately-excited synchronous motors p0364 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).

With permanent-magnet synchronous motors, p0362 = 100 % corresponds to the product of the unsaturated quadrature inductance (p0356) and the rated motor current (p0305).

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0365[0...n]	Motor saturation characteristic flux 4 / Mot saturat.flux 4		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.0 [%]	800.0 [%]	125.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the y coordinate (flux) for the 4th value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the fourth motor flux as a [%] referred to the rated motor flux.

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the fourth stator quadrature axis flux as a [%] referred to the product of the unsaturated quadrature inductance (p0356) and the rated motor current.

Dependency: The following applies for the flux values:

p0362 < p0363 < p0364 < p0365

The following applies for the stator quadrature axis flux values (PESM):

20 % < p0362 < p0363 < p0364 < p0365

Refer to: p0369

Notice: For permanent-magnet synchronous motors (PESM):

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: For induction motors, p0365 = 100 % corresponds to the rated motor flux.

For separately-excited synchronous motors p0365 = 100% corresponds to an induced terminal voltage with the magnitude of the rated motor voltage (under no-load conditions at the synchronous speed).

With permanent-magnet synchronous motors, p0362 = 100 % corresponds to the product of the unsaturated quadrature inductance (p0356) and the rated motor current (p0305).

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0366[0...n]	Motor saturation characteristic I_mag 1 / Mot sat. I_mag 1		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	5.0 [%]	800.0 [%]	50.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the x coordinate for the 1st value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the first magnetizing current as a [%] referred to the rated magnetizing current r0331 (ASM), which in turn is referred to the no-load excitation current (SESM).

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the first stator quadrature axis current as a [%] referred to the rated motor current (p0305).

Dependency: The following applies for the magnetizing currents:

p0366 < p0367 < p0368 < p0369

The following applies for the stator quadrature axis current values (PESM):

20 % < p0366 < p0367 < p0368 < p0369

Refer to: p0362

Notice: For permanent-magnet synchronous motors (PESM), the following applies:

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0367[0...n] Motor saturation characteristic I_mag 2 / Mot sat. I_mag 2

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	75.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the x coordinate for the 2nd value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the second magnetizing current as a [%] referred to the rated magnetizing current r0331 (ASM), which in turn is referred to the no-load excitation current (SESM).

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the second stator quadrature axis current as a [%] referred to the rated motor current (p0305).

Dependency: The following applies for the magnetizing currents:

p0366 < p0367 < p0368 < p0369

The following applies for the stator quadrature axis current values (PESM):

20 % < p0366 < p0367 < p0368 < p0369

Refer to: p0363

Notice: For permanent-magnet synchronous motors (PESM), the following applies:

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0368[0...n] Motor saturation characteristic I_mag 3 / Mot sat. I_mag 3

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	150.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the x coordinate for the 3rd value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the third magnetizing current as a [%] referred to the rated magnetizing current r0331 (ASM), which in turn is referred to the no-load excitation current (SESM).

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the third stator quadrature axis current as a [%] referred to the rated motor current (p0305).

Dependency: The following applies for the magnetizing currents:

p0366 < p0367 < p0368 < p0369

The following applies for the stator quadrature axis current values (PESM):

20 % < p0366 < p0367 < p0368 < p0369

Refer to: p0364

Notice: For permanent-magnet synchronous motors (PESM), the following applies:

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0369[0...n] Motor saturation characteristic I_mag 4 / Mot sat. I_mag 4

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6723, 6726
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	210.0 [%]

Description: The saturation characteristic (flux as mapping of current) is defined using 4 points.

This parameter specifies the x coordinate for the 4th value pair of the characteristic.

Induction motors (ASM) and separately-excited synchronous motors (SESM):

The saturation characteristic describes the mapping of the magnetizing current onto the motor flux.

The parameter sets the fourth magnetizing current as a [%] referred to the rated magnetizing current r0331 (ASM), which in turn is referred to the no-load excitation current (SESM).

Permanent-magnet synchronous motors (PESM):

The saturation characteristic describes the mapping of the stator quadrature axis current onto the stator quadrature axis flux.

The parameter sets the fourth stator quadrature axis current as a [%] referred to the rated motor current (p0305).

Dependency: The following applies for the magnetizing currents:

p0366 < p0367 < p0368 < p0369

The following applies for the stator quadrature axis current values (PESM):

20 % < p0366 < p0367 < p0368 < p0369

Refer to: p0365

Notice: For permanent-magnet synchronous motors (PESM), the following applies:

If the parameters are not set as specified, i.e. not in ascending order and to more than 20 %, the unsaturated quadrature inductance (p0356) is always used for quadrature axis flux calculation purposes.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

r0370[0...n] Motor stator resistance cold / Mot R_stator cold

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the motor stator resistance at an ambient temperature (p0625).

The value does not include the cable resistance.

Dependency: Refer to: p0625

r0372[0...n] **Cable resistance / Mot R_cable**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the total cable resistance between Motor Module and motor, as well as the internal converter resistance.

Dependency: Refer to: r0238, p0352

r0373[0...n] **Motor rated stator resistance / Mot R_stator rated**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the rated motor stator resistance at rated temperature (total of p0625 and p0627).

Dependency: Refer to: p0627

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0374[0...n] **Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the rotor/secondary section resistance of the motor for the ambient temperature p0625.
For separately-excited synchronous motors:
Displays the damping resistance in the rotor direction (d-axis).

Dependency: Refer to: p0625

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0375[0...n] **Motor damping resistance q axis / Mot R_damp q**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the damping resistance of the separately-excited synchronous motor quadrature to the rotor direction (q axis).

r0376[0...n] **Rated motor rotor resistance / Mot rated R_rotor**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the nominal rotor / secondary section resistance of the motor at the rated temperature.

	The rated temperature is the sum of p0625 and p0628.
Dependency:	Refer to: p0628
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).

r0377[0...n] Motor leakage inductance total / Mot L_leak total

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6640
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the total stray inductance of the motor.

Induction motor, separately-excited synchronous motor:

Displays the stator leakage inductance of the motor, including the series inductance (p0353) and the motor reactor (p0233).

Synchronous motor:

Displays the stator quadrature inductance, including the series inductance (p0353) and the motor reactor (p0233).

r0378[0...n] Motor stator inductance d axis / Mot L_stator d

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the stator longitudinal inductance of the synchronous motor including the series inductance (p0353) and the motor reactor (p0233).

Note: The parameter is not used for separately-excited synchronous motors (p0300 = 5).

r0380[0...n] Motor damping inductance d axis / Mot L_damp d

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the damping inductance of the separately-excited synchronous motor in the rotor direction (d-axis).

r0381[0...n] Motor damping inductance q axis / Mot L_damp q

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the damping inductance of a separately-excited synchronous motor quadrature to the rotor direction (q axis).

r0382[0...n] Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the magnetizing inductance of the motor.

For separately-excited synchronous motors:

Displays the saturated magnetizing inductance in the rotor direction (d-axis).

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0383[0...n] Motor magnetizing inductance q axis saturated / Mot L_magn q sat

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** 15_1	**Unit selection:** p0349
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the saturated magnetizing inductance of a separately-excited synchronous motor quadrature to the rotor direction (q axis).

r0384[0...n] Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6722
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the rotor time constant.

For separately-excited synchronous motors:

Displays the damping time constant to the rotor direction (d axis).

Note: The parameter is not used for synchronous motors.

The value is calculated from the total of the inductances on the rotor side (p0358, p0360) divided by the rotor/damping resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.

r0385[0...n] Motor damping time constant q axis / Mot L_damping q

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the damping time constant of a separately-excited synchronous motor quadrature to the rotor direction (q axis).

Note: The value is calculated from the total of the inductances on the damping side (p0359, p0361) divided by the damping resistance (p0355).

r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ms]	- [ms]	- [ms]

Description: Displays the stator leakage time constant.

Note: The value is calculated from the total of all leakage inductances (p0233*, p0353, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account.

* only applies for VECTOR (r0107).

r0387[0...n]	Motor stator leakage time constant q axis / Mot T_Sleak /T_Sq		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ms]	- [ms]	- [ms]

Description: Displays the stator leakage time constant quadrature to the rotor direction (q axis).

Note: The value is calculated from the total of all leakage inductances (p0233, p0356, p0359) divided by the total of all motor resistances (p0350, p0352, p0355).

The temperature adaptation of the resistances is not taken into account.

p0389[0...n]	Excitation rated no-load current / Exc I_noload_rated		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [A]	10000.00 [A]	0.00 [A]

Description: Sets the rated no-load current (I_F0) for the excitation.

p0390[0...n]	Rated excitation current / Exc I_rated		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [A]	10000.00 [A]	0.00 [A]

Description: Setting the rated current (I_F) of the controlled excitation rectifier (DC master).

p0391[0...n]	Current controller adaptation starting point KP / I_adapt pt KP		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6714
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	6000.00 [Arms]	0.00 [Arms]

Description: Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.

Dependency: Refer to: p0392, p0393, p1402, p1715

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0392[0...n] Current controller adaptation starting point KP adapted / I_adapt pt KP adap

VECTOR_G			
	Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6714
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	6000.00 [Arms]	0.00 [Arms]

Description: Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 x p0393 is effective.

Dependency: Refer to: p0391, p0393, p1402, p1715

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0393[0...n] Current controller adaptation P gain scaling / I_adapt Kp scal

VECTOR_G			
	Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6714
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the factor for the current controller P gain in the adaptation range (e.g. r0078 > p0392, if p0392 > p0391).

The value is referred to p1715.

Dependency: Refer to: p0391, p0392, p1402, p1715

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: For p0393 = 100 % or p1402.2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

r0395[0...n] Actual stator resistance / R_stator act

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6301, 6730, 6731, 6732
	P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ohm]	- [ohm]	- [ohm]

Description: Displays the actual stator resistance (phase value).

The parameter value also contains the temperature-independent cable resistance.

Dependency: In the case of induction motors the parameter is also affected by the motor temperature model.

Refer to: p0350, p0352, p0620

Note: In each case, only the stator resistance of the active Motor Data Set is included with the stator temperature of the thermal motor model.

r0396[0...n] Actual rotor resistance / R_rotor act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6730
P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the actual rotor/secondary section resistance (phase value).

The parameter is affected by the motor temperature model.

Dependency: Refer to: p0354, p0620

Note: In each case, only the rotor resistance of the active Motor Data Set is included with the rotor temperature of the thermal motor model.

This parameter is not used for synchronous motors (p0300 = 2xx).

p0397[0...n] Angle magnetic decoupling maximum angle / Magn decpl max_ang

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [°]	90.0 [°]	90.0 [°]

Description: Maximum angle when calculating the polynomial function to decouple the magnetic flux axes for permanent-magnet synchronous motors (see p0398, p0399).

p0398[0...n] Angle magn decoupling (cross saturation) coeff 1 / Magn decoupl C1

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10.000000	10.000000	0.000000

Description: The magnetic cross coupling of the motor's d and q axes caused by saturation (current-dependent) leads to an angle offset affecting the axis system d'q'; this decouples the magnetic quantities.

The angle offset can be described as a 3rd order polynomial function of the load current consumed:

phiOffset = f(C1*iq + C3*iq^3)

This parameter is the coefficient C1; it describes the linear load impact effect.

p0399[0...n] Angle magn decoupling (cross saturation) coeff 3 / Magn decoupl C3

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10.000000	10.000000	0.000000

Description: The magnetic cross coupling of the motor's d and q axes caused by saturation (current-dependent) leads to an angle offset affecting the axis system d'q'; this decouples the magnetic quantities.

The angle offset can be described as a 3rd order polynomial function of the load current consumed:

phiOffset = f(C1*iq + C3*iq^3)

This parameter is the coefficient C3; it describes the cubic load impact effect.

p0400[0...n] Encoder type selection / Enc_typ sel

ENC			
	Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 4700, 4704
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10100	0

Description: Selects the encoder from the list of encoder types supported.

Value:
0: No encoder
202: DRIVE-CLiQ encoder AS20, singleturn
204: DRIVE-CLiQ encoder AM20, multiturn 4096
242: DRIVE-CLiQ encoder AS24, singleturn
244: DRIVE-CLiQ encoder AM24, multiturn 4096
1001: Resolver 1 speed
1002: Resolver 2 speed
1003: Resolver 3 speed
1004: Resolver 4 speed
2001: 2048, 1 Vpp, A/B C/D R
2002: 2048, 1 Vpp, A/B R
2003: 256, 1 Vpp, A/B R
2004: 400, 1 Vpp, A/B R
2005: 512, 1 Vpp, A/B R
2006: 192, 1 Vpp, A/B R
2007: 480, 1 Vpp, A/B R
2008: 800, 1 Vpp, A/B R
2010: 18000, 1 Vpp, A/B R distance-coded
2012: 420, 1 Vpp, A/B R
2013: 675, 1 Vpp, A/B R
2051: 2048, 1 Vpp, A/B, EnDat, Multiturn 4096
2052: 32, 1 Vpp, A/B, EnDat, Multiturn 4096
2053: 512, 1 Vpp, A/B, EnDat, Multiturn 4096
2054: 16, 1 Vpp, A/B, EnDat, Multiturn 4096
2055: 2048, 1 Vpp, A/B, EnDat, Singleturn
2081: 2048, 1 Vpp, A/B, SSI, Singleturn
2082: 2048, 1 Vpp, A/B, SSI, Multiturn 4096
2083: 2048, 1 Vpp, A/B, SSI, singleturn, error bit
2084: 2048, 1 Vpp, A/B, SSI, multiturn 4096, error bit
2110: 4000 nm, 1 Vpp, A/B R distance-coded
2111: 20000 nm, 1 Vpp, A/B R distance-coded
2112: 40000 nm, 1 Vpp, A/B R distance-coded
2151: 16000 nm, 1 Vpp, A/B, EnDat, resolution 100 nm
3001: 1024 HTL A/B R
3002: 1024 TTL A/B R
3003: 2048 HTL A/B R
3005: 1024 HTL A/B
3006: 1024 TTL A/B
3007: 2048 HTL A/B
3008: 2048 TTL A/B
3009: 1024 HTL A/B unipolar
3011: 2048 HTL A/B unipolar
3020: 2048 TTL A/B R, with sense
3081: SSI, Singleturn, 24 V
3082: SSI, Multiturn 4096, 24 V
3090: 4096, HTL, A/B, SSI, Singleturn
3109: 2000 nm, TTL, A/B R distance-coded
9999: User-defined
10000: Identify encoder
10050: Encoder with EnDat2.x interface identified
10051: DRIVE-CLiQ encoder identified
10058: Digital encoder (absolute) identified
10059: Digital encoder (incremental) identified
10100: Identify encoder (waiting)

Notice: An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list.

When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to a third-party encoder (p0400 = 9999).

Note: The connected encoder can be identified by setting p0400 to 10000 or 10100. This assumes that the encoder supports this method, which is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface, DRIVE-CLiQ encoder, encoder with SSI interface (only 10100)..

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using a zero mark. If, for a synchronous motor, fine synchronization is to be realized using a zero mark, then the following must be executed:

- set p0400 to 9999
- set p0404.15 to 1

Prerequisite:

Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must be either mechanically or electronically (p0431) adjusted to the pole position.

For p0400 = 10000 the following applies:

If an identification is not possible, then p0400 is set to 0.

For p0400 = 10100 the following applies:

If an identification is not possible, p0400 remains set to 10100 until it becomes possible.

---

p0400[0...n] Encoder type selection / Enc_typ sel

VECTOR_G

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 4700, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	10000	0

Description: Selects the encoder from the list of encoder types supported.

Value:
0: No encoder
3001: 1024 HTL A/B R
3002: 1024 TTL A/B R
3003: 2048 HTL A/B R
3005: 1024 HTL A/B
3006: 1024 TTL A/B
3007: 2048 HTL A/B
3008: 2048 TTL A/B
3009: 1024 HTL A/B unipolar
3011: 2048 HTL A/B unipolar
3020: 2048 TTL A/B R, with sense
9999: User-defined
10000: Identify encoder

Notice: An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list.

When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to a third-party encoder (p0400 = 9999).

Note: The connected encoder can be identified by setting p0400 to 10000 or 10100. This assumes that the encoder supports this method, which is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface, DRIVE-CLiQ encoder, encoder with SSI interface (only 10100)..

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using a zero mark. If, for a synchronous motor, fine synchronization is to be realized using a zero mark, then the following must be executed:

- set p0400 to 9999
- set p0404.15 to 1

Prerequisite:

Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must be either mechanically or electronically (p0431) adjusted to the pole position.

For p0400 = 10000 the following applies:

If an identification is not possible, then p0400 is set to 0.

For p0400 = 10100 the following applies:

If an identification is not possible, p0400 remains set to 10100 until it becomes possible.

p0401[0...n] Encoder type OEM selection / Enc type OEM sel

ENC, VECTOR_G

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 4700, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32767	0

Description: Selects the encoder from the list of encoder types that the OEM supports.

Note: The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

Using p0400 = 20000, the encoder type can be selected from the list of OEM encoders using p0401.

p0402[0...n] Gearbox type selection / Gearbox type sel

ENC, VECTOR_G

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	10100	9999

Description: Selects the gearbox type to pre-set the inversion and the gearbox factor.

Measuring gear factor = motor or load revolutions / encoder revolutions.

Value:
1: Gearbox 1:1 not inverted
2: Gearbox 2:7 inverted
3: Gearbox 4:17 inverted
4: Gearbox 2:10 inverted
9999: Gearbox user-defined
10000: Identify gearbox
10100: Identify gearbox

Dependency: Refer to: p0410, p0432, p0433

Note: Re p0402 = 1:

Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1.

Re p0402 = 2:

Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2.

Re p0402 = 3:

Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4.

Re p0402 = 4:

Automatic setting of p0410 = 0011 bin, p0432 = 10, p0433 = 2.

Re p0402 = 9999:

No automatic setting of p0410, p0432, p0433. The parameters should be manually set.

Re p0402 = 10000:

It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999.

p0404[0...n]	Encoder configuration effective / Enc_config eff		
ENC	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4010, 4704
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Settings for the basic encoder properties.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: ZM: Zero mark

SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:

The track A/B is adjusted to match the magnetic position of the motor.

Re bit 01, 02 (absolute encoder, multiturn encoder):

These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

Re bit 10 (DRIVE-CLiQ encoder):

This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.

Re bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).

The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.

Re bit 13 (irregular zero mark):

The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.

Re bit 14 (distance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

Re bit 15 (commutation with zero mark):

Only applicable for synchronous motors.

The function can be de-selected by priority via p0430.23.

For distance-coded zero marks, the following applies:

The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.

The fine synchronization is only started after two zero marks have been passed.

p0404[0...n] Encoder configuration effective / Enc_config eff

VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4010, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Settings for the basic encoder properties.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

If an SSI encoder (bit 9 = 1) is used as motor encoder for permanent-magnet synchronous motors, then this is only permissible in conjunction with an additional A/B track (bit 3 = 1 or bit 4 = 1).

Note: ZM: Zero mark

SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:

The track A/B is adjusted to match the magnetic position of the motor.

Re bit 01, 02 (absolute encoder, multiturn encoder):

These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

Re bit 10 (DRIVE-CLiQ encoder):

This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.

Re bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).

The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.

Re bit 13 (irregular zero mark):

The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.

Re bit 14 (distance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

Re bit 15 (commutation with zero mark):

Only applicable for synchronous motors.

The function can be de-selected by priority via p0430.23.

For distance-coded zero marks, the following applies:

The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.

The fine synchronization is only started after two zero marks have been passed.

p0405[0...n] Square-wave encoder track A/B / Sq-wave enc A/B

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 1111 bin

Description: Settings for the track A/B in a square-wave encoder.

For square-wave encoders, p0404.3 must also be 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Signal	Bipolar	Unipolar	-
01	Level	TTL	HTL	-
02	Track monitoring	A/B <> -A/B	None	-
03	Zero pulse	Same as A/B track	24 V unipolar	-
04	Switching threshold	High	Low	-
05	Pulse/direction	Active	Inactive	-

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: Re bit 02:

When the function is activated, track monitoring can be de-activated by setting p0437.26.

Re bit 05:

When the function is activated, a frequency setpoint and a direction for traveling can be entered via an encoder interface.

p0407[0...n] Linear encoder grid division / Enc grid div

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4010, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [nm]	250000000 [nm]	16000 [nm]

Description: Sets the grid division for a linear encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The lowest permissible value is 250 nm.

p0408[0...n] Rotary encoder pulse number / Rot enc pulse No.

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4010, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16777215	2048

Description: Sets the number of pulses for a rotary encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The number of pole pairs for a resolver is entered here.

The smallest permissible value is 1 pulse.

p0410[0...n] Encoder inversion actual value / Enc inv act value

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704, 4710, 4711, 4715
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Setting to invert actual values.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Invert speed actual value	Yes	No	4710, 4711, 4715
01	Invert position actual value	Yes	No	4704

Note: The inversion influences the following parameters:

Bit 00: r0061, r0063 (exception: encoderless control), r0094

Bit 01: r0482, r0483

p0410[0...n] Encoder inversion actual value / Enc inv act value

ENC (Lin_enc)

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704, 4710, 4711, 4715
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Setting to invert actual values.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Invert velocity actual value	Yes	No	4710, 4711, 4715
01	Invert position actual value	Yes	No	4704

Note: The inversion influences the following parameters:

Bit 00: r0061, r0063 (exception: encoderless control), r0094

Bit 01: r0482, r0483

p0411[0...n] Measuring gear configuration / Meas gear config

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for position tracking of a measuring gear.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Measuring gear activate position tracking	Yes	No	-
01	Axis type	Linear axis	Rotary axis	-
02	Measuring gear reset position	Yes	No	-
03	Meas. gearbox, activate pos. tracking for incremental encoders	Yes	No	-

Notice: For p0411.3 = 1 the following applies:

If position tracking is activated for incremental encoders, only the position actual value is stored. Axis or encoder motion is not detected when de-activated! Any tolerance window entered in p0413 has no effect.

Note: For the following events, the non-volatile, saved position values are automatically reset:

- when an encoder replacement has been identified.

- when changing the configuration of the Encoder Data Set (EDS).

p0412[0...n] Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4194303	0

Description: Sets the number of rotations that can be resolved for a rotary encoder with activated position tracking of the measuring gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1) and for an incremental encoder with activated position tracking (p0411.3 = 1).

Note: The resolution that is set must be able to be represented using r0483.

For rotary axes/modulo axes, the following applies:

p0411.0 = 1:

This parameter is pre-set with p0421 and can be changed.

p0411.3 = 1:

The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

For linear axes, the following applies:

p0411.0 = 1:

This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.

p0411.3 = 1:

The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

p0413[0...n] Measuring gear position tracking tolerance window / Pos track window

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	4294967300.00	0.00

Description: Sets a tolerance window for position tracking.

After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Caution: Rotation, e.g. through a complete encoder range is not detected.

Note: The value is entered in integer (complete) encoder pulses.

For p0411.0 = 1, the value is automatically pre-assigned quarter of the encoder range.

Example:

Quarter of the encoder range = (p0408 * p0421) / 4

It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

p0414[0...n] Redundant coarse position value relevant bits (identified) / Relevant bits

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	16

Description: Sets the number of relevant bits for the redundant coarse position value.

p0415[0...n] Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	31	14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Note: MSB: Most Significant Bit

p0416[0...n] Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	22000

Description: Sets the non safety-relevant measuring steps of POS1.

Dependency: Refer to: r0473, p9513

p0417[0...n] Encoder safety comparison algorithm (detected) / Safety comp_algo

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	255

Description: Sets the comparison algorithm for the encoder position monitoring functions.

Value:
0: SMx20 safety algorithm
10: DQL binary safety algorithm
11: DQL linear non-binary safety algorithm
12: SMC30 safety algorithm
255: Safety algorithm unknown

Dependency: Refer to: p9541

p0418[0...n] Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Func. diagram:** 4010, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2	18	11

Description: Sets the fine resolution in bits of the incremental position actual values.

Note: The parameter applies for the following process data:

- Gx_XIST1
- Gx_XIST2 for reference mark or flying measurement

The fine resolution specifies the fraction between two encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048).

For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information.

For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.

p0419[0...n] Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704, 4710
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2	18	9

Description: Sets the fine resolution in bits of the absolute position actual values.

Dependency: Refer to: p0418

Note: This parameter applies to process data Gx_XIST2 when reading the absolute value.

p0420[0...n] Encoder connection / Enc_connection

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Selecting the encoder connection.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SUB-D	Yes	No	-
	01	Terminal	Yes	No	-

p0421[0...n] Absolute encoder rotary multiturn resolution / Enc abs multiturn

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	4096

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0422[0...n] Absolute encoder linear measuring step resolution / Enc abs meas step

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [nm]	4294967295 [nm]	100 [nm]

Description: Sets the resolution of the absolute position for a linear absolute encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.

p0423[0...n] Absolute encoder rotary singleturn resolution / Enc abs singleturn

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1073741823	8192

Description: Sets the number of measuring steps per revolution for a rotary absolute encoder.

The resolution refers to the absolute position.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0424[0...n] Encoder linear zero mark distance / Enc lin ZM_dist

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [mm]	65535 [mm]	20 [mm]

Description: Sets the distance between two zero marks for a linear encoder.

This information is used for zero mark monitoring.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks, this means the basic distance.

p0425[0...n] Encoder rotary zero mark distance / Enc rot dist ZM

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** 4704, 8570
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16777215	2048

Description: Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks, this means the basic distance.

p0426[0...n] Encoder zero mark differential distance / Enc ZM Dif_dist

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	65535	1

Description: Sets the differential distance with distance-coded zero marks [signal periods].

The value corresponds to jump displacement of "zero mark with interference".

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0427[0...n] Encoder SSI baud rate / Enc SSI baud rate

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [kHz]	65535 [kHz]	100 [kHz]

Description: Sets the baud rate for an SSI encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: SSI: Synchronous Serial Interface

p0428[0...n] Encoder SSI monoflop time / Enc SSI t_monoflop

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [µs]	65535 [µs]	30 [µs]

Description: Sets the minimum delay time between two data transfers of the absolute value for an SSI encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0429[0...n] Encoder SSI configuration / Enc SSI config

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the configuration for an SSI encoder.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Transfer code	Binary code	Gray code	-
02	Transfer absolute value twice	Yes	No	-
06	Data line during the monoflop time	High level	Low level	-

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: Re bit 06:

The quiescent signal level of the data line corresponds to the inverted, set level.

p0430[0...n] Sensor Module configuration / SM config

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1110 0000 0000 1000 0000 0000 0000 0000 bin

Description: Sets the configuration of the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
17	Burst oversampling	Yes	No	-
18	Continuous oversampling (reserved)	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Speed calculation mode (only SMC30)	Incremental diff	Flank time meas	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	De-select commutation with zero mark	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Switch off encoder voltage supply during parking	Yes	No	-
27	Extrapolate position values	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Notice: A bit-wise configuration is only possible if the corresponding property is also present in r0458.

Note: Re bit 17 (burst oversampling):

- if bit = 1, burst oversampling is switched on.

Re bit 18 (continuous oversampling):

- if bit = 1, continuous oversampling is switched on.

Re bit 19 (Safety position actual value sensing):

- if bit = 1, the Safety position actual value is transferred in the cyclic telegram.

Re bit 20 (speed calculation mode):

- if bit = 1, the speed is calculated via incremental difference without extrapolation.
- if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.

Re bit 21 (zero mark tolerance):

- if bit = 1, a one-off zero mark distance error is tolerated. In the event of a defect, the fault F3x100/F3x101 does not appear, but alarm A3x400/A3x401 does.

Re bit 22 (rotor position adaptation):

- if bit = 1, the rotor position is corrected automatically. The correction speed is +/-1/4 encoder pulse per zero mark distance.

Re bit 23 (de-select commutation with zero mark):

- The bit should only be set for encoders that have not been adjusted.

Re bit 24 (commutation with selected zero mark):

- if bit = 1, the commutation position is corrected via a selected zero mark.

Re bit 25 (disconnect the encoder power supply on parking):

- if bit = 1, the encoder power supply is switched off on parking (0 V).
- if bit = 0, the encoder power supply is not switched off on parking, it is reduced from 24 V to 5 V.

Re bit 27 (extrapolate position values):

- if bit = 1, the extrapolation of the position values is activated.

Re bit 28 (cubic correction);

- if bit = 1, the cubic correction for track A/B sine is activated.

Re bit 29 (phase correction):

- if bit = 1, the phase correction for track A/B sine is activated.

Re bit 30 (amplitude correction):

- if bit = 1, the amplitude correction for track A/B sine is activated.

Re bit 31 (offset correction):

- if bit = 1, the offset correction for track A/B sine is activated.

p0430[0...n] Sensor Module configuration / SM config

ENC (Lin_enc)

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1110 0000 0000 1000 0000 0000 0000 0000 bin

Description: Sets the configuration of the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
17	Burst oversampling	Yes	No	-
18	Continuous oversampling (reserved)	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Velocity calculation mode (only SMC30)	Incremental diff	Flank time meas	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	De-select commutation with zero mark	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Switch off encoder voltage supply during parking	Yes	No	-
27	Extrapolate position values	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Notice: A bit-wise configuration is only possible if the corresponding property is also present in r0458.

Note: Re bit 17 (burst oversampling):

- if bit = 1, burst oversampling is switched on.

Re bit 18 (continuous oversampling):

- if bit = 1, continuous oversampling is switched on.

Re bit 19 (Safety position actual value sensing):

- if bit = 1, the Safety position actual value is transferred in the cyclic telegram.

Re bit 20 (speed calculation mode):
- if bit = 1, the speed is calculated via incremental difference without extrapolation.
- if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.
Re bit 21 (zero mark tolerance):
- if bit = 1, a one-off zero mark distance error is tolerated. In the event of a defect, the fault F3x100/F3x101 does not appear, but alarm A3x400/A3x401 does.
Re bit 22 (rotor position adaptation):
- if bit = 1, the rotor position is corrected automatically. The correction speed is +/-1/4 encoder pulse per zero mark distance.
Re bit 23 (de-select commutation with zero mark):
- The bit should only be set for encoders that have not been adjusted.
Re bit 24 (commutation with selected zero mark):
- if bit = 1, the commutation position is corrected via a selected zero mark.
Re bit 25 (disconnect the encoder power supply on parking):
- if bit = 1, the encoder power supply is switched off on parking (0 V).
- if bit = 0, the encoder power supply is not switched off on parking, it is reduced from 24 V to 5 V.
Re bit 27 (extrapolate position values):
- if bit = 1, the extrapolation of the position values is activated.
Re bit 28 (cubic correction);
- if bit = 1, the cubic correction for track A/B sine is activated.
Re bit 29 (phase correction):
- if bit = 1, the phase correction for track A/B sine is activated.
Re bit 30 (amplitude correction):
- if bit = 1, the amplitude correction for track A/B sine is activated.
Re bit 31 (offset correction):
- if bit = 1, the offset correction for track A/B sine is activated.

p0431[0...n] Angular commutation offset / Ang_com offset

VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-180.00 [°]	180.00 [°]	0.00 [°]

Description: Sets the angular commutation offset.

Dependency: The value is taken into account in r0094.

Refer to: r0094, r1778

Notice: When the firmware is upgraded from V2.3 to V2.4 or higher, the value must be reduced by 60° if all the following conditions are fulfilled:

- The motor is a synchronous motor (p0300 = 2, 2xx, 4, 4xx).
- The encoder is a resolver (p0404.23 = 1).
- The actual speed value is inverted (p0410.0 = 1).

The angular commutation offset cannot be generally taken from other drive systems. As a minimum - the sign of the offset determined for SIMODRIVE 611 digital and SIMODRIVE 611 universal must be reversed for SINAMICS (p0431 (SINAMICS) = -p1016 (SIMODRIVE)).

Note: Angular commutation offset, angular difference between electrical position of encoder and flux position.

For p0404.5 = 1 (track C/D) the following applies:

The angular offset in p0431 acts on track A/B, the zero mark on track C/D.

For p0404.6 = 1 (Hall sensor) the following applies:

The angular offset in p0431 acts on track A/B and the zero mark.

p0432[0...n]	Gearbox factor encoder revolutions / Grbx_fact enc_rev		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	10000	1

Description: Sets the encoder revolutions for the gearbox factor of the encoder evaluation.

The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.

Refer to: p0402, p0410, p0433

Note: Negative gearbox factors should be implemented with p0410.

p0433[0...n]	Gearbox factor motor/load revolutions / Grbx_fact mot_rev		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	10000	1

Description: Sets the motor and load revolutions for the gearbox factor of the encoder evaluation.

The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.

Refer to: p0402, p0410, p0432

Note: Negative gearbox factors should be implemented with p0410.

p0434[0...n]	Encoder SSI error bit / Enc SSI error bit		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the position and level of the error bit in the SSI protocol.

Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note: Value = dcba

ba: Position of the error bit in the protocol (0 ... 63).

c: Level (0: Low level, 1: High level).

d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits).

For several error error bits, the following applies:

- the position specified under ba and the additional bits are assigned increasing consecutively.
- the level set under c applies to all error bits.

Example:

p0434 = 1013

--> The evaluation is switched in and the error bit is at position 13 with a low level.

p0434 = 1113

--> The evaluation is switched in and the error bit is at position 13 with a high level.

p0435[0...n]	**Encoder SSI alarm bit / Enc SSI alarm bit**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the position and level of the alarm bit in the SSI protocol.

Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note: Value = dcba

ba: Position of the alarm bit in protocol (0 ... 63).

c: Level (0: Low level, 1: High level).

d: State of the evaluation (0: Off, 1: On).

Example:

p0435 = 1014

--> The evaluation is switched in and the alarm bit is at position 14 with a low level.

p0435 = 1114

--> The evaluation is switched in and the alarm bit is at position 14 with a high level.

p0436[0...n]	**Encoder SSI parity bit / Enc SSI parity bit**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the position and parity of the parity bit in the SSI protocol.

Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note: Value = dcba

ba: Position of the parity bit in the protocol (0 ... 63).

c: Parity (0: even, 1: uneven).

d: State of the evaluation (0: Off, 1: On).

Example:

p0436 = 1015

--> The evaluation is switched in and the parity bit is at position 15 with even parity.

p0436 = 1115

--> The evaluation is switched in and the parity bit is at position 15 with uneven parity.

p0437[0...n]	**Sensor Module configuration extended / SM config ext**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0011 0000 0000 0000 0000 1000 0000 0000 bin

Description: Sets the extended configuration of the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-

06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Support absolute position for incremental encoder	Yes	No	4750
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Deselect track monitoring	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0430, r0459

Note: A value of zero is displayed if an encoder is not present.

Re bit 00:

When the data logger (trace) is activated, in the case of a fault, data before and after the event are recorded (traced) and saved in files on the non-volatile memory medium. Experts can then evaluate this data.

Re bit 01:

If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.

For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

Re bit 02:

If the bit is set, in the event of a deviation less than the tolerance window for the zero mark (p4681, p4682), the pulses per revolution are corrected. If the bit is not set, encoder fault F3x131 is triggered.

Re bits 05, 04:

The actual hardware only supports 1x or 4x signal evaluation.

Bit 5/4 = 0/0: Signal evaluation per period, 4x.

Bit 5/4 = 1/0: Illegal setting.

Bit 5/4 = 0/1: Signal evaluation per period, 1x.

Bit 5/4 = 1/1: Illegal setting.

Re bit 06:

If the function is active, when dn/dt monitoring responds, the speed actual value is internally frozen for a time equivalent to two current controller clock cycles. The rotor position continues to be integrated. The actual value is then re-enabled after this time has expired.

Re bit 07:

If the bit is set, the encoder pulses which have not been corrected are added to p4688 at the zero mark.

Re bit 11:

If the bit is set, the Sensor Module checks within a certain time grid whether the fault cause is still present. This enables the Sensor Module to switch from the fault state to the operating state and provide valid actual values automatically. The faults are displayed until the user acknowledges them.

Re bit 12:

Additional fault messages can be activated for extended fault diagnostics.

Re bit 13:

When the bit is set, for an incremental encoder with zero mark, the absolute value in Gn_XIST2 can be requested via Gn_STW.13.

Re bit 26:

Track monitoring is de-activated for the square-wave encoders when the bit is set, even if the monitoring function is selected in p0405.2.

Re bit 28:

Monitoring of the difference between incremental and absolute position in the case of linear encoders.

Re bit 29:

When the bit is set, the EnDat encoder is initialized under a certain speed and, therefore, with high accuracy. If initialization at a higher speed is requested, fault F31151, F32151, or F33151 is output.

Re bit 31:

When monitoring is active, the levels of the individual track signals and the corresponding inverted track signals are monitored separately.

p0437[0...n] Sensor Module configuration extended / SM config ext

ENC (Lin_enc)

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0011 0000 0000 0000 0000 1000 0000 0000 bin

Description: Sets the extended configuration of the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Support absolute position for incremental encoder	Yes	No	4750
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Deselect track monitoring	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0430, r0459

Note: A value of zero is displayed if an encoder is not present.

Re bit 00:

When the data logger (trace) is activated, in the case of a fault, data before and after the event are recorded (traced) and saved in files on the non-volatile memory medium. Experts can then evaluate this data.

Re bit 01:

If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.

For bit = 1, the zero mark is evaluated depending on the direction detected. For a positive direction, the positive edge of the zero mark is considered and for a negative direction, the negative edge of the zero mark.

Re bit 02:

If the bit is set, in the event of a deviation less than the tolerance window for the zero mark (p4681, p4682), the pulses per revolution are corrected. If the bit is not set, encoder fault F3x131 is triggered.

Re bits 05, 04:

Bit 5/4 = 0/0: Signal evaluation per period, 4x.

Bit 5/4 = 1/0: Signal evaluation per period, 4x.

Bit 5/4 = 0/1: Signal evaluation per period, 1x.

Bit 5/4 = 1/1: Illegal setting.

Re bit 06:

If the function is active, when dn/dt monitoring responds, the velocity actual value is internally frozen for a time equivalent to two current controller clock cycles. The rotor position continues to be integrated. The actual value is then re-enabled after this time has expired.

Re bit 07:

If the bit is set, the encoder pulses detected as faulty between two zero marks are accumulated (p4688).

Re bit 29:

When the bit is set, the EnDat encoder is initialized under a certain velocity and, therefore, with high accuracy. If initialization at a higher velocity is requested, fault F31151, F32151, or F33151 is output.

Re bit 31:

When monitoring is active, the levels of the individual track signals and the corresponding inverted track signals are monitored separately.

p0438[0...n] Squarewave encoder filter time / Enc t_filt

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	100.00 [µs]	0.64 [µs]

Description: Sets the filter time for a squarewave encoder.

The hardware of the squarewave encoder only supports the following values:

0: No filtering

0.04 µs

0.64 µs

2.56 µs

10.24 µs

20.48 µs

Dependency: Refer to: r0452

Notice: If the filter time is too long, the track signals A/B/R may be suppressed and the appropriate messages output.

Note: The most suitable filter time depends on the number of pulses and maximum speed of the square-wave encoder.

The filter time is automatically corrected to the next value when entering a non-specified value. In this case, no message is output.

The effective filter time is displayed in r0452.

p0439[0...n] Encoder ramp-up time / Enc ramp-up time

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	65535 [ms]	0 [ms]

Description: Sets the ramp-up time for the encoder.

The encoder supplies stable track signals once this time has elapsed.

Note: This parameter is automatically pre-set for encoders from the encoder list (p0400).

p0440[0...n] Copy encoder serial number / Copy enc ser_no

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Copies the actual serial number of the encoder belonging to this Encoder Data Set (EDS) to p0441 ... p0445.

Example:

For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0] ... p0445[0].

Value:
0: No action
1: Transfer serial number

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464, p1990

Note: For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440.

In the following cases, copying is automatically started in the following cases:

1.) When commissioning 1FT6, 1FK6, 1FK7 motors.

2.) When writing into p0431.

3.) For p1990 = 1.

p0440 is automatically set to 0 when the copying has been completed.

In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).

p0441[0...n] Encoder commissioning serial number part 1 / Enc comm ser_no 1

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 1 of the encoder for the commissioning.

Dependency: Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Note: A value of zero is displayed if an encoder is not present.

p0442[0...n] Encoder commissioning serial number part 2 / Enc comm ser_no 2

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 2 of the encoder for the commissioning.

Dependency: Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Note: A value of zero is displayed if an encoder is not present.

p0443[0...n] Encoder commissioning serial number part 3 / Enc comm ser_no 3

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 3 of the encoder for the commissioning.

Dependency: Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Note: A value of zero is displayed if an encoder is not present.

p0444[0...n] Encoder commissioning serial number part 4 / Enc comm ser_no 4

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 4 of the encoder for the commissioning.

Dependency: Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464

Note: A value of zero is displayed if an encoder is not present.

p0445[0...n]	**Encoder commissioning serial number part 5 / Enc comm ser_no 5**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 5 of the encoder for the commissioning.

Dependency: Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464

Note: A value of zero is displayed if an encoder is not present.

p0446[0...n]	**Encoder SSI number of bits before the absolute value / Enc SSI bit before**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the number of bits before the absolute value in the SSI protocol.

Notice: When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: This parameter is automatically pre-set for encoders from the encoder list (p0400).

For example, error bit, alarm bit or parity bit can be positioned at these bits.

p0447[0...n]	**Encoder SSI number of bits absolute value / Enc SSI bit val**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	25

Description: Sets the number of bits for the absolute value in the SSI protocol.

Notice: When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: This parameter is automatically pre-set for encoders from the encoder list (p0400).

p0448[0...n]	**Encoder SSI number of bits after the absolute value / Enc SSI bit after**		
ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the number of bits after the absolute value in the SSI protocol.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For example, error bit, alarm bit or parity bit can be positioned at these bits.

p0449[0...n] Encoder SSI number of bits filler bits / Enc SSI fill bits

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	1

Description: Sets the number of filler bits for double absolute value transfer in the SSI protocol.

Dependency: Refer to: p0429

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: This parameter is only of significance for p0429.2 = 1.

r0451[0...2] Commutation angle factor / Enc commut_factor

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 4710
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the relationship between the electrical and mechanical pole positions.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: A value of zero is displayed if an encoder is not present.

r0452 Squarewave encoder filter time display / Enc t_filt displ

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [µs]	- [µs]	- [µs]

Description: Displays the effective filter time for a squarewave encoder.

The filter time is set using p0438.

Dependency: Refer to: p0438

Note: A value of zero is displayed if an encoder is not present.

r0452[0...2] Squarewave encoder filter time display / Enc t_filt displ

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [µs]	- [µs]	- [µs]

Description: Displays the effective filter time for a squarewave encoder.

The filter time is set using p0438.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0438

Note: A value of zero is displayed if an encoder is not present.

p0453[0...n] Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.10 [ms]	10000.00 [ms]	1000.00 [ms]

Description: Sets the measuring time for evaluating zero speed.

If no pulses are detected from track A/B during this time, a speed actual value of zero is output.

Dependency: Refer to: r0452

Note: This function is required for slow-running motors so that actual speeds close to zero can be output correctly.

r0455 Encoder configuration recognized / Enc config act

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the detected encoder configuration.

In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

Re bit 20, 21 (voltage level 5 V, voltage level 24 V):

The voltage level cannot be detected. Therefore, these bits are always set to 0.

r0455[0...2] Encoder configuration recognized / Enc config act

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the detected encoder configuration.

In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

Re bit 20, 21 (voltage level 5 V, voltage level 24 V):

The voltage level cannot be detected. Therefore, these bits are always set to 0.

r0456 Encoder configuration supported / Enc_config supp

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder configuration supported by the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-

Bit	Signal name	1 signal	0 signal	FP
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

---

r0456[0...2] Encoder configuration supported / Enc_config supp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder configuration supported by the Sensor Module.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

r0458 Sensor Module properties / SM properties

ENC			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Sets the Sensor Module configuration.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder data available	Yes	No	-
01	Motor data available	Yes	No	-
02	Temperature sensor connection available	Yes	No	-
03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
04	Module temperature available	Yes	No	-
05	Absolute encoder p0408/p0421 no power of 2	Yes	No	-
06	Sensor Module permits parking/unparking	Yes	No	-
07	Hall sensor can be combined with actual value inversion	Yes	No	-
08	Evaluation through several temperature channels possible	Yes	No	-
09	Encoder fault and its associated information available	Yes	No	-
10	Speed diagnostics in the Sensor Module	Yes	No	-
11	Configuring without park state possible	Yes	No	-
12	Extended functions available	Yes	No	-
13	Extended encoder fault handling	Yes	No	-
14	Extended singleturn/multiturn information available	Yes	No	-
15	Evaluation function reserve	Yes	No	-
16	Pole position identification	Yes	No	-
17	Burst oversampling	Yes	No	-
18	Continuous oversampling	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Extended speed calculation being used (only SMC30)	Yes	No	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	Commutation with zero mark can be de-selected	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Disconnection of encoder power supply on parking supported	Yes	No	-
26	Parking with temperature evaluation	Yes	No	-
27	SSI position value extrapolation	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Dependency: Refer to: p0437, p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

Re bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

Re bit 12:

The extended functions can be configured using p0437.

Re bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

Re bit 14:
Only for internal Siemens use.
Re bit 23:
When the property is set, commutation with zero mark can be de-selected using p0430.23.
Re bit 24:
If the property is set, commutation to the selected zero mark can be carried out.

r0458 Sensor Module properties / SM properties

ENC (Lin_enc)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the Sensor Module configuration.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder data available	Yes	No	-
01	Motor data available	Yes	No	-
02	Temperature sensor connection available	Yes	No	-
03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
04	Module temperature available	Yes	No	-
05	Absolute encoder p0408/p0421 no power of 2	Yes	No	-
06	Sensor Module permits parking/unparking	Yes	No	-
07	Hall sensor can be combined with actual value inversion	Yes	No	-
08	Evaluation through several temperature channels possible	Yes	No	-
09	Encoder fault and its associated information available	Yes	No	-
10	Velocity diagnostics in the Sensor Module	Yes	No	-
11	Configuring without park state possible	Yes	No	-
12	Extended functions available	Yes	No	-
13	Extended encoder fault handling	Yes	No	-
14	Extended singleturn/multiturn information available	Yes	No	-
15	Evaluation function reserve	Yes	No	-
16	Pole position identification	Yes	No	-
17	Burst oversampling	Yes	No	-
18	Continuous oversampling	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Extended velocity calculation available (only SMC30)	Yes	No	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	Commutation with zero mark can be de-selected	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Disconnection of encoder power supply on parking supported	Yes	No	-
26	Parking with temperature evaluation	Yes	No	-
27	SSI position value extrapolation	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Dependency: Refer to: p0437, p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

Re bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

Re bit 12:

The extended functions can be configured using p0437.

Re bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

Re bit 14:

Only for internal Siemens use.

Re bit 23:

When the property is set, commutation with zero mark can be de-selected using p0430.23.

Re bit 24:

If the property is set, commutation to the selected zero mark can be carried out.

r0458[0...2] Sensor Module properties / SM properties

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the Sensor Module configuration.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder data available	Yes	No	-
01	Motor data available	Yes	No	-
02	Temperature sensor connection available	Yes	No	-
03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
04	Module temperature available	Yes	No	-
05	Absolute encoder p0408/p0421 no power of 2	Yes	No	-
06	Sensor Module permits parking/unparking	Yes	No	-
07	Hall sensor can be combined with actual value inversion	Yes	No	-
08	Evaluation through several temperature channels possible	Yes	No	-
09	Encoder fault and its associated information available	Yes	No	-
10	Speed diagnostics in the Sensor Module	Yes	No	-
11	Configuring without park state possible	Yes	No	-
12	Extended functions available	Yes	No	-
13	Extended encoder fault handling	Yes	No	-
14	Extended singleturn/multiturn information available	Yes	No	-
15	Evaluation function reserve	Yes	No	-
16	Pole position identification	Yes	No	-
17	Burst oversampling	Yes	No	-
18	Continuous oversampling	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Extended speed calculation being used (only SMC30)	Yes	No	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	Commutation with zero mark can be de-selected	Yes	No	-

24	Commutation with selected zero mark	Yes	No	-
25	Disconnection of encoder power supply on parking supported	Yes	No	-
26	Parking with temperature evaluation	Yes	No	-
27	SSI position value extrapolation	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Dependency: Refer to: p0437, p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

Re bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

Re bit 12:

The extended functions can be configured using p0437.

Re bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

Re bit 14:

Only for internal Siemens use.

Re bit 23:

When the property is set, commutation with zero mark can be de-selected using p0430.23.

Re bit 24:

If the property is set, commutation to the selected zero mark can be carried out.

r0459 Sensor Module properties extended / SM prop ext

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the extended properties supported by the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
09	Function p0426, p0439 supported	Yes	No	-
10	Pulse/direction interface	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Absolute position for incremental encoder supported	Yes	No	-
14	Spindle functionality	Yes	No	-
15	Additional temperature sensor available	Yes	No	-
16	Internal encoder temperature available	Yes	No	-
17	Extended multiturn resolution	Yes	No	-
24	Multiturn via battery	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Track monitoring de-selection	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-

29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0437

Note: A value of zero is displayed if an encoder is not present.

Re bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0459 Sensor Module properties extended / SM prop ext

ENC (Lin_enc)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the extended properties supported by the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze actual velocity for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
09	Function p0426, p0439 supported	Yes	No	-
10	Pulse/direction interface	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Absolute position for incremental encoder supported	Yes	No	-
14	Spindle functionality	Yes	No	-
15	Additional temperature sensor available	Yes	No	-
16	Internal encoder temperature available	Yes	No	-
17	Extended multiturn resolution	Yes	No	-
24	Multiturn via battery	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Track monitoring de-selection	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0437

Note: A value of zero is displayed if an encoder is not present.

Re bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0459[0...2] Sensor Module properties extended / SM prop ext

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the extended properties supported by the Sensor Module.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
09	Function p0426, p0439 supported	Yes	No	-
10	Pulse/direction interface	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Absolute position for incremental encoder supported	Yes	No	-
14	Spindle functionality	Yes	No	-
15	Additional temperature sensor available	Yes	No	-
16	Internal encoder temperature available	Yes	No	-
17	Extended multiturn resolution	Yes	No	-
24	Multiturn via battery	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Track monitoring de-selection	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0437

Note: A value of zero is displayed if an encoder is not present.

Re bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0460 — Encoder serial number part 1 / Enc ser_no 1

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 1 of the appropriate encoder.

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464

r0460[0...2] — Encoder serial number part 1 / Enc ser_no 1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 1 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464

r0461 — Encoder serial number part 2 / Enc ser_no 2

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 2 of the appropriate encoder.

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464

r0461[0...2] — Encoder serial number part 2 / Enc ser_no 2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 2 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464

r0462 — Encoder serial number part 3 / Enc ser_no 3

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 3 of the appropriate encoder.

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464

r0462[0...2] — Encoder serial number part 3 / Enc ser_no 3

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number part 3 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464

r0463	Encoder serial number part 4 / Enc ser_no 4		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual serial number part 4 of the appropriate encoder.

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

r0463[0...2]	Encoder serial number part 4 / Enc ser_no 4		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual serial number part 4 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

r0464	Encoder serial number part 5 / Enc ser_no 5		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual serial number part 5 of the appropriate encoder.

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

r0464[0...2]	Encoder serial number part 5 / Enc ser_no 5		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual serial number part 5 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

r0465[0...27]	**Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no**		
ENC, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the identification/serial number of encoder 1.
Index 0 = first character of the identification number
...
Index x = 20 hex (blank) --> separation between the identification number of serial number
Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
Index x + 3 = first character of the serial number
...
Index y with contents = last character of the serial number

Dependency: Refer to: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0466[0...27]	**Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the identification/serial number of encoder 2.
Index 0 = first character of the identification number
...
Index x = 20 hex (blank) --> separation between the identification number of serial number
Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
Index x + 3 = first character of the serial number
...
Index y with contents = last character of the serial number

Dependency: Refer to: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0467[0...27]	**Encoder 3 identification number/serial number / Enc3 ID_no/Ser_no**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the identification/serial number of encoder 3.
Index 0 = first character of the identification number
...
Index x = 20 hex (blank) --> separation between the identification number of serial number
Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number

Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
Index x + 3 = first character of the serial number
...
Index y with contents = last character of the serial number

Dependency: Refer to: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0469 Absolute encoder linear measuring step / Enc lin meas step

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [nm]	- [nm]	- [nm]

Description: Displays the resolution of the absolute position for a linear absolute encoder.

Dependency: Refer to: p0422, p9514

r0469[0...2] Absolute encoder linear measuring step / Enc lin meas step

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [nm]	- [nm]	- [nm]

Description: Displays the resolution of the absolute position for a linear absolute encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0422, p9514

r0470 Redundant coarse position value valid bits / Valid bits

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the valid bits of the redundant coarse position value.

Dependency: Refer to: p9323, p9523

r0470[0...2] Redundant coarse position value valid bits / Valid bits

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the valid bits of the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p9323, p9523

r0471 Redundant coarse position value fine resolution bits / Fine bit

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of valid bits for the fine resolution of the redundant coarse position value.

Dependency: Refer to: p9324, p9524

r0471[0...2] Redundant coarse position value fine resolution bits / Fine bit

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of valid bits for the fine resolution of the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p9324, p9524

r0472 Redundant coarse position value relevant bits / Relevant bits

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of relevant bits for the redundant coarse position value.

r0472[0...2] Redundant coarse position value relevant bits / Relevant bits

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of relevant bits for the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

r0473 Non safety-relevant measuring steps position value pos1 / nsrPos1

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the non safety-relevant measuring steps of POS1.

Dependency: Refer to: p0416, p9513

r0473[0...2] Non safety-relevant measuring steps position value pos1 / nsrPos1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the non safety-relevant measuring steps of POS1.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0416, p9513

r0474 Redundant coarse position value configuration / Red pos config

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder configuration for the redundant coarse position value.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-

Dependency: Refer to: p9315, p9515

r0474[0...2] Redundant coarse position value configuration / Red pos config

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder configuration for the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-

Dependency: Refer to: p9315, p9515

r0475 Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB

ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Note: MSB: Most Significant Bit

r0475[0...2] Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: MSB: Most Significant Bit

r0477 CO: Measuring gear position difference / Meas gear pos diff

ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the position difference before the measuring gear between powering down and powering up.

Note: The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments.

r0477[0...2] CO: Measuring gear position difference / Meas gear pos diff

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the position difference before the measuring gear between powering down and powering up.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments.

r0479 — CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics.

In contrast to r0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Caution: Following ramping-up or after a data set changeover, the new value is present at connector inputs which are interconnected to connector output r0479 and under certain circumstances take 100 ms to become available.

Reason:

These interconnections are updated in the background, unlike interconnections involving other connector outputs (e.g. CO: r0482).

The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

r0479[0...2] — CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics.

In contrast to r0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Caution: Following ramping-up or after a data set changeover, the new value is present at connector inputs which are interconnected to connector output r0479 and under certain circumstances take 100 ms to become available.

Reason:

These interconnections are updated in the background, unlike interconnections involving other connector outputs (e.g. CO: r0482).

The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

p0480 — CI: Encoder control word Gn_STW signal source / Enc Gn_STW S_src

ENC

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 4700, 4720, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:

CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

p0480[0...2] CI: Encoder control word Gn_STW signal source / Enc Gn_STW S_src

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 4700, 4720, 4750
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:

CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481 CO: Encoder status word Gn_ZSW / Enc Gn_ZSW

ENC			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 4704, 4730, 4750
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Function 1 active	Yes	No	-
01	Function 2 active	Yes	No	-
02	Function 3 active	Yes	No	-
03	Function 4 active	Yes	No	-
04	Value 1	Displayed in r0483	Not present	-
05	Value 2	Displayed in r0483	Not present	-
06	Value 3	Displayed in r0483	Not present	-
07	Value 4	Displayed in r0483	Not present	-
08	Measuring probe 1 deflected	Yes	No	-
09	Measuring probe 2 deflected	Yes	No	-
11	Encoder fault acknowledge active	Yes	No	9676
13	Absolute value cyclically	Displayed in r0483	No	-
14	Parking encoder active	Yes	No	-
15	Encoder fault	Displayed in r0483	None	-

Notice: Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:

SINAMICS S120 Function Manual Drive Functions

Note: Re bit 14:

Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.

Re bit 14, 15:

r0481.14 = 1 and r0481.15 = 0 can have one of the following causes:

- the encoder is parked.
- the encoder is de-activated.
- the encoder is being commissioned.
- no parameterized encoder available.
- encoder data set is being changed over.

r0481.14 = 1 and r0481.15 = 1 has the following significance:

An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.

r0481[0...2] CO: Encoder status word Gn_ZSW / Enc Gn_ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 4010, 4704, 4730, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Function 1 active	Yes	No	-
01	Function 2 active	Yes	No	-
02	Function 3 active	Yes	No	-
03	Function 4 active	Yes	No	-
04	Value 1	Displayed in r0483	Not present	-
05	Value 2	Displayed in r0483	Not present	-
06	Value 3	Displayed in r0483	Not present	-
07	Value 4	Displayed in r0483	Not present	-
08	Measuring probe 1 deflected	Yes	No	-
09	Measuring probe 2 deflected	Yes	No	-
11	Encoder fault acknowledge active	Yes	No	9676
13	Absolute value cyclically	Displayed in r0483	No	-
14	Parking encoder active	Yes	No	-
15	Encoder fault	Displayed in r0483	None	-

Notice: Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:

SINAMICS S120 Function Manual Drive Functions

Note: Re bit 14:

Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.

Re bit 14, 15:

r0481.14 = 1 and r0481.15 = 0 can have one of the following causes:

- the encoder is parked.
- the encoder is de-activated.
- the encoder is being commissioned.
- no parameterized encoder available.
- encoder data set is being changed over.

r0481.14 = 1 and r0481.15 = 1 has the following significance:

An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.

r0482 CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704, 4735, 4740, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive.

Note: - this value is reset if necessary when the "parking encoder" (r0481.14) function is de-selected.

- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).
- The update time for the position control (EPOS) corresponds to the position controller clock cycle p0115[4].
- The update time in isochronous operation corresponds to the bus cycle time r2064[1].

- The update time in isochronous operation and with position control (EPOS) corresponds to the position controller clock cycle p0115[4].

- The update time in non-isochronous operation or without position control (EPOS) comprises the following:

Update time = 4 * least common multiple (LCM) of all current controller clock cycles (p0115[0]) in the drive group (infeed + drives). The minimum update time is 1 ms.

Example 1: infeed, servo

Update time = 4 * LCM(250 µs, 125 µs) = 4 * 250 µs = 1 ms

Example 2: infeed, servo, vector

Update time = 4 * LCM(250 µs, 125 µs, 500 µs) = 4 * 500 µs = 2 ms

r0482[0...2] CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4700, 4702, 4704, 4735, 4740, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: - this value is reset if necessary when the "parking encoder" (r0481.14) function is de-selected.

- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).

- The update time for the position control (EPOS) corresponds to the position controller clock cycle p0115[4].

- The update time in isochronous operation corresponds to the bus cycle time r2064[1].

- The update time in isochronous operation and with position control (EPOS) corresponds to the position controller clock cycle p0115[4].

- The update time in non-isochronous operation or without position control (EPOS) comprises the following:

Update time = 4 * least common multiple (LCM) of all current controller clock cycles (p0115[0]) in the drive group (infeed + drives). The minimum update time is 1 ms.

Example 1: infeed, servo

Update time = 4 * LCM(250 µs, 125 µs) = 4 * 250 µs = 1 ms

Example 2: infeed, servo, vector

Update time = 4 * LCM(250 µs, 125 µs, 500 µs) = 4 * 500 µs = 2 ms

r0483 CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.

Recommend.: Possible causes:

Re Error code = 4097, 4098: Defective Control Unit hardware.

Re Error codes = 4099, 4100: Too many measuring pulses have occurred.

Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note: - in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).

- if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483):

1: Encoder fault.

2: Possible position shift in Gx_XIST1.

3: Encoder parking not possible.

4: Cancellation, reference block search (e.g. reference mark not available or input terminal for external zero mark not set). Zero mark is requested, however according to p0404.12/13/14 there is no zero mark (alarm A07565).

5: Cancellation, fetch reference value (e.g. illegal change from reference mark search to flying measurement).

6: Cancellation, flying measurement (e.g. input terminal for probe not set).

7: Cancellation, fetch measured value (e.g. illegal change from flying measurement to reference mark search).

8: Abort, absolute value transfer.

3841: Function not supported.

4097: Abort, reference mark search due to an initialization error.

4098: Abort, flying measurement due to an initialization error.

4099: Abort, reference mark search due to a measuring error.

4100: Abort, flying measurement due to a measuring error.

r0483[0...2] CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704, 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.

Recommend.: Possible causes:

Re Error code = 4097, 4098: Defective Control Unit hardware.

Re Error codes = 4099, 4100: Too many measuring pulses have occurred.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note: - in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).

- if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483):

1: Encoder fault.

2: Possible position shift in Gx_XIST1.

3: Encoder parking not possible.

4: Cancellation, reference block search (e.g. reference mark not available or input terminal for external zero mark not set). Zero mark is requested, however according to p0404.12/13/14 there is no zero mark (alarm A07565).

5: Cancellation, fetch reference value (e.g. illegal change from reference mark search to flying measurement).

6: Cancellation, flying measurement (e.g. input terminal for probe not set).

7: Cancellation, fetch measured value (e.g. illegal change from flying measurement to reference mark search).

8: Abort, absolute value transfer.

3841: Function not supported.

4097: Abort, reference mark search due to an initialization error.

4098: Abort, flying measurement due to an initialization error.

4099: Abort, reference mark search due to a measuring error.

4100: Abort, flying measurement due to a measuring error.

r0484 CO: Redundant coarse encoder position + CRC / Enc red pos+CRC

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check).

Upper 16 bits:

CRC over the redundant coarse encoder position.

Lower 16 bits:
Redundant coarse encoder position.
On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution.
With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482.

Dependency: The values are valid when the safety position actual value sensing is activated (p0430.19 = 1).
Refer to: p0430

Note: This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

r0484[0...2] CO: Redundant coarse encoder position + CRC / Enc red pos+CRC

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check).
Upper 16 bits:
CRC over the redundant coarse encoder position.
Lower 16 bits:
Redundant coarse encoder position.
On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution.
With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: The values are valid when the safety position actual value sensing is activated (p0430.19 = 1).
Refer to: p0430

Note: This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

r0485 CO: Measuring gear encoder raw value incremental / Enc raw val incr

ENC

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the raw value of the incremental encoder actual value before the measuring gear.

r0485[0...2] CO: Measuring gear encoder raw value incremental / Enc raw val incr

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the raw value of the incremental encoder actual value before the measuring gear.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

r0486	CO: Measuring gear encoder raw value absolute / Enc raw val abs		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the raw value of the absolute encoder actual value before the measuring gear.

r0486[0...2]	CO: Measuring gear encoder raw value absolute / Enc raw val abs		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the raw value of the absolute encoder actual value before the measuring gear.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

r0487	Diagnostic encoder control word Gn_STW / Enc Gn_STW		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 4700, 4704, 4720, 4740
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Request function 1	Yes	No	-
01	Request function 2	Yes	No	-
02	Request function 3	Yes	No	-
03	Request function 4	Yes	No	-
04	Request command bit 0	Yes	No	-
05	Request command bit 1	Yes	No	-
06	Request command bit 2	Yes	No	-
07	Flying measurement mode/search for reference mark	Flying measurement	Reference marks	-
13	Request absolute value cyclic	Yes	No	-
14	Request parking encoder	Yes	No	-
15	Request acknowledge encoder fault	Yes	No	-

Notice: Information on Gn_STW/Gn_ZSW should be taken from the corresponding product documentation.

Note: The signal source for the encoder control word is set with p0480.

r0487[0...2]	Diagnostic encoder control word Gn_STW / Enc Gn_STW		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 4700, 4704, 4720, 4740
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Request function 1	Yes	No	-
01	Request function 2	Yes	No	-
02	Request function 3	Yes	No	-
03	Request function 4	Yes	No	-
04	Request command bit 0	Yes	No	-
05	Request command bit 1	Yes	No	-
06	Request command bit 2	Yes	No	-
07	Flying measurement mode/search for reference mark	Flying measurement	Reference marks	-
13	Request absolute value cyclic	Yes	No	-
14	Request parking encoder	Yes	No	-
15	Request acknowledge encoder fault	Yes	No	-

Notice: Information on Gn_STW/Gn_ZSW should be taken from the corresponding product documentation.

Note: The signal source for the encoder control word is set with p0480.

p0488 Measuring probe 1 input terminal / Meas probe 1 inp

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4740
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal to connect probe 1.

Value:
0: No meas probe
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Dependency: Refer to: p0489, p0728

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
Refer to the encoder interface for PROFIdrive.
If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0488[0...2] Measuring probe 1 input terminal / Meas probe 1 inp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4740
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal to connect probe 1.

Value:
0: No meas probe
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)

4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0489, p0728

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
Refer to the encoder interface for PROFIdrive.
If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489 Measuring probe 2 input terminal / Meas probe 2 inp

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4740
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal to connect probe 2.

Value:
0: No meas probe
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Dependency: Refer to: p0488, p0728

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
Refer to the encoder interface for PROFIdrive.
If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489[0...2] Measuring probe 2 input terminal / Meas probe 2 inp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4740
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal to connect probe 2.

Value:
0: No meas probe
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)

4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0488, p0728

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

To select the values:

For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output

The terminal must be set as input (p0728).

Refer to the encoder interface for PROFIdrive.

If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0491 Motor encoder fault response ENCODER / Fault resp ENCODER

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	5	0

Description: Sets the behavior for the ENCODER fault response (motor encoder).

This means, for example, if an encoder fault occurs, encoderless operation can be automatically selected with a shutdown behavior that can be selected.

Value:
0: Encoder fault results in OFF2
1: Enc fault results in encoderless oper. and oper. continues
2: Encoder fault results in encoderless operation and OFF1
3: Encoder fault results in encoderless operation and OFF3
4: Encoder fault results in an armature short-cct int/DC braking
5: Enc fault results in encoderless op, operation continues, alarm

Dependency: The following parameters are relevant for encoderless operation.

Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755

Caution: For a value = 1, 2, 3, 5 the following applies:

- encoderless operation must have been started.

For a value = 1, the following applies:

- in spite of the motor encoder fault that has occurred, the motor continues to operate.

Note: For a value = 1, 2, 3, 5 the following applies:

- Refer to the status signal "encoderless operation due to a fault" (BO: r1407.13).

- If, with r1407.13 = 1, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match that of the original data set (e.g. p1300 = 21). Encoderless closed-loop controlled operation is kept when changing over.

- Not possible for separately excited synchronous motors (p0300 = 5).

For a value = 4, the following applies:

- The value can only be set for all motor data sets when p1231 = 3, 4.

- For synchronous motors, an armature short circuit is initiated on an encoder fault.

- For induction motors, DC braking is initiated on an encoder fault. DC braking must be commissioned (p1232, p1233, p1234).

For a value = 5, the following applies:

Same function as for value = 1. However, encoder faults are output as alarm and the message bit "Fault active" (r2139.3) is not set. The encoder fault has to be acknowledged via the encoder interface in order to resume operation with encoder.

p0492 Square-wave encoder maximum speed difference per sampling cycle / n_dif max/samp_cyc

ENC	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the maximum permissible speed difference within the current controller sampling time for squarewave encoders.

Note: For a value of 0.0, the speed change monitoring is disabled.

if the set maximum speed difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.

p0492 Square-wave encoder max. velocity difference per sampling cycle / v_dif max/samp_cyc

ENC (Lin_enc)	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [m/min]	1000.00 [m/min]	0.00 [m/min]

Description: Sets the maximum permissible velocity difference within the current controller sampling time for square-wave encoders.

Note: For a value of 0.0, velocity change monitoring is disabled.

if the set maximum velocity difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.

p0492 Maximum speed difference per sampling cycle / n_dif max/samp_cyc

VECTOR_G	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the maximum permissible speed difference within the current controller sampling time.

Dependency: Refer to: r1408

Note: For a value of 0.0, the speed change monitoring is disabled.

The following applies for square-wave encoders:

If the speed difference exceeds the threshold value p0492, depending on p0491, either encoderless closed-loop speed/torque control is selected or the drive is powered down with fault F3x118.

The following applies for other speed encoders:

If the speed difference exceeds threshold value p0492, in order to avoid subsequent faults, the old speed actual value is kept and after time p2178 shut down with fault F07902 (motor stalled).

p0493 Zero mark selection input terminal / ZM_sel inp_term

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal for selecting the reference mark via BERO/switching signal when performing referencing with several zero marks.

The encoder interface supplies the position of the reference mark, which was detected immediately after the positive edge of the BERO signal.

Value:
0: No selection via BERO
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Notice: For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Refer to the encoder interface for PROFIdrive.

The terminal must be set as input (p0728).

For p0493 = 0 (factory setting) the following applies:

- there is no logic operation between the reference mark search and an input signal.

For p0493 > 0, the following applies:

- the positive edge of the input signal is evaluated. If the negative edge is to be evaluated, signal inversion must be parameterized via p0490.

- if a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0580, p0680, p2517, or p2518.

p0493[0...n] Zero mark selection input terminal / ZM_sel inp_term

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the input terminal for selecting the reference mark via BERO/switching signal when performing referencing with several zero marks.

The encoder interface supplies the position of the reference mark, which was detected immediately after the positive edge of the BERO signal.

Value:
0: No selection via BERO
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Notice: For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Refer to the encoder interface for PROFIdrive.

The terminal must be set as input (p0728).

For p0493 = 0 (factory setting) the following applies:

- there is no logic operation between the reference mark search and an input signal.

For p0493 > 0, the following applies:

- the positive edge of the input signal is evaluated. If the negative edge is to be evaluated, signal inversion must be parameterized via p0490.

- if a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0580, p0680, p2517, or p2518.

p0494[0...n] Equivalent zero mark input terminal / ZM_equiv inp_term

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

Value:
0: No equivalent zero mark (evaluation of the encoder zero mark)
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Notice: For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

For p0494 = 0 (factory setting), the setting in p0495 is effective.

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Refer to the encoder interface for PROFIdrive.

The terminal must be set as input.

p0495 Equivalent zero mark input terminal / ZM_equiv input

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4735
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

Value:
0: No equivalent zero mark (evaluation of the encoder zero mark)
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Notice: For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

For p0494 > 0, the setting in p0494 is effective and p0495 is invalid.

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Refer to the encoder interface for PROFIdrive.

The terminal must be set as input.

For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark.

For p0495 > 0, the following applies:

Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated.

- increasing position actual values (r0482) --> the 0/1 edge is evaluated.
- decreasing position actual values (r0482) --> the 1/0 edge is evaluated.

Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in a fault message in Gn_ZSW.

The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.

An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

p0495[0...2] Equivalent zero mark input terminal / ZM_equiv input

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4735
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

Value:
0: No equivalent zero mark (evaluation of the encoder zero mark)
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0494

Notice: For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

For p0494 > 0, the setting in p0494 is effective and p0495 is invalid.

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: Refer to the encoder interface for PROFIdrive.

The terminal must be set as input.

For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark.

For p0495 > 0, the following applies:

Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated.

- increasing position actual values (r0482) --> the 0/1 edge is evaluated.
- decreasing position actual values (r0482) --> the 1/0 edge is evaluated.

Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in a fault message in Gn_ZSW.

The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.

An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

p0496 Encoder diagnostic signal selection / Enc diag select

ENC			
	Can be changed: U, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	86	0

Description: Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.

Value:
0: Inactive
1: r0497: Mechanical revolution
10: r0498: Raw value track A, r0499: Raw value track B
11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
12: r0498: Fine position Phi, r0499: -
13: r0498: Offset correction X, r0499: Offset correction Y
14: r0498: Phase correction X, r0499: Amplitude correction Y
15: r0498: Cubic correction X, r0499: Fine position X
16: r0498: oversampling channel A, r0499: oversampling channel B
17: r0498: fan-out amount, r0499: fan-out number
18: r0498: Oversampling angle, r0499: Oversampling amount
19: r0498: Fault counter AB, r0499: raw value track A
20: r0498: Raw value track C, r0499: Raw value track D
21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)
22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
23: r0497: Zero mark status
24: r0498: Raw value track R, r0499: Zero mark status
25: r0498: Raw value track A, r0499: Raw value track R
30: r0497: Absolute position serial
31: r0497: Absolute position incremental
32: r0497: Zero mark position
33: r0497: Correction absolute position difference
40: r0498: Raw temperature, r0499: Temperature in 0.1 °C
41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
42: r0497: Resistance 2500 Ohm
51: r0497: Absolute speed difference (dn/dt)
52: r0497: Xact1 corrected quadrants
60: Analog sensor: r0498: raw val chann. A, r0499: raw val chann. B
61: Analog sensor: r0498: fine pos chann. A,r0499: fine pos chann. B
62: Analog sensor: r0498: Fine pos before characteristic, r0499: -
70: Resolver: r0498: Transformation ratio, r0499: phase
80: Spindle: r0498: Sensor S1 (raw), r0499: Sensor S4 (raw)
81: Spindle: r0498: Sensor S5 (raw), r0499: -
85: Spindle: r0498: Sensor S1 (cal), r0499: Sensor S4 (cal)
86: Spindle: r0498: Sensor S5 (cal), r0499: -

Dependency: Refer to: r0497, r0498, r0499

Notice: The setting option depends on the following properties:

Sensor Module type, hardware version, firmware version (Sensor Module and Control Units), order number (last digit).

Not all combinations are supported.

Note: Re p0496 = 1: 360 ° <--> 2^32

Re p0496 = 10 (resolver): 2900 mV <--> 26214 dec

Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec

Re p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected

Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected

Re p0496 = 12: 180 ° fine position <--> 32768 dec

Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec

Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec

Re p0496 = 14: 1 ° <--> 286 dec, 100% <--> 16384 dec

Re p0496 = 15: 100 % <--> 16384 dec

Re p0496 = 16: (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec

Re p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec
Re p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8
Re p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8
Re p0496 = 18 (resolver): angle: signal period <--> 2^16, absolute value: 2900 mV <--> 13107 dec
Re p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2^16, absolute value: 500 mV <--> 10650 dec
Re p0496 = 19 (resolver): counter: dec, channel A: 2900 mV <--> 26214 dec
Re p0496 = 19 (sin/cos 1 Vpp, EnDat): counter: dec, channel A: 500 mV <--> 21299 dec
Re p0496 = 22: 180 ° <--> 32768 dec
Re p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller cycle when encoder zero mark detected
Re p0496 = 24, 25: 500 mV <--> 21299 dec
Re p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
Re p0496 = 32: Zero mark position in 1/4 encoder pulses
Re p0496 = 33: counter offset absolute value in 1/4 encoder pulses
Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768
Re p0496 = 42: 2500 Ohm <--> 2^32
Re p0496 = 51: 1 rpm <--> 1000 dec
Re p0496 = 52: In 1/4 encoder pulses
Re p0496 = 60: voltage, channel A in mV, voltage, channel B in mV
Re p0496 = 61: Channel A: encoder periods <--> 2^16, channel B: encoder periods <--> 2^16
Re p0496 = 62: encoder periods <--> 2^16
Re p0496 = 70: r: 100% <--> 10000 dec, phase: 180 ° <--> 18000 dec
Re p0496 = 80, 81, 85, 86: 1V <--> 1000 inc

p0496[0...2] Encoder diagnostic signal selection / Enc diag select

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	86	0

Description: Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.

Value:
0: Inactive
1: r0497: Mechanical revolution
10: r0498: Raw value track A, r0499: Raw value track B
11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
12: r0498: Fine position Phi, r0499: -
13: r0498: Offset correction X, r0499: Offset correction Y
14: r0498: Phase correction X, r0499: Amplitude correction Y
15: r0498: Cubic correction X, r0499: Fine position X
16: r0498: oversampling channel A, r0499: oversampling channel B
17: r0498: fan-out amount, r0499: fan-out number
18: r0498: Oversampling angle, r0499: Oversampling amount
19: r0498: Fault counter AB, r0499: raw value track A
20: r0498: Raw value track C, r0499: Raw value track D
21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)
22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
23: r0497: Zero mark status
24: r0498: Raw value track R, r0499: Zero mark status
25: r0498: Raw value track A, r0499: Raw value track R
30: r0497: Absolute position serial
31: r0497: Absolute position incremental
32: r0497: Zero mark position
33: r0497: Correction absolute position difference
40: r0498: Raw temperature, r0499: Temperature in 0.1 °C
41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
42: r0497: Resistance 2500 Ohm
51: r0497: Absolute speed difference (dn/dt)
52: r0497: Xact1 corrected quadrants

60: Analog sensor: r0498: raw val chann. A, r0499: raw val chann. B
61: Analog sensor: r0498: fine pos chann. A,r0499: fine pos chann. B
62: Analog sensor: r0498: Fine pos before characteristic, r0499: -
70: Resolver: r0498: Transformation ratio, r0499: phase
80: Spindle: r0498: Sensor S1 (raw), r0499: Sensor S4 (raw)
81: Spindle: r0498: Sensor S5 (raw), r0499: -
85: Spindle: r0498: Sensor S1 (cal), r0499: Sensor S4 (cal)
86: Spindle: r0498: Sensor S5 (cal), r0499: -

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: r0497, r0498, r0499

Notice: The setting option depends on the following properties:

Sensor Module type, hardware version, firmware version (Sensor Module and Control Units), order number (last digit).

Not all combinations are supported.

Note: Re p0496 = 1: 360 ° <--> 2^32

Re p0496 = 10 (resolver): 2900 mV <--> 26214 dec

Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec

Re p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected

Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected

Re p0496 = 12: 180 ° fine position <--> 32768 dec

Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec

Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec

Re p0496 = 14: 1 ° <--> 286 dec, 100% <--> 16384 dec

Re p0496 = 15: 100 % <--> 16384 dec

Re p0496 = 16: (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec

Re p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec

Re p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8

Re p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8

Re p0496 = 18 (resolver): angle: signal period <--> 2^16, absolute value: 2900 mV <--> 13107 dec

Re p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2^16, absolute value: 500 mV <--> 10650 dec

Re p0496 = 19 (resolver): counter: dec, channel A: 2900 mV <--> 26214 dec

Re p0496 = 19 (sin/cos 1 Vpp, EnDat): counter: dec, channel A: 500 mV <--> 21299 dec

Re p0496 = 22: 180 ° <--> 32768 dec

Re p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller cycle when encoder zero mark detected

Re p0496 = 24, 25: 500 mV <--> 21299 dec

Re p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec

Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses

Re p0496 = 32: Zero mark position in 1/4 encoder pulses

Re p0496 = 33: counter offset absolute value in 1/4 encoder pulses

Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768

Re p0496 = 42: 2500 Ohm <--> 2^32

Re p0496 = 51: 1 rpm <--> 1000 dec

Re p0496 = 52: In 1/4 encoder pulses

Re p0496 = 60: voltage, channel A in mV, voltage, channel B in mV

Re p0496 = 61: Channel A: encoder periods <--> 2^16, channel B: encoder periods <--> 2^16

Re p0496 = 62: encoder periods <--> 2^16

Re p0496 = 70: r: 100% <--> 10000 dec, phase: 180 ° <--> 18000 dec

Re p0496 = 80, 81, 85, 86: 1V <--> 1000 inc

r0497 — Encoder diagnostic signal double word / Enc diag DW

ENC

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (double word).
The signal to be output is selected in p0496.

Dependency: Refer to: p0496, r0498, r0499

r0497[0...2] — CO: Encoder diagnostic signal double word / Enc diag DW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (double word).
The signal to be output is selected in p0496.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0496, r0498, r0499

r0498 — Encoder diagnostic signal low word / Enc diag low word

ENC

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (low component).
The signal to be output is selected in p0496.

Dependency: Refer to: p0496, r0497, r0499

r0498[0...2] — CO: Encoder diagnostic signal low word / Enc diag low word

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (low component).
The signal to be output is selected in p0496.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0496, r0497, r0499

r0499 Encoder diagnostic signal high word / Enc diag high word

ENC

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (high component).

The signal to be output is selected in p0496.

Dependency: Refer to: p0496, r0497, r0498

r0499[0...2] CO: Encoder diagnostic signal high word / Enc diag high word

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace signal for encoder diagnostics (high component).

The signal to be output is selected in p0496.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p0496, r0497, r0498

p0500 Technology application / Tec application

VECTOR_G

Can be changed: C2(1, 5), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4	1

Description: Sets the technology application.

The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.

Value:
0: Standard drive (VECTOR)
1: Pumps and fans
2: Sensorless closed-loop control down to f = 0 (passive loads)
4: Dynamic in the field weakening range

Dependency: Refer to: p2175, p2177

Note: The calculation of parameters dependent on the technology application can be called up as follows:

- when exiting quick commissioning using p3900 > 0
- when writing p0340 = 1, 3, 5
- when writing p0578 = 1

For p0500 = 0, 5 and when the calculation is initiated, the following parameters are set:

p1574 = 10 V (separately-excited synchronous motor: 20 V)

p1611 = 80% (only p0500 = 5)

p1750.2 = 0

p1802 = 4 (SVM/FLB without overcontrol)

p1803 = 106 %

For p0500 = 1 and when the calculation is initiated, the following parameters are set:

p1574 = 2 V (separately-excited synchronous motor: 4 V)

p1750.2 = 0

p1802 = 9 (edge modulation), if r0192.0 = 1

p1802 = 4, if r0192.0 = 0

p1803 = 106 %

For p0500 = 2 and when the calculation is initiated, the following parameters are set:

p1574 = 2 V (separately-excited synchronous motor: 4 V)

p1750.2 = 1: Encoderless control of the induction motor is effective down to zero frequency.

This operating mode is possible for passive loads. These include applications where the load does not generate regenerative torque when breaking away and the motor comes to a standstill (zero speed) itself when the pulses are inhibited.

p1802 = 4 (SVM/FLB without overcontrol)

p1803 = 106 %

The setting of p1750 is only relevant for induction motors.

p1802 and p1803 are only changed, in all cases, if a sine-wave output filter (p0230 = 3, 4) has not been selected.

For p0500 = 4: (presetting for VECTOR with PM250 power unit)

p1574 = 30 V

p1750.2 = 0

p1802 = 2 (SVM with overcontrol)

p1803 = 106 %

p0505 Selecting the system of units / Unit sys select

B_INF, ENC, VECTOR_G	**Can be changed:** C2(5)	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Applications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	4	1

Description: Sets the actual system of units.

Value:
1: SI system of units
2: System of units referred/SI
3: US system of units
4: System of units referred/US

Dependency: The parameter can only be changed in an offline project using the commissioning software.

Caution: If a per unit representation is selected and if the reference parameters (e.g. p2000) are subsequently changed, then the physical significance of several control parameters is also adapted at the same time. As a consequence, the control behavior can change (see p1576, p1621, p1744, p1752, p1755 and p1609, p1612, p1619, p1620).

Note: Reference parameter for the unit system % are, for example, p2000 ... p2004. Depending on what has been selected, these are displayed using either SI or US units.

p0514[0...9] User-specific reference quantities / Usrdef_ref

B_INF, VECTOR_G	**Can be changed:** T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000001	10000000.000000	1.000000

Description: Sets the reference quantities for the user-specific scaling.

By indexing reference parameter p514[0..9], a total of 10 reference quantities are available:

p514[0]reference quantity 01

p514[1]reference quantity 02

..

p514[8]reference quantity 09

p514[9]reference quantity 10

Up to 20 BiCos can be scaled to each of these 10 reference quantities.
Assignment parameters p515[0..19] up to p524[0..19] have been introduced for this purpose.

p0515[0...19] Assignment parameter 1 in reference to p514[0] / BiCoList1_ref1

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p515[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p515[0] BiCo number assigned p514[0] (reference quantity 01)
..
p515[19] BiCo number assigned p514[0] (reference quantity 01)

Dependency: Refer to: p0514

p0516[0...19] Assignment parameter 2 in reference to p514[1] / BiCoList2_ref2

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p516[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p516[0] BiCo number assigned p514[1] (reference quantity 02)
..
p516[19] BiCo number assigned p514[1] (reference quantity 02)

Dependency: Refer to: p0514

p0517[0...19] Assignment parameter 3 in reference to p514[2] / BiCoList3_ref3

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p517[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p517[0] BiCo number assigned p514[2] (reference quantity 03)
..
p517[19] BiCo number assigned p514[2] (reference quantity 03)

Dependency: Refer to: p0514

p0518[0...19] Assignment parameter 4 in reference to p514[3] / BiCoList4_ref4

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p518[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p518[0] BiCo number assigned p514[3] (reference quantity 04)
..
p518[19] BiCo number assigned p514[3] (reference quantity 04)

Dependency: Refer to: p0514

p0519[0...19] Assignment parameter 5 in reference to p514[4] / BiCoList5_ref5

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p519[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p519[0] BiCo number assigned p514[4] (reference quantity 05)
..
p519[19] BiCo number assigned p514[4] (reference quantity 05)

Dependency: Refer to: p0514

p0520[0...19] Assignment parameter 6 in reference to p514[5] / BiCoList6_ref6

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p520[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p520[0] BiCo number assigned p514[5] (reference quantity 06)
..
p520[19] BiCo number assigned p514[5] (reference quantity 06)

Dependency: Refer to: p0514

p0521[0...19] Assignment parameter 7 in reference to p514[6] / BiCoList7_ref7

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p521[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p521[0] BiCo number assigned p514[6] (reference quantity 07)
..
p521[19] BiCo number assigned p514[6] (reference quantity 07)

Dependency: Refer to: p0514

p0522[0...19] Assignment parameter 8 in reference to p514[7] / BiCoList8_ref8

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p522[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p522[0] BiCo number assigned p514[7] (reference quantity 08)
..
p522[19] BiCo number assigned p514[7] (reference quantity 08)

Dependency: Refer to: p0514

p0523[0...19] Assignment parameter 9 in reference to p514[8] / BiCoList9_ref9

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p523[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p523[0] BiCo number assigned p514[8] (reference quantity 09)
..
p523[19] BiCo number assigned p514[8] (reference quantity 09)

Dependency: Refer to: p0514

p0524[0...19] Assignment parameter 10 in reference to p514[9] / BiCoList10_ref10

B_INF, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p524[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p524[0] BiCo number assigned p514[9] (reference quantity 10)
..
p524[19] BiCo number assigned p514[9] (reference quantity 10)

Dependency: Refer to: p0514

p0528 Controller gain system of units / Ctrl_gain unit_sys

ENC

Can be changed: C2(5)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the system of units for the controller gains.

Value:
0: Representation physical/% (p0505)
1: Representation no dimensions (referred)

Note: For p0528 = 0 (physical/%), the following applies:
Using p0505, the dependent parameters can be changed over between physical and % representation.
For SERVO (r0107) the following applies:
The parameter is pre-assigned a value of 0 and cannot be changed.

p0528 Controller gain system of units / Ctrl_gain unit_sys

VECTOR_G

Can be changed: C2(5)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: Sets the system of units for the controller gains.

Value:
0: Representation physical/% (p0505)
1: Representation no dimensions (referred)

Note: For VECTOR (r0107) the following applies:
The parameter is pre-assigned a value of 1 and cannot be changed.

p0530[0...n]	**Bearing version selection / Bearing vers sel**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	104	0

Description: Sets the bearing version.

Corresponding to the bearing version entered, its code number (p0531) is automatically set.

0 = No selection

1 = Manual entry

101 = STANDARD

102 = PERFORMANCE

103 = HIGH PERFORMANCE

104 = ADVANCED LIFETIME

Dependency: Refer to: p0301, p0531, p0532, p1082

Notice: For p0530 = 101, 102, 103, 104, the maximum bearing speed (p0532) is write protected. Write protection is withdrawn with p0530 = 1.

If p0530 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3). The maximum speed of the bearing is factored into the limit for the maximum speed p1082.

Note: For a motor with DRIVE-CLiQ, p0530 can only be set to 1.

p0531[0...n]	**Bearing code number selection / Bearing codeNo sel**		
VECTOR_G	**Can be changed:** C2(3)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Display and setting the code number of the bearing.

When setting p0301 and p0530 the code number is automatically preassigned and is write protected. The information in p0530 should be observed when removing write protection.

Dependency: Refer to: p0301, p0530, p0532, p1082

Notice: If p0531 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3). The maximum speed of the bearing is factored into the limit for the maximum speed p1082.

Note: p0531 cannot be changed on a motor with DRIVE-CLiQ.

p0532[0...n]	**Bearing maximum speed / Bearing n_max**		
VECTOR_G	**Can be changed:** C2(1, 3)	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the maximum speed of the bearing.

The following applies when calculating the maximum speed (p1082):

- for p0324 = 0 or p0532 = 0, p0322 is used.

- for p0324 > 0 and p0532 > 0, the minimum value from the two parameters is used.

Dependency: Refer to: p0301, p0322, p0324, p0530, p1082

Notice: This parameter is pre-assigned in the case of motors from the motor list (p0301) if a bearing version (p0530) is selected.

When selecting a catalog motor, this parameter cannot be changed (write protection). The information in p0530 should be observed when removing write protection.

If p0532 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3).

r0565[0...15] CO: Probe time stamp / Probe t_stamp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the time stamp MT_ZS_1 up to MT_ZS_16.

Displays the measuring time for an edge at the digital input for the "central measuring probe evaluation stage 3" function.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

Priority:

MT1 ... MT8, oldest ... newest time stamp

r0566[0...3] CO: Probe time stamp reference / Probe t_stamp name

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the time stamp reference MT_ZSB1 up to MT_ZSB4.

r0567 CO: Probe diagnostics word / Probe diag_word

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for diagnostics word MT_DIAG.

p0570 Inhibit list values effective number / Inhib list no

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	50	0

Description: Sets the number of parameters in the inhibit list p0571.

This number of parameters can be automatically excluded from the calculation of the motor and control parameters (see p0340, p0578), starting from index 0.

Note: Defines the number of entries in p0571 that should be taken into account.

The inhibit list is deactivated for a value of 0.

p0571[0...49] Inhibit list motor/closed-loop control parameter calculation / Inhib list calc

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2142	0

Description: The inhibit list contains parameters that should be withdrawn from the automatic motor and closed-loop control parameter calculation (p0340, p0578).

Value:
0: No parameter
600: Motor temperature sensor
640: Current limit
1082: Maximum speed
1460: Speed controller P gain
1462: Speed controller integral time
1470: Speed controller P gain encoderless
1472: Speed controller integral time encoderless
1520: Torque limit upper/motoring
1521: Torque limit lower/regenerative
1530: Power limit motoring
1531: Power limit regenerative
1590: Flux controller P gain
1592: Flux controller integral time
2141: Speed threshold 1
2142: Hysteresis speed 1

Note: p0570 defines the number of entries (starting at index 0) for which the inhibit should apply. p0572 can be used to define for which drive data sets the inhibit list should apply.

If a motor data set is entered into a parameter number, then this is not overwritten as soon as only one drive data set refers to the motor data set (p0186).

p0572[0...n] Activate/de-activate inhibit list / Inh_list act/deact

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting for activating/de-activating the inhibit list.

Depending on the setting, the parameters of the inhibit list (p0571) should be overwritten when calculating the motor and closed-loop control parameters for the particular drive data set (DDS).

Value:
0: No
1: Yes

Note: If value = 0:

The automatic calculation (p0340, p0578) also overwrites the parameters of the inhibit list (p0571).

If value = 1:

The automatic calculation (p0340, p0578) does not overwrite the parameters of the inhibit list (p0571).

p0573 Inhibit automatic reference value calculation / Inhibit calc

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to inhibit the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and closed-loop control parameters (p0340, p3900).

Value:	0: No 1: Yes
Notice:	The inhibit for the reference value calculation is canceled when new motor parameters (e.g. p0305) are entered and only one drive data set exists (p0180 = 1). This is the case during initial commissioning. Once the motor and control parameters have been calculated (p0340, p3900), the inhibit for the reference value calculation is automatically re-activated.
Note:	If value = 0: The automatic calculation (p0340, p3900) overwrites the reference parameters. If value = 1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters.

p0578[0...n] Calculate technology-dependent parameters / Calc tec par

VECTOR_G

Can be changed: C2(5), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description:	This parameter is used to calculate all parameters that depend on the technology of the application (p0500). All of the parameters are calculated that can also be determined using p0340 = 5.
Value:	0: No calculation 1: Complete calculation
Note:	At the end of the calculations, p0578 is automatically set to 0.

p0595 Technological unit selection / Tech unit select

VECTOR_G (Tech_ctrl)

Can be changed: C2(5)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Applications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	32	1

Description: Selects the units for the parameters of the technology controller.
For p0595 = 1, 2, the reference quantity set in p0596 is not active.

Value:

1: %
2: 1 referred no dimensions
3: bar
4: °C
5: Pa
6: ltr/s
7: m³/s
8: ltr/min
9: m³/min
10: ltr/h
11: m³/h
12: kg/s
13: kg/min
14: kg/h
15: t/min
16: t/h
17: N
18: kN
19: Nm
20: psi
21: °F
22: gallon/s
23: inch³/s
24: gallon/min
25: inch³/min
26: gallon/h

27: inch³/h
28: lb/s
29: lb/min
30: lb/h
31: lbf
32: lbf ft

Dependency: Only the unit of the technology controller parameters are switched over (unit group 9_1).

Refer to: p0596

Note: When switching over from % into another unit, the following sequence applies:

- set p0596
- set p0595 to the required unit

p0596 Technological unit reference quantity / Tech unit ref qty

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01	340.28235E36	1.00

Description: Sets the reference quantity for the technological units.

When changing over using changeover parameter p0595 to absolute units, all of the parameters involved refer to the reference quantity.

Dependency: Refer to: p0595

Notice: When changing over from one technological unit into another, or when changing the reference parameter, a changeover is not made.

p0600[0...n] Motor temperature sensor for monitoring / Mot temp_sensor

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	21	0

Description: Sets the sensor to monitor the motor temperature.

The sensor type used is set in p0601.

Value:
0: No sensor
1: Temperature sensor via encoder 1
2: Temperature sensor via encoder 2
3: Temperature sensor via encoder 3
10: Temperature sensor via a BICO interconnection
11: Temperature sensor via Motor Module / CU terminals
20: Temperature sensor via a BICO interconnection p0608
21: Temperature sensor via a BICO interconnection p0609

Dependency: Refer to: r0458, p0601, p0603

Caution: ⚠ If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another sensor, then the temperature adaptation of the motor resistances must be switched out. Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.

Notice: The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0.

For operation with a braking resistor (p1300 = 15), p0600 = 11 is automatically set when commissioning.

Note: Re p0600 = 0:

With induction motors, the motor temperature is calculated using the motor temperature model (see also p0612.1).

Re p0600 = 1, 2, 3:

Bimetallic switch (p0601 = 4) and PT100 temperature sensor (p0601 = 5) are not supported.

Re p0600 = 10:

The BICO interconnection should be executed via connector input p0603.

Re p0600 = 11:

For SINAMICS S120 AC Drive (AC/AC) and using the Control Unit Adapter CUA31, the temperature sensor is connected at the adapter (X210).

Re p0600 = 20, 21:

The BICO interconnection should be executed via connector input p0608 or p0609.

Associated parameters: p0601, p4600 ... p4603, p4610 ... p4613

p0601 Temperature sensor, sensor type / Temp_sens type

B_INF	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4	0

Description: Sets the sensor type for the temperature measurement at input X21 (booksize) or X41 (chassis).

The measured value is displayed in r0035.

Value:
0: No sensor
1: PTC alarm & timer
2: KTY84
4: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0035

Note: The measured value display depends on the selected sensor type.

Re p0601 = 0:

--> r0035 = -200 °C

Re p0601 = 1:

Tripping resistance = 1650 Ohm (lower resistance --> r0035 = -50 °C, higher resistance --> r0035 = 250 °C).

Re p0601 = 2:

Displays the temperature in °C.

Re p0601 = 4:

r0035 = -50 °C

--> The tripping resistance is less than 100 Ohm (bimetallic NC contact is closed or has a short-circuit).

r0035 = 250 °C

--> The tripping resistance is greater than 100 Ohm (bimetallic NC contact is open, not connected or has a wire breakage).

When using the following components, a value of 4 is set as the factory setting and can no longer be changed:

- Basic Line Module (BLM) with internal Braking Module.

- Active Line Module (ALM) with line filter Active Interface Module (AIM, p0220[0] = 41 ... 45).

In these cases, in addition to the temperature display, the temperature is also monitored.

p0601[0...n] Motor temperature sensor type / Mot_temp_sens type

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	11	2

Description: Sets the sensor type for the motor temperature monitoring.

Value:
0: No sensor
1: PTC alarm & timer
2: KTY84
3: KTY84 and PTC (only for motors with DRIVE-CLiQ):
4: Bimetallic NC contact alarm & timer (only for temp_eval via MM)
5: PT100
10: Evaluation via several temperature channels SME12x
11: Evaluation via several temperature channels BICO

Dependency: A thermal motor model is calculated corresponding to p0612.

Refer to: r0458, p0600, p0612

Note: The temperature sensor for the temperature evaluation is set in p0600.

For p0600 = 10 (temperature sensor via a BICO interconnection), the setting in p0601 has no significance.

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

Re p0601 = 1:

Tripping resistance = 1650 Ohm.

After the tripping resistance has been exceeded, an appropriate alarm is output and after the delay time set in p0606 has expired, an appropriate fault is output.

Re p0601 = 3:

For motors with DRIVE-CLiQ and 2 temperature sensors, the value is automatically set.

Re p0601 = 4:

Tripping resistance = 100 Ohm.

After tripping, an appropriate alarm is output and after the delay time set in p0606 has expired, an appropriate fault is output.

Re p0601 = 5:

It is only possible to evaluate a PT100 for p0600 = 11 and r0192.15 = 1.

Re p0601 = 10:

Not permitted for p0600 = 0, 10, 11.

Associated parameters: p4600 ... p4603 (can be switched via EDS)

For r0458.8 = 1, a temperature evaluation is supported through several temperature channels.

Examples:

When evaluating using SME120 or SME125, 4 temperature channels are available (parameterized using p4600, p4601, p4602, p4603).

When evaluating using CU310 and CUA32, 2 temperature channels are available (encoder interface: parameterization via p4600, terminal block: parameterization via p4601).

Re p0601 = 11:

Not permitted for p0600 = 0, 10, 11.

Associated parameters: p4610 ... p4613 (can be switched via MDS)

p0602 Par_circuit power unit number, temperature sensor / PU_no temp_sensor

VECTOR_G (Parallel)	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10	0

Description: Sets the power unit number to which the temperature sensor is connected. The value corresponds to the Power unit Data Set number (PDS) of the power unit. The number of power unit data sets is defined in p0120.

p0603 CI: Motor temperature signal source / Mot temp S_src

VECTOR_G	**Can be changed:** C2(3), T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8016
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to evaluate the motor temperature via a BICO interconnection.

Dependency: Refer to: p0600

Note: Temperature sensor KTY: Valid temperature range -48 °C ... 248 °C.

PTC temperature sensor:

For a value = -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC.

For a value = 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC.

Note:

When using a Terminal Module 31 (TM31), the following applies:

- the sensor type used is set using p4100.
- the temperature signal is interconnected using CO: r4105.

p0604[0...n] Mot_temp_mod 2/KTY alarm threshold / Mod 2/KTY A thresh

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [°C]	200.0 [°C]	130.0 [°C]

Description: Sets the alarm threshold for monitoring the motor temperature for motor temperature model 2 or KTY.

After the alarm threshold is exceeded, alarm A07910 is output and timer (p0606) is started.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07011 is output.

Dependency: Refer to: p0606, p0612

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The hysteresis is 2 K.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0605[0...n] Mot_temp_mod 1/2 threshold / Mod 1/2 threshold

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016, 8017
P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [°C]	200.0 [°C]	145.0 [°C]

Description: Sets the threshold for monitoring the motor temperature for motor temperature model 1/2 or KTY.

Motor temperature model 1 (p0612.0 = 1): alarm threshold

- Alarm A07012 is output after the alarm threshold is exceeded.

Motor temperature model 2 (p0612.1 = 1) or KTY: fault threshold

- Fault F07011 is output after the fault threshold is exceeded.

Dependency: Refer to: p0606, p0611, p0612

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Motor temperature model 1:

p0605 also defines the target temperature of the model for r0034 = 100 %. Therefore, p0605 has no influence on the time up to alarm A07012 being issued. The time is only determined by time constant p0611, the actual current and the reference value p0318. For p0318 = 0, the rated motor current is used as reference value.

Note: The hysteresis is 2 K.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0606[0...n] Mot_temp_mod 2/KTY timer / Mod 2/KTY t_timer

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	600.000 [s]	0.000 [s]

Description: Sets the timer for monitoring the motor temperature for motor temperature model 2 or KTY.

This timer is started when the temperature alarm threshold (p0604) is exceeded.

If the timer has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07011 is output.

If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output.

Dependency: Refer to: p0604, p0605

Note: With p0606 = 0 s, the timer is de-activated and only the fault threshold is effective.

KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.

PTC sensor, bimetallic NC contact: The timer minimum value has no special significance.

p0607[0...n] Temperature sensor fault timer / Sensor fault time

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	600.000 [s]	0.100 [s]

Description: Sets the timer between the output of alarm and fault for a temperature sensor fault.

If there is a sensor fault, this timer is started.

If the sensor fault is still present after the timer has expired, a corresponding fault is output.

Notice: The parameterized time is internally rounded-off to an integer multiple of 48 ms.

Note: If the motor is an induction motor, the timer is switched off when setting the minimum value and no alarm is output. Temperature monitoring is then based on the thermal model.

p0608[0...3] CI: Motor temperature signal source 2 / Mot_temp S_src 2

VECTOR_G

Can be changed: C2(3), T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets signal source 2 to evaluate the motor temperature via a BICO interconnection.

Index:
[0] = Motor temperature channel 1
[1] = Motor temperature channel 2
[2] = Motor temperature channel 3
[3] = Motor temperature channel 4

Dependency: Refer to: p0600

Note: Temperature sensor KTY:

Valid temperature range -48 °C ... 248 °C.

Temperature sensor PTC/bimetal:

For a value of -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC (bimetal contact closed).

For a value of 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC (bimetal contact open).

Note:

When using a Terminal Module 120 (TM120), the following applies:

- the sensor type used is set using p4100.
- the temperature signal is interconnected using connector output r4105.

p0609[0...3]	CI: Motor temperature signal source 3 / Mot_temp S_src 3		
VECTOR_G	**Can be changed:** C2(3), T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8016
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets signal source 3 to evaluate the motor temperature via a BICO interconnection.

Index:
[0] = Motor temperature channel 1
[1] = Motor temperature channel 2
[2] = Motor temperature channel 3
[3] = Motor temperature channel 4

Dependency: Refer to: p0600

Note: Temperature sensor KTY:

Valid temperature range -48 °C ... 248 °C.

Temperature sensor PTC/bimetal:

For a value of -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC (bimetal contact closed).

For a value of 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC (bimetal contact open).

Note:

When using a Terminal Module 120 (TM120), the following applies:

- the sensor type used is set using p4100.
- the temperature signal is interconnected using connector output r4105.

p0610[0...n]	Motor overtemperature response / Mot temp response		
VECTOR_G	**Can be changed:** C2(3), T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016, 8017
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	12	12

Description: Sets the system response when the motor temperature reaches the alarm threshold.

Value:
0: No response only alarm no reduction of I_max
1: Messages, reduction of I_max
2: Messages, no reduction of I_max
12: Messages, no reduction of I_max, temperature storage

Dependency: Refer to: p0601, p0604, p0605, p0614, p0615

Note: The I_max reduction is not executed for PTC (p0601 = 1) or bimetallic NC contact (p0601 = 4).

The I_max reduction results in a lower output frequency.

If value = 0:

An alarm is output and I_max is not reduced.

If value = 1:

An alarm is output and a timer is started. A fault is output if the alarm is still active after this timer has expired.

- for KTY84, the following applies: I_max. is reduced
- for PTC, the following is valid: I_max. is not reduced

If value = 2:

An alarm is output and a timer is started. A fault is output if the alarm is still active after this timer has expired.

If value = 12:

Behavior is always the same as for value 2.

For motor temperature monitoring without temperature sensor, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the same value (reduced by p0614) is taken into account in the model calculation. As a consequence, the UL508C specification is fulfilled.

p0611[0...n] I2t motor model thermal time constant / I2t mot_mod T

VECTOR_G

Can be changed: C2(1, 3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [s]	20000 [s]	0 [s]

Description: Sets the winding time constant.

The time constant specifies the warm-up time of the cold stator winding when loaded with the motor standstill current (rated motor current, if the motor standstill current is not parameterized) up until a temperature rise of 63 % of the continuously permissible winding temperature has been reached.

Dependency: This parameter is only used for synchronous motors (p0300 = 2xx, 4).

Refer to: r0034, p0612, p0615

Notice: This parameter is automatically pre-set from the motor database for motors from the motor list (p0301).

When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

When exiting commissioning, p0612 is checked, and where relevant, is preassigned to a value that matches the motor power, if a temperature sensor was not parameterized (see p0601).

Note: When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (refer to p0612).

If no temperature sensor is parameterized, then the ambient temperature for the thermal motor model is referred to p0625.

p0612[0...n] Mot_temp_mod activation / Mot_temp_mod act

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0010 0000 0010 bin

Description: Setting to activate the motor temperature model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Activating motor temperature model 1 (I2t)	Yes	No	-
01	Activate motor temperature model 2	Yes	No	-
02	Activate motor temperature model 3	Yes	No	-
09	Activate motor temperature model 2 expansions	Yes	No	-

Dependency: For synchronous motors, when exiting commissioning, temperature model 1 is automatically activated if a time constant has been entered in p0611.

Refer to: r0034, p0604, p0605, p0606, p0611, p0615, p0625, p0626, p0627, p0628

Note: Mot_temp_mod: motor temperature model

Re bit 00:

This bit is used to activate/deactivate the motor temperature model for permanent-magnet synchronous motors.

Re bit 01:

This bit is used to activate/deactivate the motor temperature model for induction motors.

Re bit 02:

This bit is used to activate/deactivate the motor temperature model for 1FK7 motors without encoder.

Motor temperature model 3 cannot be simultaneously activated with another motor temperature model.

p0614[0...n] Thermal resistance adaptation reduction factor / Therm R_adapt red

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [%]	100 [%]	30 [%]

Description: Sets the reduction factor for the overtemperature of the thermal adaptation of the stator/rotor resistance.

The value is a starting value when switching on. Internally, after switch-on, the reduction factor has no effect corresponding to the thermal time constant.

Dependency: Refer to: p0610

Note: The reduction factor is only effective for p0610 = 12, and refers to the overtemperature.

p0615[0...n] Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [°C]	220.0 [°C]	180.0 [°C]

Description: Sets the fault threshold for monitoring the motor temperature for motor temperature model 1 (I2t).

- Fault F07011 is output after the fault threshold is exceeded.
- fault threshold for r0034 = 100 % * (p0615 - 40) / (p0605 - 40).

Dependency: The parameter is only used for permanent-magnet synchronous motors (p0300 = 2xx).

Refer to: r0034, p0611, p0612

Notice: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: The hysteresis is 2 K.

p0616[0...n] Motor overtemperature alarm threshold 1 / Mot temp alarm 1

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [°C]	200.0 [°C]	130.0 [°C]

Description: Sets the alarm threshold 1 for monitoring the motor temperature.

Note: The alarm threshold is not, as for p0604, coupled to the timer p0606. The hysteresis for canceling the fault is 2 K.

p0620[0...n] Thermal adaptation, stator and rotor resistance / Mot therm_adapt R

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.

Value:
0: No thermal adaptation of stator and rotor resistances
1: Resistances adapted to the temperatures of the thermal model
2: Resistances adapted to the measured stator winding temperature

Note: For p0620 = 1, the following applies:

The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature in r0633.

For p0620 = 2, the following applies:

The stator resistance is adapted using the temperature in r0035. If applicable, the rotor temperature for adapting the rotor resistance is calculated from the stator temperature (r0035) as follows:

theta_R = (r0628 + r0625) / (r0627 + r0625) * r0035

For separately-excited synchronous motors and p0620 = 1, p0620 = 2 is internally and automatically used for calculating. There is no thermal model to adapt the damping resistances.

p0621[0...n] Identification stator resistance after restart / Rst_ident Restart

VECTOR_G (n/M)

Can be changed: C2(3), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Selects the identification of the stator resistance after booting the Control Unit (only for vector control).

The identification is used to measure the actual stator resistance and from the ratio of the result of motor data identification (p0350) to the matching ambient temperature (p0625) the actual mean temperature of the stator winding is calculated. The result is used to initialize the thermal motor model.

p0621 = 1:

Identification of the stator resistance only when the drive is powered up for the first time (pulse enable) after booting the Control Unit.

p0621 = 2:

Identification of the stator resistance every time the drive is powered up (pulse enable).

Value:
0: No Rs identification
1: Rs identification after switching-on again
2: Rs identification after switching-on each time

Dependency: - perform motor data identification (see p1910) with cold motor.

- enter ambient temperature at time of motor data identification in p0625.

Refer to: p0622, r0623

Notice: The calculated stator temperature can only be compared with the measured value of a temperature sensor (KTY) to a certain extent, as the sensor is usually the warmest point of the stator winding, whereas the measured value of identification reflects the mean value of the stator winding.

Furthermore this is a short-time measurement with limited accuracy that is performed during the magnetizing phase of the induction motor.

Note: The measurement is carried out:

- For induction motors
- When vector control is active (see p1300)
- If a temperature sensor (KTY) has not been connected
- When the motor is at a standstill when switched on

When a flying restart is performed on a rotating motor, the temperatures of the thermal motor model are set to a third of the overtemperatures. This occurs only once, however, when the CU is booted (e.g. after a power failure).

If identification is activated, the magnetizing time is determined via p0622 and not via p0346. Quick magnetizing (p1401.6) is de-energized internally and alarm A07416 is displayed. The speed is enabled after completion of the measurement.

p0622[0...n] Motor excitation time for Rs_ident after powering up again / t_excit Rs_id

VECTOR_G (n/M)

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	20.000 [s]	0.000 [s]

Description: Sets the excitation time of the motor for the stator resistance identification after powering up again (restart).

Dependency: Refer to: p0621, r0623

Note: For p0622 < p0346 the following applies:

If identification is activated, the magnetizing time is influenced by p0622. The speed is enabled after measurement is complete, but not before the time in p0346 has elapsed (see r0056 bit 4). The time taken for measurement also depends on the settling time of the measured current.

For p0622 >= p0346 the following applies:

Parameter p0622 is internally limited to the magnetizing time p0346, so that p0346 represents the maximum possible magnetizing time during identification. The entire measurement period (magnetizing plus measurement settling time plus measuring time) will always be greater than p0346.

r0623 Rs identification stator resistance after switch on again / Rs-id Rs aft sw-on

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the stator resistance determined using the Rs identification after switching on again.

Dependency: Refer to: p0621, p0622

p0624[0...n] Motor temperature offset PT100 / Mot T_offset PT100

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** 21_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100.0 [K]	100.0 [K]	0.0 [K]

Description: Sets the temperature offset for the PT100 measured value.

If there is a difference between the motor temperature displayed in r0035 and the actual motor temperature, this offset can be entered in this parameter, thereby compensating for the difference.

Dependency: Refer to: p0600, p0601, p0602

Note: The parameter only takes effect with the following settings:

- Temperature sensor of the power unit detected (p0600 = 11).
- Sensor type PT100 selected (p0601 = 5).

If the resistance in series with the PT100 (e.g. the cable resistance of the feeder cable) is known, the following conversion formula must be used:

Offset in p0624 = Measured resistance in ohms x 2.5 K/Ohm

Example:

Measured cable resistance = 2 Ohm

--> 2 Ohm x 2.5 K / Ohm = 5.0 K

p0625[0...n] Motor ambient temperature during commissioning / Mot T_ambient

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-40 [°C]	80 [°C]	20 [°C]

Description: Defines the ambient temperature of the motor for calculating the motor temperature model.

Dependency: Refer to: p0350, p0354

Note: The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature.

If the thermal I2t motor model is activated for permanent-magnet synchronous motors (refer to p0611), p0625 is included in the model calculation if a temperature sensor is not being used (see p0601).

p0626[0...n]	Motor overtemperature, stator core / Mot T_over core		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_2	**Unit selection:** p0505
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10 [K]	200 [K]	50 [K]

Description: Defines the rated overtemperature of the stator core referred to the ambient temperature.

Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.

Refer to: p0625

Notice: When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_2	**Unit selection:** p0505
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	15 [K]	200 [K]	80 [K]

Description: Defines the rated overtemperature of the stator winding referred to the ambient temperature.

Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.

Refer to: p0625

Notice: When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0628[0...n]	Motor overtemperature rotor winding / Mot T_over rotor		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_2	**Unit selection:** p0505
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	20 [K]	200 [K]	100 [K]

Description: Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.

Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.

Refer to: p0625

Notice: When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0629[0...n]	**Stator resistance reference / R_stator ref**		
VECTOR_G (n/M)	**Can be changed:** C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** 16_1	**Unit selection:** p0349
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00000 [ohm]	2000.00000 [ohm]	0.00000 [ohm]

Description: Reference value for the identification of the stator resistance every time the drive is powered up.

Dependency: The measurement of the reference value is activated by the automatic calculation (p0340 = 1, 2), if the following conditions apply:

- the motor temperature is at this instant in time less than 30 °C (r0035).

- a KTY temperature sensor is not being used (p0601).

Refer to: p0621, r0623

Note: The reference value to identify the stator resistance should be manually entered after the first identification (p0629 = r0623). The identification must be realized when the motor is in a cold state, as the value refers to the ambient temperature p0625. The feeder cable resistance should be entered into p0352 before the measurement.

The result must be saved after the first measurement so that the reference is available after the CU has a powered up. When changing p0350 or p0352, the reference value p0629 should be re-determined.

r0630[0...n]	**Mot_temp_mod ambient temperature / Mod T_ambient**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: REL, FEM	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the ambient temperature of the motor temperature model (models 2 and 3).

r0631[0...n]	**Mot_temp_mod stator iron temperature / Mod T_stator**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: REL, FEM	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the stator iron temperature of the motor temperature model (models 2 and 3).

r0632[0...n]	**Mot_temp_mod stator winding temperature / Mod T_winding**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: REL, FEM	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the stator winding temperature of the motor temperature model (models 2 and 3).

r0633[0...n] Mot_temp_mod rotor temperature / Mod rotor temp

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
	P-Group: Motor	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: REL, FEM	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the rotor temperature of the motor temperature model (model 2).

Note: For motor temperature model 3 (p0612.2 = 1), this parameter is not valid:

p0634[0...n] Q flux flux constant unsaturated / PSIQ KPSI UNSAT

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [Vsrms]	100.000 [Vsrms]	0.000 [Vsrms]

Description: The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients.
The parameter weights the unsaturated component of the quadrature axis flux function.

p0635[0...n] Q flux quadrature axis current constant unsaturated / PSIQ KIQ UNSAT

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients.
This parameter describes the interdependency of the unsaturated component of the quadrature axis current.

Dependency: Refer to: p0634

p0636[0...n] Q flux direct axis current constant unsaturated / PSIQ KID UNSAT

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients.
This parameter describes the interdependency of the unsaturated component of the direct axis current.

Dependency: Refer to: p0634

p0637[0...n] Q flux flux gradient saturated / PSIQ Grad SAT

VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [mH]	10000.00 [mH]	0.00 [mH]

Description: The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients.
This parameter describes the gradients of the saturated component over the quadrature axis current.

Dependency: Refer to: p0634, p0635, p0636

p0640[0...n] Current limit / Current limit

VECTOR_G

Can be changed: C2(1, 3), U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5722, 6640
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the current limit.

Dependency: Refer to: r0209, p0323

Note: The parameter is part of the quick commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305, p0323 and p0338.

The current limit p0640 is limited to r0209 and p0323. The limit to p0323 is not realized if a value of zero is entered there.

The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the Motor Module.

The torque and power limits (p1520, p1521, p1530, p1531) matching the current limit are automatically calculated when exiting the quick commissioning using p3900 > 0 or using the automatic parameterization with p0340 = 3, 5.

For VECTOR the following applies (p0107):

p0640 is limited to 4.0 x p0305.

p0640 is pre-assigned for the automatic self commissioning routine (e.g. to 1.5 x p0305, with p0305 = r0207[1]).

p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the quick commissioning (p3900 > 0).

For SERVO the following applies (p0107):

p0640 is pre-assigned as follows using the automatic parameterization (p0340 = 1, p3900 > 0) taking into account the limits r0209 and r0323:

- for induction motors: p0640 = 1.5 x p0305
- for synchronous motors: p0640 = p0338

p0641[0...n] CI: Current limit variable / Curr lim var

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6640
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the variable current limit.

The value is referred to p0640.

p0643[0...n] Overvoltage protection for synchronous motors / Overvolt_protect

VECTOR_G (n/M)

Can be changed: C2(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the overvoltage protection for synchronous motors in the field-weakening range.

Value:
0: No measure
1: Voltage Protection Module (VPM)

Dependency: Refer to: p0316, p1082, p1231, p9601, p9801

Notice: When the speed limiting is removed, the user is responsible for implementing a suitable overvoltage protection.

Note: In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage:

- limit the maximum speed (p1082) without any additional protection.

The maximum speed without protection is calculated as follows:

Rotary motors: p1082 [rpm] <= 11.695 * r0297/p0316 [Nm/A]

Linear motors: p1082 [m/min] <= 73.484 *r0297/0316 [N/A]

- use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801).

When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM.

- activating the internal voltage protection (IVP) with p1231 = 3.

p0644[0...n] Current limit excitation induction motor / Imax excitat ASM

VECTOR_G (n/M)

Can be changed: C2, U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
50.0 [%]	300.0 [%]	300.0 [%]

Description: Maximum excitation current of the induction motor referred to the permissible rated current of the power unit (r0207[0]).

Dependency: Only effective for vector control.

Refer to: p1401, p1573

Note: The parameter is preassigned in the automatic calculation for chassis power units.

p0650[0...n] Actual motor operating hours / Mot t_oper act

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [h]	4294967295 [h]	0 [h]

Description: Displays the operating hours for the corresponding motor.

The motor operating time counter continues to run when the pulses are enabled. When the pulse enable is withdrawn, the counter is held and the value saved.

Dependency: The following prerequisites must be fulfilled in order to be able to save the operating hours counter in a non-volatile fashion:

- firmware with V2.2 or higher.
- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).

Refer to: p0651

Note: The operating hours counter in p0650 can only be reset to 0.

The operating hours counter only runs with motor data set 0 and 1 (MDS).

p0651[0...n] Motor operating hours maintenance interval / Mot t_op maint

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [h]	150000 [h]	0 [h]

Description: Sets the service/maintenance intervals in hours for the appropriate motor.

An appropriate fault is output when the operating hours set here are reached.

Dependency: Refer to: p0650

Note: For p0651 = 0, the operating hours counter is disabled.
When setting p0651 to 0, then p0650 is automatically set to 0.
The operating hours counter only runs with motor data set 0 and 1 (MDS).

p0652[0...n] Motor stator resistance scaling / Mot R_stator scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Sets the factor to evaluate the stator resistance.

Dependency: Refer to: p0350, r0370

p0653[0...n] Motor stator leakage inductance scaling / Mot L_S_leak scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Sets the factor to evaluate the stator leakage induction.

Dependency: Refer to: p0356, r0377

p0655[0...n] Motor magnetizing inductance d axis saturated scaling / Mot L_m d sat scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the magnetizing inductance in the direction of the rotor axis (d axis).

Dependency: Refer to: p0360, r0382

p0656[0...n] Motor magnetizing inductance q axis saturated scaling / Mot L_m q sat scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the magnetizing inductance quadrature to the rotor axis (q axis).

Dependency: Refer to: p0361, r0383

p0657[0...n] Motor damping inductance d axis scaling / Mot L_damp d scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the damping inductance in the direction of the rotor axis (d axis).

Dependency: Refer to: p0358, r0380

p0658[0...n] Motor damping inductance q axis scaling / Mot L_damp q scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the damping inductance quadrature to the rotor axis (q axis).

Dependency: Refer to: p0359, r0381

p0659[0...n] Motor damping resistance d axis scaling / Mot R_damp d scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the damping resistance in the direction of the rotor axis (d axis).

Dependency: Refer to: p0354, r0374

p0660[0...n] Motor damping resistance q axis scaling / Mot R_damp q scal

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** CALC_MOD_EQU	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 6727
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	100.0 [%]

Description: Factor to evaluate the damping resistance quadrature to the rotor axis (q axis).

Dependency: Refer to: p0355, r0375

p0680[0...7] Central measuring probe input terminal / Cen meas inp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the digital input used for the function "central measuring probe evaluation".

p0680[0]: Digital input, measuring probe 1

p0680[1]: Digital input, measuring probe 2

...

p0680[7]: Digital input, measuring probe 8

Value:
0: No meas probe
1: DI/DO 9 (X122.10/X121.8)
2: DI/DO 10 (X122.12/X121.10)
3: DI/DO 11 (X122.13/X121.11)
4: DI/DO 13 (X132.10/X131.2)
5: DI/DO 14 (X132.12/X131.4)
6: DI/DO 15 (X132.13/X131.5)
7: DI/DO 8 (X122.9/X121.7)
8: DI/DO 12 (X132.9/X131.1)

Dependency: Refer to: p0728

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

To select the values:

For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output

Prerequisite: The DI/DO must be set as input (p0728.x = 0).

If a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0488, p0489, p0493, p0494, p0495, p0580, p2517 or p2518.

p0681 BI: Central measuring probe synchronizing signal signal source / Cen meas sync_sig

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the synchronizing signal (SYN) of the function "central measuring probe evaluation".

The signal is used to synchronize the common system time between the master and slave.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0682 CI: Central measuring probe control word signal source / Cen meas STW S_src

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the control word of the function "central measuring probe evaluation".

p0684 Central measuring probe evaluation technique / Cen meas eval_tech

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	0

Description: Sets the evaluation technique for the "central measuring probe evaluation" function.

Value:
0: Measurement with handshake
1: Measurement without handshake 2 edges
16: Measurement without handshake more than 2 edges

Notice: Re p0684 = 16:

This evaluation procedure is only activated after parameter save and POWER ON.

Note: During measurement without a handshake, the probe may have a higher evaluation frequency.

The setting "Measurement without handshake" must be supported by the higher-level control. This setting cannot be used for SIMOTION D with integrated SINAMICS or with CX32.

Re p0684 = 0:

Changing this evaluation procedure to p0684 = 1 is possible in the RUN state.

Changing this evaluation procedure to p0684 = 16 is only activated after parameter save and POWER ON.

Permissible combinations in p0922 are:

p0922 = 391, 392, 393, 394

Re p0684 = 1:

Changing this evaluation procedure to p0684 = 0 is possible in the RUN state.

Changing this evaluation procedure to p0684 = 16 is only activated after parameter save and POWER ON.

Permissible combinations in p0922 are:
p0922 = 391, 392, 393, 394
Re p0684 = 16:
Changing this evaluation procedure to p0684 = 0 or to p0684 = 1 is only activated after parameter save and POWER ON.
Permissible combinations in p0922 are:
p0922 = 395

r0685 Central measuring probe control word display / Cen meas STW disp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the control word for the function "central measuring probe evaluation".

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Falling edge measuring probe 1	Yes	No	-
01	Falling edge measuring probe 2	Yes	No	-
02	Falling edge measuring probe 3	Yes	No	-
03	Falling edge measuring probe 4	Yes	No	-
04	Falling edge measuring probe 5	Yes	No	-
05	Falling edge measuring probe 6	Yes	No	-
06	Falling edge measuring probe 7	Yes	No	-
07	Falling edge measuring probe 8	Yes	No	-
08	Rising edge measuring probe 1	Yes	No	-
09	Rising edge measuring probe 2	Yes	No	-
10	Rising edge measuring probe 3	Yes	No	-
11	Rising edge measuring probe 4	Yes	No	-
12	Rising edge measuring probe 5	Yes	No	-
13	Rising edge measuring probe 6	Yes	No	-
14	Rising edge measuring probe 7	Yes	No	-
15	Rising edge measuring probe 8	Yes	No	-

r0686[0...7] CO: Central measuring probe measuring time rising edge / CenMeas t_meas 0/1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the measuring time for a rising edge at the digital input for the "central measuring probe evaluation" function.
The measuring time is specified as 16-bit value with a resolution of 0.25 µs.
r0686[0]: Measuring time, rising edge measuring probe 1
r0686[1]: Measuring time, rising edge measuring probe 2
r0686[2]: Measuring time, rising edge measuring probe 3
r0686[3]: Measuring time, rising edge measuring probe 4
r0686[4]: Measuring time, rising edge measuring probe 5
r0686[5]: Measuring time, rising edge measuring probe 6
r0686[6]: Measuring time, rising edge measuring probe 7
r0686[7]: Measuring time, rising edge measuring probe 8

Note: The parameter is only active for the evaluation procedure p0684 = 0, 1.
For p0684 = 16, r0686[0...7] = 0 is displayed.

r0687[0...7] CO: Central measuring probe measuring time falling edge / CenMeas t_meas 1/0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the measuring time for a falling edge at the digital input for the "central measuring probe evaluation" function.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0687[0]: Measuring time, falling edge measuring probe 1

r0687[1]: Measuring time, falling edge measuring probe 2

r0687[2]: Measuring time, falling edge measuring probe 3

r0687[3]: Measuring time, falling edge measuring probe 4

r0687[4]: Measuring time, falling edge measuring probe 5

r0687[5]: Measuring time, falling edge measuring probe 6

r0687[6]: Measuring time, falling edge measuring probe 7

r0687[7]: Measuring time, falling edge measuring probe 8

Note: The parameter is only active for the evaluation procedure p0684 = 0, 1.

For p0684 = 16, r0687[0...7] = 0 is displayed.

r0688 CO: Central measuring probe status word display / Cen meas ZSW disp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the function "central measuring probe evaluation".

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Digital input measuring probe 1	High	Low	-
01	Digital input measuring probe 2	High	Low	-
02	Digital input measuring probe 3	High	Low	-
03	Digital input measuring probe 4	High	Low	-
04	Digital input measuring probe 5	High	Low	-
05	Digital input measuring probe 6	High	Low	-
06	Digital input measuring probe 7	High	Low	-
07	Digital input measuring probe 8	High	Low	-
08	Sub-sampling measuring probe 1	High	Low	-
09	Sub-sampling measuring probe 2	High	Low	-
10	Sub-sampling measuring probe 3	High	Low	-
11	Sub-sampling measuring probe 4	High	Low	-
12	Sub-sampling measuring probe 5	High	Low	-
13	Sub-sampling measuring probe 6	High	Low	-
14	Sub-sampling measuring probe 7	High	Low	-
15	Sub-sampling measuring probe 8	High	Low	-

p0700[0...n] Macro Binector Input (BI) / Macro BI

B_INF, VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999999	0

Description: Runs the corresponding macro files.

The binector inputs of the corresponding command data set are appropriately interconnected.

The selected macro file must be available on the memory card/device memory.

Example:

p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: Refer to: p0015, p1000, p1500, r8571

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

BI: Binector Input

CDS: Command Data Set

p0700 Macro Binector Input (BI) for TMs / Macro BI TM

TB30, TM31

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999999	0

Description: Runs the corresponding macro files.

The selected macro file must be available on the memory card/device memory.

Example:

p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: Refer to: r8571

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

BI: Binector Input

CDS: Command Data Set

r0721 CU digital inputs terminal actual value / CU DI term act val

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual value at the digital inputs.

This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-

10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-
20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed.

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0722.0...21 CO/BO: CU digital inputs status / CU DI status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-
20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Dependency: Refer to: r0723

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0723.0...21 CO/BO: CU digital inputs status inverted / CU DI status inv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the inverted status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-
20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Dependency: Refer to: r0722

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0728 CU set input or output / CU DI or DO

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2119, 2030, 2031, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the bidirectional digital inputs/outputs as an input or output.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	Output	Input	-
09	DI/DO 9 (X122.10/X121.8)	Output	Input	-
10	DI/DO 10 (X122.12/X121.10)	Output	Input	-
11	DI/DO 11 (X122.13/X121.11)	Output	Input	-
12	DI/DO 12 (X132.9/X131.1)	Output	Input	-
13	DI/DO 13 (X132.10/X131.2)	Output	Input	-
14	DI/DO 14 (X132.12/X131.4)	Output	Input	-
15	DI/DO 15 (X132.13/X131.5)	Output	Input	-

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: DI/DO: Bidirectional Digital Input/Output

r0729 CU digital outputs access authority / CU DO acc_auth

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2030, 2031, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the access authority at the digital outputs.

Bit = 1:

The control has access authority to the digital output via PROFIBUS or direct access.

Bit = 0:

The drive has access authority to the digital output or the digital input/output is not set as digital output or is not available.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-

Dependency: Refer to: p0728, p0738, p0739, p0740, p0741, p0742, p0743, p0744, p0745, r0747, p0748

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: The DI/DO must be connected as output (p0728).

DI/DO: Bidirectional Digital Input/Output

p0738 BI: CU signal source for terminal DI/DO 8 / CU S_src DI/DO 8

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2119, 2130
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X122.9 / X121.7).

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.8 = 1).

DI/DO: Bidirectional Digital Input/Output

p0739 BI: CU signal source for terminal DI/DO 9 / CU S_src DI/DO 9

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2130
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X122.10 / X121.8).

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.9 = 1).
DI/DO: Bidirectional Digital Input/Output

p0740 BI: CU signal source for terminal DI/DO 10 / CU S_src DI/DO 10

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2131
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X122.12 / X121.10).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p0741 BI: CU signal source for terminal DI/DO 11 / CU S_src DI/DO 11

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2119, 2131
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 11 (X122.13 / X121.11).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.11 = 1).
DI/DO: Bidirectional Digital Input/Output

p0742 BI: CU signal source for terminal DI/DO 12 / CU S_src DI/DO 12

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2119, 2132
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 12 (X132.9 / X131.1).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.12 = 1).
DI/DO: Bidirectional Digital Input/Output

p0743 BI: CU signal source for terminal DI/DO 13 / CU S_src DI/DO 13

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2132
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 13 (X132.10 / X131.2).

To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.13 = 1).
DI/DO: Bidirectional Digital Input/Output

p0744 BI: CU signal source for terminal DI/DO 14 / CU S_src DI/DO 14

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 14 (X132.12 / X131.4).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.14 = 1).
DI/DO: Bidirectional Digital Input/Output

p0745 BI: CU signal source for terminal DI/DO 15 / CU S_src DI/DO 15

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2119, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DI/DO 15 (X132.13 / X131.5you).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Prerequisite: The DI/DO must be set as an output (p0728.15 = 1).
DI/DO: Bidirectional Digital Input/Output

r0747 CU digital outputs status / CU DO status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of digital outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note: Inversion using p0748 has been taken into account.
DI/DO: Bidirectional Digital Input/Output

p0748 CU invert digital outputs / CU DO inv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2030, 2031, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the signals at the digital outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	Inverted	Not inverted	-
09	DI/DO 9 (X122.10/X121.8)	Inverted	Not inverted	-
10	DI/DO 10 (X122.12/X121.10)	Inverted	Not inverted	-
11	DI/DO 11 (X122.13/X121.11)	Inverted	Not inverted	-
12	DI/DO 12 (X132.9/X131.1)	Inverted	Not inverted	-
13	DI/DO 13 (X132.10/X131.2)	Inverted	Not inverted	-
14	DI/DO 14 (X132.12/X131.4)	Inverted	Not inverted	-
15	DI/DO 15 (X132.13/X131.5)	Inverted	Not inverted	-

Notice: If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note: DI/DO: Bidirectional Digital Input/Output

p0771[0...2] CI: Test sockets signal source / Test skt S_src

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the signal to be output at the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0772[0...2] Test sockets output signal / TestSktsSignalVal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the actual value of the signal to be output.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0774[0...2] Test sockets output voltage / TestSkts U_output

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the actual output voltage for the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

p0776[0...2] Test socket mode / Test skt mode

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
96	99	99

Description: Sets the mode for the test sockets.

Value:
96: Physical address (32-bit integer signal unsigned)
97: Physical address (32-bit integer signal)
98: Physical address (32-bit floating-point signal)
99: BICO signal

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784, r0786, p0788, p0789, r0790

p0777[0...2] Test socket characteristic value x1 / Test skt char x1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100000.00 [%]	100000.00 [%]	0.00 [%]

Description: The scaling characteristic for the test sockets is defined using two points.
This parameter specifies the x coordinate (percentage) of the first point on the characteristic.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: p0778, p0779, p0780, r0786

Note: The value 0.00 % corresponds to 2.49 V.

p0778[0...2] Test socket characteristic value y1 / Test skt char y1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [V]	4.98 [V]	2.49 [V]

Description: The scaling characteristic for the test sockets is defined using two points.
This parameter specifies the y coordinate (output voltage) of the first point on the characteristic.

Index: [0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: p0777, p0779, p0780, r0786

p0779[0...2] Test socket characteristic value x2 / Test skt char x2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100000.00 [%]	427.9E9 [%]	100.00 [%]

Description: The scaling characteristic for the test sockets is defined using two points.
This parameter specifies the x coordinate (percentage) of the second point on the characteristic.

Index: [0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: p0777, p0778, p0780, r0786

Note: The value 100.00 % corresponds to 4.98 V.

p0780[0...2] Test socket characteristic value y2 / Test skt char y2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [V]	4.98 [V]	4.98 [V]

Description: The scaling characteristic for the test sockets is defined using two points.
This parameter specifies the y coordinate (output voltage) of the second point on the characteristic.

Index: [0] = T0
[1] = T1
[2] = T2

Dependency: Can only be set when p0776 = 99.
Refer to: p0777, p0778, p0779, r0786

p0783[0...2] Test sockets offset / Test skt offset

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-4.98 [V]	4.98 [V]	0.00 [V]

Description: Sets an additional offset for the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

p0784[0...2] Test socket limit on/off / TestSktLim on/off

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the limit for a signal to be output via test sockets.

Value:
0: Limiting off
1: Limiting on

Index:
[0] = T0
[1] = T1
[2] = T2

Note: Limiting on:

If signals are output outside the permissible measuring range, the signal is limited to 4.98 V or to 0 V.

Limiting off:

If signals are output outside the permissible measuring range, this causes signal overflow. In the case of signal overflow, the signal jumps from 0 V to 4.98 V or from 4.98 V to 0 V.

r0786[0...2] Test socket scaling per volt / TestSktScale/Volt

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8134
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the scaling of the signal to be output.

A change in the output voltage by 1 volt corresponds to the value in this parameter. The units are determined by the interconnected test signal.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784

Note: Example:

r0786[0] = 1500.0 and the measuring signal is r0063 (CO: Actual speed smoothed [rpm]).

A change of 1 V at the output of test socket T0 corresponds to 1500.0 [rpm].

p0788[0...2] Test sockets physical address / Test skt PhyAddr

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address to output signals via the test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Changes only become effective if p0776 does not equal 99.

Refer to: p0789, r0790

p0789[0...2] Test sockets physical address gain / TestSktPhyAddrGain

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-340.28235E36	340.28235E36	1.00000

Description: Sets the gain of a signal output of a physical address via test sockets.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Changes only become effective if p0776 does not equal 99.

Refer to: p0788

r0790[0...2] Test sockets physical address signal value / TestSktsPhyAddrVal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual value of a signal determined via a physical address.

Index:
[0] = T0
[1] = T1
[2] = T2

Dependency: Only effective when p0776 = 97 or p0776 = 96.

Refer to: p0788

p0795 CU digital inputs simulation mode / CU DI simulation

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the simulation mode for digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	Simulation	Terminal eval	-
01	DI 1 (X122.2/X121.2)	Simulation	Terminal eval	-
02	DI 2 (X122.3/X121.3)	Simulation	Terminal eval	-
03	DI 3 (X122.4/X121.4)	Simulation	Terminal eval	-
04	DI 4 (X132.1 / -)	Simulation	Terminal eval	-
05	DI 5 (X132.2 / -)	Simulation	Terminal eval	-
06	DI 6 (X132.3 / -)	Simulation	Terminal eval	-
07	DI 7 (X132.4 / -)	Simulation	Terminal eval	-
08	DI/DO 8 (X122.9/X121.7)	Simulation	Terminal eval	-
09	DI/DO 9 (X122.10/X121.8)	Simulation	Terminal eval	-
10	DI/DO 10 (X122.12/X121.10)	Simulation	Terminal eval	-
11	DI/DO 11 (X122.13/X121.11)	Simulation	Terminal eval	-
12	DI/DO 12 (X132.9/X131.1)	Simulation	Terminal eval	-
13	DI/DO 13 (X132.10/X131.2)	Simulation	Terminal eval	-
14	DI/DO 14 (X132.12/X131.4)	Simulation	Terminal eval	-
15	DI/DO 15 (X132.13/X131.5)	Simulation	Terminal eval	-
16	DI 16 (X122.5/X120.3)	Simulation	Terminal eval	-
17	DI 17 (X122.6/X120.4)	Simulation	Terminal eval	-
20	DI 20 (X132.5/X120.9)	Simulation	Terminal eval	-
21	DI 21 (X132.6/X120.10)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p0796.

Refer to: p0796, p9620

Notice: If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.

To the terminal designation:

The first designation stands for CU320, the second for CU310.

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0796 CU digital inputs simulation mode setpoint / CU DI simul setp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the setpoint for the input signals in the digital input simulation mode.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-

20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Dependency: The simulation of a digital input is selected using p0795.

Refer to: p0795

Notice: To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0799[0...2] CU inputs/outputs sampling time / CU I/O t_sampl

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2020, 2030, 2031
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	5000.00 [µs]	4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of the Control Unit.

Index: [0] = Digital inputs/outputs (DI/DO)
[1] = Not available - analog inputs (AI)
[2] = Not available - analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.

Refer to: p0009

Note: The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

p0806 BI: Inhibit master control / PcCtrl inhibit

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to block the master control.

Dependency: Refer to: r0807

Note: The commissioning software (drive control panel) uses the master control, for example.

r0807.0 BO: Master control active / PcCtrl active

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays what has the master control.

The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Master control active	Yes	No	5030, 6031

Dependency: Refer to: p0806

Notice: The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.

Note: Bit 0 = 0: BICO interconnection active
Bit 0 = 1: Master control for PC/AOP
The commissioning software (drive control panel) uses the master control, for example.

p0809[0...2] Copy Command Data Set CDS / Copy CDS

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8560
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	15	0

Description: Copies one Command Data Set (CDS) into another.

Index:
[0] = Source Command Data Set
[1] = Target Command Data Set
[2] = Start copying procedure

Note: Procedure:
1. In Index 0, enter which command data set should be copied.
2. In Index 1, enter the command data set that is to be copied into.
3. Start copying: Set index 2 from 0 to 1.
p0809[2] is automatically set to 0 when copying is completed.

p0810 BI: Command data set selection CDS bit 0 / CDS select., bit 0

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8560
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).

Dependency: Refer to: r0050, p0811, r0836

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The Command Data Set selected using the binector inputs is displayed in r0836.
The currently effective command data set is displayed in r0050.
A Command Data Set can be copied using p0809.

p0811 BI: Command data set selection CDS bit 1 / CDS select., bit 1

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8560
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the Command Data Set bit 1 (CDS bit 1).

Dependency: Refer to: r0050, p0810, r0836

Note: The Command Data Set selected using the binector inputs is displayed in r0836.
The currently effective command data set is displayed in r0050.
A Command Data Set can be copied using p0809.

p0819[0...2] Copy Drive Data Set DDS / Copy DDS

VECTOR_G

Can be changed: C2(15)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	31	0

Description: Copies one Drive Data Set (DDS) into another.

Index:
[0] = Source Drive Data Set
[1] = Target Drive Data Set
[2] = Start copying procedure

Note: Procedure:

1. In Index 0, enter which drive data set is to be copied.
2. In Index 1, enter the drive data set data that is to be copied into.
3. Start copying: Set index 2 from 0 to 1.

p0819[2] is automatically set to 0 when copying is completed.

p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0

VECTOR_G

Can be changed: C2(15), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8565, 8575
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0821[0...n] BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1

VECTOR_G

Can be changed: C2(15), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8565, 8570
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0822[0...n] BI: Drive Data Set selection DDS bit 2 / DDS select., bit 2

VECTOR_G

Can be changed: C2(15), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8565
P-Group: Data sets	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 2 (DDS, bit 2).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0823[0...n]	BI: Drive Data Set selection DDS bit 3 / DDS select., bit 3		
VECTOR_G	**Can be changed:** C2(15), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8565
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 3 (DDS, bit 3).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0824[0...n]	BI: Drive Data Set selection DDS bit 4 / DDS select., bit 4		
VECTOR_G	**Can be changed:** C2(15), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8565, 8575
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 4 (DDS, bit 4).

Dependency: Refer to: r0051, r0837

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0826[0...n]	Motor changeover motor number / Mot_chng mot No.		
VECTOR_G	**Can be changed:** C2(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8575
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	15	0

Description: Sets the freely-assignable motor number for the motor changeover.

Dependency: Refer to: p0827

Notice: When changing over motor data sets with the same motor number (e.g. star-delta changeover) and for a motor with brake, the motor brake remains open during the changeover.

Note: When the motor data sets are changed over, the following applies:

The same motor number signifies the same thermal model.

For the same motor number, the correction values of the Rs, Lh or kT adaptation are applied for the data set changeover (refer to r1782, r1787, r1797).

p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.		
VECTOR_G	**Can be changed:** C2(3)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8575
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	15	0

Description: Sets the bit number for every motor data set.

Example:

p0827[0] = 0: For MDS0, r0830.0 is switched.

p0827[1] = 5: For MDS1, r0830.5 is switched.

Dependency: Refer to: p0826, r0830

Note: A motor is only changed over (a new motor selected) after the pulses have been suppressed.
When the motor data sets are changed over, the following applies:
Bit numbers that are not identical, signify that the motor must be changed over.

p0828[0...n] BI: Motor changeover feedback signal / Mot_chng fdbk sig

VECTOR_G

Can be changed: C2(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8575
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the feedback signal when changing over the motor.
For p0833.0 = 1 the following applies:
This feedback signal (0/1 edge) is required after a motor changeover to enable the pulses.

Dependency: Refer to: p0833

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r0830.0...15 CO/BO: Motor changeover status word / Mot_chngov ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8575
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the motor changeover.
These signals can be connected to digital outputs to change over the motor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor selection bit 0	High	Low	-
01	Motor selection bit 1	High	Low	-
02	Motor selection bit 2	High	Low	-
03	Motor selection bit 3	High	Low	-
04	Motor selection bit 4	High	Low	-
05	Motor selection bit 5	High	Low	-
06	Motor selection bit 6	High	Low	-
07	Motor selection bit 7	High	Low	-
08	Motor selection bit 8	High	Low	-
09	Motor selection bit 9	High	Low	-
10	Motor selection bit 10	High	Low	-
11	Motor selection bit 11	High	Low	-
12	Motor selection bit 12	High	Low	-
13	Motor selection bit 13	High	Low	-
14	Motor selection bit 14	High	Low	-
15	Motor selection bit 15	High	Low	-

Dependency: Refer to: p0827

p0831[0...15] BI: Motor changeover contactor feedback / Mot_chg cont fdbk

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8575
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the feedback signal of the contactors when changing over motors.
There is a fixed inter-relationship between energizing the contactor and the feedback signal.

Example:

A changeover is to be made between MDS0 (motor 0) and MDS1 (motor 1). The contactors should be switched using bit 4 (contactor 0) and 5 (contactor 1). The changeover should be made with an interconnection of the feedback signal.

Implementation:

MDS0: p0827[0] = 4, interconnect output to switch contactor 0 to r0830.4, p0831[4] = "input, feedback signal, contactor 0"

MDS1: p0827[1] = 5, interconnect output to switch contactor 1 to r0830.5, p0831[5] = "input, feedback signal, contactor 1"

The following sequence applies when changing over from MDS0 to MDS1:

1. The status bit r0830.4 is deleted. When the feedback signal (p0831[4]) is connected, the system waits until the feedback signal "contactor open" is displayed. If the feedback signal is not connected, then the system waits for the switch-off interlocking time of 320 ms.

2. The status bit r0830.5 is set. If the feedback signal (p0831[5]) is connected, the system waits until the feedback signal "contactor closed" is displayed. If the feedback signal is not connected, then the system waits for the switch-on interlocking time of 160 ms.

Index:
[0] = Feedback signal contactor 0
[1] = Feedback signal contactor 1
[2] = Feedback signal contactor 2
[3] = Feedback signal contactor 3
[4] = Feedback signal contactor 4
[5] = Feedback signal contactor 5
[6] = Feedback signal contactor 6
[7] = Feedback signal contactor 7
[8] = Feedback signal contactor 8
[9] = Feedback signal contactor 9
[10] = Feedback signal contactor 10
[11] = Feedback signal contactor 11
[12] = Feedback signal contactor 12
[13] = Feedback signal contactor 13
[14] = Feedback signal contactor 14
[15] = Feedback signal contactor 15

r0832.0...15 CO/BO: Mot. changeover contactor feedback sig. status word / Mot_chng fdbk ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8575
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the contactor feedback signals when changing over a motor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Feedback signal contactor 0	Closed	Opened	-
01	Feedback signal contactor 1	Closed	Opened	-
02	Feedback signal contactor 2	Closed	Opened	-
03	Feedback signal contactor 3	Closed	Opened	-
04	Feedback signal contactor 4	Closed	Opened	-
05	Feedback signal contactor 5	Closed	Opened	-
06	Feedback signal contactor 6	Closed	Opened	-
07	Feedback signal contactor 7	Closed	Opened	-
08	Feedback signal contactor 8	Closed	Opened	-
09	Feedback signal contactor 9	Closed	Opened	-
10	Feedback signal contactor 10	Closed	Opened	-
11	Feedback signal contactor 11	Closed	Opened	-
12	Feedback signal contactor 12	Closed	Opened	-
13	Feedback signal contactor 13	Closed	Opened	-
14	Feedback signal contactor 14	Closed	Opened	-
15	Feedback signal contactor 15	Closed	Opened	-

Dependency: Refer to: p0831

p0833 Data set changeover configuration / DS_chng config

VECTOR_G			
	Can be changed: C2(15)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8575
	P-Group: Data sets	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0010 bin

Description: Sets the configuration for the motor and encoder changeover.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Contactor changeover from the application/drive	application	Drive	-
01	Pulse suppression by application/drive	application	Drive	-
02	Suppress drive parking for EDS changeover	Yes	No	-

Note: Re bit 00:

When the bit is set and the motor has to be changed over, then p0827 must be set differently in the appropriate motor data sets.

Re bit 02:

The bit defines whether, for an EDS changeover, the status signal Gn_ZSW.14 is suppressed (parking encoder active).

Re motor changeover to running motor:

The "flying restart" function should also be activated (p1200) when changing over to a motor that is already running.

r0835.2 CO/BO: Data set changeover status word / DDS_ZSW

ENC			
	Can be changed: -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8575
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the status word for the drive data set changeover.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Internal parameter calculation active	Yes	No	-

Note: Re bit 02:

A data set changeover is delayed by the time required for the internal parameter calculation.

r0835.0...11 CO/BO: Data set changeover status word / DDS_ZSW

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8575
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the status word for the drive data set changeover.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor changeover active	Yes	No	8575
01	Encoder changeover active	Yes	No	-
02	Internal parameter calculation active	Yes	No	-
04	Armature short circuit active	Yes	No	-
05	Identification running	Yes	No	-
06	Friction characteristic record running	Yes	No	-
07	Rotating measurement running	Yes	No	-
08	Motor data identification running	Yes	No	-
10	Wait for pulse suppression	Yes	No	-
11	Wait for motor changeover feedback signal	Yes	No	-

Note: This parameter is only supplied with up-to-date values if data set changeover has been selected or is running.
Re bit 00:
The signal is only influenced when a motor changeover is set via p0827 (unequal bit numbers).
Re bit 01:
The signal is only influenced when an encoder changeover is set via p0187, p0188, or p0189.
Re bit 02:
A data set changeover is delayed by the time required for the internal parameter calculation.
Re bit 04:
A data set changeover is only carried out when the armature short circuit is not activated.
Re bit 05:
The following applies for SERVO:
A data set changeover is only carried out when pole position identification, encoder adjustment, motor data identification, and rotating measurement are not running.
The following applies for VECTOR:
A data set changeover is only carried out when pole position identification is not running.
Re bit 06:
A data set changeover is only carried out when the friction characteristic record is not running.
Re bit 07 (VECTOR only):
A data set changeover is only carried out when rotating measurement is not running.
Re bit 08 (VECTOR only):
A data set changeover is only carried out when motor data identification is not running.
Re bit 10:
A motor changeover is set with p0833.1 = 1. It can only be carried out when the application performs pulse suppression.
Re bit 11:
A motor changeover is set with p0833.0 = 1. The pulses are only enabled when the "Motor changeover feedback" signal is detected.

r0836.0...3 CO/BO: Command Data Set CDS selected / CDS selected

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8560
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the command data set (CDS) selected via the binector input.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	CDS select. bit 0	ON	OFF	-
01	CDS select. bit 1	ON	OFF	-
02	CDS select. bit 2	ON	OFF	-
03	CDS select. bit 3	ON	OFF	-

Dependency: Refer to: r0050, p0810, p0811

Note: Command data sets are selected via binector input p0810 and following.
The currently effective command data set is displayed in r0050.

r0837.0...4 CO/BO: Drive Data Set DDS selected / DDS selected

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the drive data set (DDS) selected via the binector input.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DDS select. bit 0	ON	OFF	-
01	DDS select. bit 1	ON	OFF	-
02	DDS select. bit 2	ON	OFF	-
03	DDS select. bit 3	ON	OFF	-
04	DDS select. bit 4	ON	OFF	-

Dependency: Refer to: r0051, p0820, p0821, p0822, p0823, p0824

Note: Drive data sets are selected via binector input p0820 and following.

The currently effective drive data set is displayed in r0051.

If there is only one data set, then a value of 0 is displayed in this parameter and not the selection via binector inputs.

r0838[0...3] Motor/Encoder Data Set selected / MDS/EDS selected

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8565
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the selected Motor Data Set (MDS) and the selected Encoder Data Sets (EDS).

Index:
[0] = Motor Data Set MDS selected
[1] = Encoder 1 Encoder Data Set EDS selected
[2] = Encoder 2 Encoder Data Set EDS selected
[3] = Encoder 3 Encoder Data Set EDS selected

Dependency: Refer to: r0049, p0186, p0187, p0188, p0189

Note: Value 99 means the following: No encoder assigned (not configured).

p0839 Motor changeover contactor control delay time / Mot_chg ctrl t_del

VECTOR_G

Can be changed: C2(3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	500 [ms]	0 [ms]

Description: Sets the delay time for the contactor control for the motor changeover.

Note: The delay time is taken into account in the following cases:

- for feedback signal, previous contactor "Open". The new motor contactor is controlled (energized) after the delay time has expired.
- for the feedback signal, new motor contactor "Closed". The pulses are enabled after the delay time has expired.

p0840[0...n] BI: ON / OFF (OFF1) / ON / OFF (OFF1)

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 2610, 8720, 8820, 8920
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the command "ON/OFF (OFF1)".

For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).

Recommend.: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: Refer to: p1055, p1056

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: For binector input p0840 = 0 signal, the motor can be moved, jogging using binector input p1055 or p1056.

The command "ON/OFF (OFF1)" can be issued using binector input p0840 or p1055/p1056.

For binector input p0840 = 0 signal, the switch-on inhibit is acknowledged.

Only the signal source that originally powered up can also power down again.

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For drives with closed-loop speed control (p1300 = 20, 21), the following applies:

- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression)

For drives with closed-loop torque control (p1300 = 22, 23), the following applies:

- BI: p0840 = 0 signal: immediate pulse suppression

For drives with closed-loop torque control (activated using p1501), the following applies:

- BI: p0840 = 0 signal: No dedicated braking response, but pulse cancelation when standstill is detected (p1226, p1227)

For drives with closed-loop speed/torque control, the following applies:

- BI: p0840 = 0/1 signal: ON (pulses can be enabled)

For active infeeds (Active Line Module and Smart Line Module) the following applies:

- BI: p0840 = 0 signal: OFF1 (reduce Vdc along the ramp, then pulse suppression and pre-charging contactor/line contactor open)
- BI: p0840 = 0/1 signal: ON (pre-charging contactor/line contactor close, pulses can be enabled)

For passive infeeds (Basic Line Module) the following applies:

- BI: p0840 = 0 signal: OFF1 (pre-charging contactor/line contactor open)
- BI: p0840 = 0/1 signal: ON (pre-charging contactor/line contactor close)

r0863.1 of a drive can also be selected as signal source.

p0844[0...n] BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 8720, 8820, 8920
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the first signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switch on inhibit)

BI: p0844 = 1 signal and BI: p0845 = 1 signal

- No OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For Active Line Modules, Smart Line Modules and binector input p0844 = 0 signal or p0845 = 0 signal, the following applies:

- pre-charging contactor/line contactor is additionally opened.

p0845[0...n]	**BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2**		
B_INF, VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 8720, 8820, 8920
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the second signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switch on inhibit)

BI: p0844 = 1 signal and BI: p0845 = 1 signal

- No OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.

Note: For Active Line Modules, Smart Line Modules and binector input p0844 = 0 signal or p0845 = 0 signal, the following applies:

- pre-charging contactor/line contactor is additionally opened.

p0848[0...n]	**BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the first signal source for the command "No quick stop/quick stop (OFF3)".

The following signals are AND'ed:

- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).

BI: p0848 = 0 signal or BI: p0849 = 0 signal

- OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit)

BI: p0848 = 1 signal and BI: p0849 = 1 signal

- No OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For drives with closed-loop torque control (activated using p1501), the following applies:

BI: p0848 = 0 signal:

- No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227).

p0849[0...n] **BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2**

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the second signal source for the command "No quick stop/quick stop (OFF3)".
The following signals are AND'ed:
- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"
For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
BI: p0848 = 0 signal or BI: p0849 = 0 signal
- OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit)
BI: p0848 = 1 signal and BI: p0849 = 1 signal
- No OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.

Note: For drives with closed-loop torque control (activated using p1501), the following applies:
BI: p0849 = 0 signal:
- No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227).

p0852[0...n] **BI: Enable operation/inhibit operation / Operation enable**

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 8820, 8920
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "enable operation/inhibit operation".
For the PROFIdrive profile, this command corresponds to control word 1 bit 3 (STW1.3).
BI: p0852 = 0 signal
Inhibit operation (suppress pulses).
BI: p0852 = 1 signal
Enable operation (pulses can be enabled).

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0854[0...n] **BI: Control by PLC/no control by PLC / Master ctrl by PLC**

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 8720, 8820, 8920
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "control by PLC/no control by PLC".

For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).
BI: p0854 = 0 signal
No control by PLC
BI: p0854 = 1 signal
Master control by PLC.

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

p0854 BI: Control by PLC/no control by PLC / Master ctrl by PLC

ENC			
	Can be changed: T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2501, 8720, 8820, 8920
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the command "control by PLC/no control by PLC".
For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).
BI: p0854 = 0 signal
No control by PLC
BI: p0854 = 1 signal
Master control by PLC.

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

p0855[0...n] BI: Unconditionally release holding brake / Uncond open brake

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 2701, 2707
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the command "unconditionally open holding brake".

Dependency: Refer to: p0858

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).

p0856[0...n] BI: Speed controller enable / n_ctrl enable

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 2701, 2707
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "enable speed controller" (r0898.12).

0 signal: Set the I component and speed controller output to zero.

1 signal: Enable speed controller.

Dependency: Refer to: r0898

Note: If "enable speed controller" is withdrawn, then an existing brake will be closed.

If "speed controller enable" is withdrawn, the pulses are not suppressed.

p0857 Power unit monitoring time / PU t_monit

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8760, 8864, 8964
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
100.0 [ms]	60000.0 [ms]	6000.0 [ms]

Description: Sets the monitoring time for the power unit.

The following applies for infeeds and drives:

The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power unit does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output.

For drives, the following also applies:

After the pulse enable (operation enabled, p0852), the monitoring time is re-started. If the infeed does not signal ready to the drive within the monitoring time (using BI: p0864 of the drive), fault F07840 is initiated.

Notice: The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power unit design.

The monitoring time for the pre-charging is started after the ON command (BI: p0840 = 0/1 signal). Fault F30027 is output when the maximum pre-charging duration is exceeded.

Note: The factory setting for p0857 depends on the power class and the design of the power unit.

The monitoring time for the ready signal of the power unit includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors.

If an excessively low value is entered into p0857, then after enable, this results in the corresponding fault.

p0858[0...n] BI: Unconditionally close holding brake / Uncond close brake

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 2701, 2707
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the command "unconditionally close holding brake".

Dependency: Refer to: p0855

Note: The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).

For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.

p0860 BI: Line contactor feedback signal / Line contact feedb

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2634, 8734, 8834, 8934
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	863.1

Description: Sets the signal source for the feedback signal from the line contactor.

Recommend.: When the monitoring is activated (BI: p0860 not equal to r0863.1), then to control the line contactor, signal BO: r0863.1 of its own drive object should be used.

Dependency: Refer to: p0861, r0863

Notice: The line contactor monitoring is de-activated if the control signal of the particular drive object is set as the signal source for the feedback signal of the line contactor (BI: p0860 = r0863.1).

Note: The state of the line contactor is monitored depending on signal BO: r0863.1.

When the monitoring is activated (BI: p0860 not equal to r0863.1), fault F07300 is then also output if the contactor is closed before it is controlled using r0863.1.

p0861 Line contactor monitoring time / LineContact t_mon

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2634, 8734, 8834, 8934
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	5000 [ms]	100 [ms]

Description: Sets the monitoring time of the line contactor.

This time starts each time that the line contactor switches (r0863.1). If a feedback signal is not received from the line contactor within the time, a message is output.

Dependency: Refer to: p0860, r0863

Note: The monitoring function is disabled for the factory setting of p0860.

p0862 Power unit ON delay / PU t_on

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2610, 8732, 8832, 8932
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	65000 [ms]	0 [ms]

Description: Sets the delay time for the control command of the power unit and a line contactor, if used.

Note: This means that it is possible to realize a shifted (delayed) pre-charging or power-on using a single ON command.

When the infeed units are active, before the line contactor is closed, an offset adjustment of the current measurement is carried out for a duration of 120 ms (p3491).

r0863.0...2 CO/BO: Drive coupling status word/control word / CoupleZSW/STW

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word and control word of the drive coupling.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Closed-loop control operation	Yes	No	2610, 8710, 8810, 8910
01	Energize contactor	Yes	No	2610, 2634, 7990, 8734, 8834, 8934
02	Infeed line supply failure	Yes	No	-

Dependency: Refer to: p0864

Note: Re bit 00:

Bit 0 signals that the infeed is ready.

When the operating signal is transferred via binector output r0863.0 this allows several drives to start (run-up) staggered over time when they are simultaneously powered up.

To realize this, the following connections/interconnections are required:

Drive 1: Interconnect binector input p0864 with binector output r0863.0 of the infeed

Drive 2: Interconnect binector input p0864 with binector output r0863.0 of drive 1

Drive 3: Interconnect binector input p0864 with binector output r0863.0 of drive 2 etc.

The first drive only transfers the operating signal to the next drive after it has reached its ready condition.

Re bit 01:

Bit 1 is used to control an external line contactor.

Re bit 02:

This bit only signals line supply failure for Active Infeed (A_INF) and Smart Infeed (S_INF).

p0864 BI: Infeed operation / INF operation

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2610, 8710, 8910
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the operating signal of the infeed (e.g. BO: r0863.0).

Dependency: Refer to: r0863

Note: The sequence control of a servo/vector drive requires this signal.

The following applies for an infeed without DRIVE-CLiQ:

For these infeeds, the "ready" message is available via an output terminal. This signal must be connected to a digital input. The drives supplied from this infeed must use this signal as ready signal (BI: p0864 = digital input).

p0867 Power unit main contactor holding time after OFF1 / PU t_MC after OFF1

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	500.0 [ms]	50.0 [ms]

Description: Sets the main contactor holding time after OFF1

Dependency: Refer to: p0869

Note: After withdrawing the OFF1 enable (source of p0840), the main contactor is opened after the main contactor holding time has elapsed.

For p0869 = 1 (keep main contactor closed for STO), after withdrawing STO, the switch-on inhibit must be acknowledged via the source of p0840 = 0 (OFF1) – and before the main contactor holding time expires, should go back to 1, otherwise the main contactor will open.

When operating a drive connected to SINUMERIK, which only closes the main contactor with the OFF1 command (blocksize, chassis), p0867 should be set as a minimum to 50 ms.

p0868 Power unit DC switch debounce time / PU DC sw t_deboun

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	65000 [ms]	65000 [ms]

Description: Sets the debounce time for the DC circuit breaker for Motor Modules in "chassis" format.

Note: The following applies if p0868 = 65000 ms:

The debounce time defined internally in the power unit's EEPROM is implemented.

p0869 Sequence control configuration / Seq_ctrl config

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Keep main contactor closed for STO	Yes	No	-

Dependency: Refer to: p0867

Note: Re bit 00:

After withdrawing the OFF1 enable (source of p0840), the main contactor is opened after the main contactor holding time has elapsed.

For p0869.0 = 1, after withdrawing STO, the switch-on inhibit must be acknowledged via the source of p0840 = 0 (OFF1) – and before the main contactor holding time expires (p0867), should go back to 1, otherwise the main contactor will open.

r0873 CO/BO: Infeed total operation / INF total oper

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8732, 8832
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the operational readiness of the infeeds when using Smart Line Module (SLM) and Basic Line Module (BLM) together (mixed operation).

In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.

Dependency: Refer to: r0863, p0874

Note: Mixed operation is not possible with the Active Line Module (ALM)!

p0874 — BI: Smart/ Basic Line Module operation / SLM/BLM operation

B_INF

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8732, 8832
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Setting to interconnect the ready signal for mixed operation of Smart Line Module (SLM) and Basic Line Module (BLM).

In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.

Dependency: Refer to: r0863, r0873

Note: Mixed operation is not possible with the Active Line Module (ALM)!

p0894 — Parking pre-setting / Parking pre-set

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Pre-setting for the "Parking axis" and "Parking encoder" function.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Default with interconnection	Park	Do not park	-

Dependency: Refer to: p0480, p0897

Note: Re bit 00:

If there is at least one BICO interconnection for "Parking axis" or "Parking encoder", this default setting is taken into consideration during power-up.

p0895[0...n] — BI: Activate/de-activate power unit components / PU_comp act/deact

B_INF, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source to activate/de-activate a power unit component.

Dependency: BI: p0895 = 0 signal

De-activate power unit components.

BI: p0895 = 1 signal

Activate power unit components

Refer to: p0125, r0126

Caution: It is not permissible to de-activate drive objects with safety functions enabled.

Notice: For Active Line Modules in the "Chassis" format, the Voltage Sensing Module (VSM, p0145) belonging to the power unit is automatically activated/deactivated.

Note: The power unit is only de-activated when the pulses are suppressed.

For units connected in parallel, when one of the power units is de-activated, then the enable in p7001 is withdrawn.

r0896.0 BO: Parking axis, status word / Parking axis, ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the "parking axis" function.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Parking axis active	Yes	No	-

Dependency: Refer to: p0897

p0897 BI: Parking axis selection / Parking axis sel

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the "parking axis" function.

Dependency: BI: p0897 = 0 signal

The function "parking axis" is not selected.

BI: p0897 = 1 signal

The function "parking axis" is selected.

Refer to: r0896

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: After it has been selected the "parking axis" function only becomes active when the pulses are suppressed.

r0898.0...10 CO/BO: Control word sequence control infeed / STW seq_ctrl INF

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8720
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the control word of the sequence control for the infeed.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
10	Master ctrl by PLC	Yes	No	-

Note: OC: Operating condition

r0898.0...15 CO/BO: Control word drive object 1 / STW DO1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the control word of drive object 1 (Control Unit).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Synchronization signal SYN	Yes	No	-
01	Real time synchronization PING	Yes	No	-
07	Acknowledge fault	Yes	No	-
12	Master sign-of-life bit 0	Yes	No	-
13	Master sign-of-life bit 1	Yes	No	-
14	Master sign-of-life bit 2	Yes	No	-
15	Master sign-of-life bit 3	Yes	No	-

r0898.10 CO/BO: Control word sequence control encoder DO / STW seq_ctrl encDO

ENC

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the control word of the sequence control for encoder drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
10	Master ctrl by PLC	Yes	No	-

r0898.0...14 CO/BO: Control word sequence control / STW seq_ctrl

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2501
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the control word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
02	OC / OFF3	Yes	No	-
03	Operation enable	Yes	No	-
04	Ramp-function generator enable	Yes	No	-
05	Continue ramp-function generator	Yes	No	-
06	Speed setpoint enable	Yes	No	-
07	Command open brake	Yes	No	-
08	Jog 1	Yes	No	3001
09	Jog 2	Yes	No	3001
10	Master ctrl by PLC	Yes	No	-
12	Speed controller enable	Yes	No	-
14	Command close brake	Yes	No	-

Note: OC: Operating condition

r0899.0...12 CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8726
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the sequence control of the infeed unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Rdy for switch on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
04	No OFF2 active	OFF2 inactive	OFF2 active	-

Bit	Signal name	1 signal	0 signal	FP
06	Sw on inhibit	Yes	No	-
09	Control request	Yes	No	-
11	Pre-charging compl	Yes	No	-
12	Line contactor closed	Yes	No	-

Note: Re bits 00, 01, 02, 04, 06, 09:

For PROFIdrive, these signals are used for status word 1.

r0899.0...15 CO/BO: Status word drive object 1 / ZSW DO1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the sequence control of the infeed unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Reserved	Yes	No	-
03	Fault present	Yes	No	-
07	Alarm present	Yes	No	-
08	System time synchronized	Yes	No	-
12	Slave sign-of-life bit 0	Yes	No	-
13	Slave sign-of-life bit 1	Yes	No	-
14	Slave sign-of-life bit 2	Yes	No	-
15	Slave sign-of-life bit 3	Yes	No	-

r0899.7...9 CO/BO: Status word sequence control encoder DO / ZSW seq_ctrl encDO

ENC

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for sequence control on the encoder drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
07	Drive ready	Yes	No	-
09	Control request	Yes	No	-

Note: For PROFIdrive, this signal is used for status word ZSW2_ENC.

r0899.0...15 CO/BO: Status word sequence control / ZSW seq_ctrl

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2503
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Rdy for switch on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
03	Jog active	Yes	No	-
04	No coasting active	OFF2 inactive	OFF2 active	-
05	No Quick Stop active	OFF3 inactive	OFF3 active	-
06	Switching on inhibited active	Yes	No	-
07	Drive ready	Yes	No	-
08	Controller enable	Yes	No	-

09	Control request	Yes	No	-
11	Pulses enabled	Yes	No	-
12	Open holding brake	Yes	No	-
13	Command close holding brake	Yes	No	-
14	Pulse enable from the brake control	Yes	No	-
15	Setpoint enable from the brake control	Yes	No	-

Note: Re bits 00, 01, 02, 04, 05, 06, 09:

For PROFIdrive, these signals are used for status word 1.

Re bit 13:

When the "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled using this signal.

Re bit 14, 15:

These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

p0918 PROFIBUS address / PB address

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	126	126

Description: Displays or sets the PROFIBUS address for PROFIBUS interface on the Control Unit.

The address can be set as follows:

1) Using the address switch on the Control Unit.

--> p0918 can then only be read and displays the selected address.

--> A change only becomes effective after a POWER ON.

2) Using p0918

--> Only if the address 00 hex, 7F hex, 80 hex, or FF hex has been set using the address switch.

--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".

--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126 (01 hex ... 7E hex)

Address 126 is used for commissioning.

Every PROFIBUS address change only becomes effective after a POWER ON.

The parameter is not influenced by setting the factory setting.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

B_INF

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2420, 2423, 2447, 2457, 2481, 2483
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
370	999	999

Description: Sets the send and receive telegram.

Value:
370: SIEMENS telegram 370, PZD-1/1
371: SIEMENS telegram 371, PZD-5/8
999: Free telegram configuration with BICO

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.

The inhibited interconnections can only be changed again after setting value 999.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2420, 2423, 2481, 2483
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
390	999	999

Description: Sets the send and receive telegram.

Value:
390: SIEMENS telegram 390, PZD-2/2
391: SIEMENS telegram 391, PZD-3/7
392: SIEMENS telegram 392, PZD-3/15
393: SIEMENS telegram 393, PZD-4/21
394: SIEMENS telegram 394, PZD-3/3
395: SIEMENS telegram 395, PZD-4/25
999: Free telegram configuration with BICO

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

ENC

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2415, 2416, 2419, 2420, 2421, 2422, 2423
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
81	999	999

Description: Sets the send and receive telegram.

Value:
81: SIEMENS telegram 81, PZD-2/6
82: SIEMENS telegram 82, PZD-2/7
83: SIEMENS telegram 83, PZD-2/8
999: Free telegram configuration with BICO

Dependency: Refer to: p2038

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.

The inhibited interconnections can only be changed again after setting value 999.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2415, 2416, 2419, 2420, 2421, 2422, 2423
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	999	999

Description: Sets the send and receive telegram.

Value:
1: Standard telegram 1, PZD-2/2
2: Standard telegram 2, PZD-4/4
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Caution: Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

VECTOR_G (n/M)	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2401, 2415, 2416, 2419, 2420, 2421, 2422, 2423
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	999	999

Description: Sets the send and receive telegram.

Value:
1: Standard telegram 1, PZD-2/2
2: Standard telegram 2, PZD-4/4
3: Standard telegram 3, PZD-5/9
4: Standard telegram 4, PZD-6/14
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Caution: Telegrams 2, 3 and 4 are not suitable for sensorless vector control (p1300 = 20). For sensorless vector control, it is necessary that the setpoint speed is entered at the ramp-function generator input (e.g. p1070) and not after the ramp-function generator (p1155).

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

r0924[0...1] ZSW bit pulses enabled / ZSW pulse enab

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2454, 2456
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the position of the "Pulses enabled" status signal in the PROFIdrive telegram.

Index:
[0] = Signal number
[1] = Bit position

p0925 PROFIdrive clock synchronous sign-of-life tolerance / PD SoL_tol

ENC, VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	1

Description: Sets the number of tolerated consecutive sign-of-life errors of the clock-cycle synchronous master.

The sign-of-life signal is normally received in PZD4 (control word 2) from the master.

Dependency: Refer to: p2045, r2065

Note: The sign-of-life monitoring is disabled for p0925 = 65535.

r0930 PROFIdrive operating mode / PD operating mode

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the operating mode.
1: Closed-loop speed controlled operation with ramp-function generator
2: Closed-loop position controlled operation
3: Closed-loop speed controlled operation without ramp-function generator

r0944 CO: Counter for fault buffer changes / Fault buff change

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays fault buffer changes. This counter is incremented every time the fault buffer changes.
Recommend.: Used to check whether the fault buffer has been read out consistently.
Dependency: Refer to: r0945, r0947, r0948, r0949, r2109

r0945[0...63] Fault code / Fault code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the numbers of faults that have occurred.
Dependency: Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122
Notice: The properties of the fault buffer should be taken from the corresponding product documentation.
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Fault buffer structure (general principle):
r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1
. . .
r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8
r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1
. . .
r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8
. . .
r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1
. . .
r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0946[0...65534] Fault code list / Fault code list

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Lists the fault codes stored in the drive unit.
The indices can only be accessed with a valid fault code.

Dependency: The parameter assigned to the fault code is entered in r0951 under the same index.

r0947[0...63] Fault number / Fault number

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: This parameter is identical to r0945.

r0948[0...63] Fault time received in milliseconds / t_fault recv ms

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault occurred.

Dependency: Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2130 (days) and r0948 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.
When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0949[0...63] Fault value / Fault value

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays additional information about the fault that occurred (as integer number).

Dependency: Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p0952	Fault cases counter / Fault cases qty		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 6700, 8060
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Number of fault situations that have occurred since the last reset.

Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.

Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

r0963	PROFIBUS baud rate / PB baud rate		
CU_G130_DP, CU_G150_DP	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the corresponding value for the PROFIBUS baud rate.

Value:
0: 9.6 kbit/s
1: 19.2 kbit/s
2: 93.75 kbit/s
3: 187.5 kbit/s
4: 500 kbit/s
6: 1.5 Mbit/s
7: 3 Mbit/s
8: 6 Mbit/s
9: 12 Mbit/s
10: 31.25 kbit/s
11: 45.45 kbit/s
255: Unknown

r0964[0...6]	Device identification / Device ident		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the device identification.

Index:
[0] = Company (Siemens = 42)
[1] = Device type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = Number of drive objects
[6] = Firmware patch/hot fix

Note: Example:

r0964[0] = 42 --> SIEMENS

r0964[1] = device type, see below

r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6)

r0964[3] = 2010 --> year 2010

r0964[4] = 1705 --> 17th of May

r0964[5] = 2 --> 2 drive objects

r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00)

Device type:
r0964[1] = 5200 --> SINAMICS G150 CU320-2 DP
r0964[1] = 5201 --> SINAMICS G150 CU320-2 PN
r0964[1] = 5210 --> SINAMICS G130 CU320-2 DP
r0964[1] = 5211 --> SINAMICS G130 CU320-2 PN

r0965 PROFIdrive profile number / PD profile number

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIdrive profile number and profile version.

Constant value = 0329 hex.

Byte 1: Profile number = 03 hex = PROFIdrive profile

Byte 2: Profile version = 29 hex = Version 4.1

Note: When the parameter is read via PROFIdrive, the Octet String 2 data type applies.

p0969 System runtime relative / t_System relative

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	4294967295 [ms]	0 [ms]

Description: Displays the system runtime in ms since the last POWER ON.

Note: The value in p0969 can only be reset to 0.

The value overflows after approx. 49 days.

When the parameter is read via PROFIdrive, the TimeDifference data type applies.

p0970 Reset infeed parameter / INF par reset

B_INF

Can be changed: C2(30)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Factory settings	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	100	0

Description: The parameter is used to initiate a reset of the parameters of an individual infeed unit.

The parameters of the basic commissioning (refer to p0009) are in this case not reset (p0107, p0108, p0121, p0170). These can only be reset using the factory setting of the complete drive unit (p0976).

The sampling times (p0111, p0112, p0115) are only not reset if this results in a conflict with the basic clock cycle (p0110).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

p0970	ENCODER reset parameters / ENC par reset		
ENC	**Can be changed:** C2(30)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Factory settings	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	100	0

Description: The parameter is used to initiate the reset of the parameters on the ENCODER drive object.

Parameter p0141 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

p0970	TB30 reset parameters / TB30 par reset		
TB30	**Can be changed:** C2(30)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Factory settings	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Board 30 (TB30).

The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.

Parameter p0161 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

p0970	TM150 reset parameters / TM150 par reset		
TM150	**Can be changed:** C2(30)	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Factory settings	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 150 (TM150).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Dependency: Refer to: p0010

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

p0970 TM31 reset parameters / TM31 par reset

TM31

Can be changed: C2(30) | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Factory settings | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 31 (TM31).

The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.

Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Dependency: Refer to: p0010

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

p0970 TM54F reset parameters / TM54F par reset

TM54F_MA

Can be changed: C2(30) | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Factory settings | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 54F (TM54F).

Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
5: Starts a safety parameter reset
6: Start reset non-safety/safety parameters
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

For p0970 = 5 the following applies:

The password for Safety Integrated must be set.

When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.

Then save the parameters and carry out a POWER ON.

p0970 Reset drive parameters / Drive par reset

VECTOR_G

Can be changed: C2(30) | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Factory settings | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate the reset of the parameters of an individual drive unit.

Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

Value:
0: Inactive
1: Start a parameter reset
5: Starts a safety parameter reset
6: Start reset non-safety/safety parameters
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

For p0970 = 5 the following applies:

The password for Safety Integrated must be set.

When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.

Then save the parameters and carry out a POWER ON.

For p0970 = 1 the following applies:

If a Safety Integrated function is parameterized (p9601), then the safety parameters are not reset. In this case, a fault F01659 is output with fault value 2.

p0971 Save drive object parameters / Drv_obj par save

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Factory settings	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to save the parameter of the particular drive object in the non-volatile memory.

When saving, only the adjustable parameters intended to be saved are taken into account.

Value:
0: Inactive
1: Save drive object

Dependency: Refer to: p0977, p1960, p3845, r3996

Notice: The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note: Starting from the particular drive object, the following parameters are saved:

CU3xx: Device-specific parameters and PROFIBUS device parameters.

Other objects: Parameters of the actual object and PROFIBUS device parameters.

Prerequisite:

In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1.

p0972 Drive unit reset / Drv_unit reset

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the required procedure to execute a hardware reset for the drive unit.

Value:
0: Inactive
1: Hardware-Reset immediate

2: Hardware reset preparation
3: Hardware reset after cyclic communication has failed

Danger: It must be absolutely ensured that the system is in a safe condition.

The memory card/device memory of the Control Unit must not be accessed.

Note: If value = 1:

Reset is immediately executed and communications interrupted.

After communications have been established, check the reset operation (refer below).

If value = 2:

Help to check the reset operation.

Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted.

After communications have been established, check the reset operation (refer below).

If value = 3:

The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units.

If cyclic communication is not active, then the reset is immediately executed.

If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications.

After communications have been established, check the reset operation (refer below).

To check the reset operation:

After the drive unit has been restarted and communications have been established, read p0972 and check the following:

p0972 = 0? --> The reset was successfully executed.

p0972 > 0? --> The reset was not executed.

r0975[0...10] Drive object identification / DO identification

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the identification of the drive object.

Index:
[0] = Company (Siemens = 42)
[1] = Drive object type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = PROFIdrive drive object type class
[6] = PROFIdrive drive object sub-type Class 1
[7] = Drive object number
[8] = Reserved
[9] = Reserved
[10] = Firmware patch/hot fix

Note: Example:

r0975[0] = 42 --> SIEMENS

r0975[1] = 11 --> SERVO drive object type

r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)

r0975[3] = 2003 --> year 2003

r0975[4] = 1401 --> 14th of January

r0975[5] = 1 --> PROFIdrive drive object, type class

r0975[6] = 9 --> PROFIdrive drive object sub-type class 1

r0975[7] = 2 --> drive object number = 2

r0975[8] = 0 (reserved)

r0975[9] = 0 (reserved)

r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976 Reset and load all parameters / Reset load all par

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(30)	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Factory settings	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1013	0

Description: Resets or downloads all parameters of the drive system.

Value:
0: Inactive
1: Start reset of all parameters to factory setting
2: Start dnload of param. saved in non-volatile mem w/ p0977=1
3: Start download of volatile parameters from RAM
10: Start dnload of param. saved in non-volatile mem w/ p0977=10
11: Start dnload of param. saved in non-volatile mem w/ p0977=11
12: Start dnload of param. saved in non-volatile mem w/ p0977=12
20: Start download Siemens internal setting 20
21: Start download Siemens internal setting 21
22: Start download Siemens internal setting 22
23: Start download Siemens internal setting 23
24: Start download Siemens internal setting 24
25: Start download Siemens internal setting 25
26: Start download Siemens internal setting 26
100: Start resetting of all BICO interconnections
1011: Start dnload of param. saved in volatile mem w/ p0977=1011
1012: Start dnload of param. saved in volatile mem w/ p0977=1012
1013: Start dnload of param. saved in volatile mem w/ p0977=1013

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again.

Resetting or loading is realized in the non-volatile memory.

Procedure:

1. Set p0009 = 30 (parameter reset).
2. Set p0976 to "required value". The system is rebooted.

p0976 is automatically set to 0 and p0009 is automatically set to 1 after this has been carried out.

p0977 Save all parameters / Save all par

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Factory settings	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1013	0

Description: Saves all parameters of the drive system to the non-volatile memory.

When saving, only the adjustable parameters intended to be saved are taken into account.

Value:
0: Inactive
1: Save in non-volatile memory - downloaded at POWER ON
10: Save as opt. in non-vol. memory - downloaded w/ p0976=10
11: Save as opt. in non-vol. memory - downloaded w/ p0976=11
12: Save as opt. in non-vol. memory - downloaded w/ p0976=12
20: Save in non-volatile memory as setting 20 (reserved)
21: Save in non-volatile memory as setting 21 (reserved)
22: Save in non-volatile memory as setting 22 (reserved)
23: Save in non-volatile memory as setting 23 (reserved)
24: Save in non-volatile memory as setting 24 (reserved)
25: Save in non-volatile memory as setting 25 (reserved)
26: Save in non-volatile memory as setting 26 (reserved)
80: Save in non-volatile memory time-optimized (reserved)

1011: Save in volatile memory, downloaded with p0976=1011
1012: Save in volatile memory, downloaded with p0976=1012
1013: Save in volatile memory, downloaded with p0976=1013

Dependency: Refer to: p0976, p1960, p3845, r3996

Notice: The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note: Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.

Identification and maintenance data (I&M data, p8806 and following) are only saved for p0977 = 1.

p0978[0...n] List of drive objects / List of the DO

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	[0] 1 [1...24] 0

Description: This parameter is an image of p0101 in conformance with PROFIdrive.

Parameters p0101 and p0978 contain the following information:

1) The same number of drive objects

2) The same drive objects

In this sense, they are consistent.

Difference between p0101 and p0978:

p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.

For p0978, in addition, the value 255 can be inserted a multiple number of times.

p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.

Dependency: Refer to: p0101, p0971, p0977

Note: p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

r0979[0...10] PROFIdrive encoder format / PD encoder format

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:
[0] = Header
[1] = Type encoder 1
[2] = Resolution enc 1
[3] = Shift factor G1_XIST1
[4] = Shift factor G1_XIST2
[5] = Distinguishable revolutions encoder 1
[6...10] = Reserved

Note: Information about the individual indices can be taken from the following literature:

PROFIdrive Profile Drive Technology

r0979[0...10]	**PROFIdrive encoder format / PD encoder format**		
ENC (Lin_enc)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:
[0] = Header
[1] = Type encoder 1
[2] = Resolution enc 1
[3] = Shift factor G1_XIST1
[4] = Shift factor G1_XIST2
[5] = Distinguishable distance encoder 1
[6...10] = Reserved

Note: Information about the individual indices can be taken from the following literature:
PROFIdrive Profile Drive Technology

r0979[0...30]	**PROFIdrive encoder format / PD encoder format**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4704
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:
[0] = Header
[1] = Type encoder 1
[2] = Resolution enc 1
[3] = Shift factor G1_XIST1
[4] = Shift factor G1_XIST2
[5] = Distinguishable revolutions encoder 1
[6...10] = Reserved
[11] = Type encoder 2
[12] = Resolution enc 2
[13] = Shift factor G2_XIST1
[14] = Shift factor G2_XIST2
[15] = Distinguishable revolutions encoder 2
[16...20] = Reserved
[21] = Type encoder 3
[22] = Resolution enc 3
[23] = Shift factor G3_XIST1
[24] = Shift factor G3_XIST2
[25] = Distinguishable revolutions encoder 3
[26...30] = Reserved

Note: Information about the individual indices can be taken from the following literature:
PROFIdrive Profile Drive Technology

r0980[0...299]	**List of existing parameters 1 / List avail par 1**		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0981, r0989

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

r0981[0...299] List of existing parameters 2 / List avail par 2

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

r0989[0...299] List of existing parameters 10 / List avail par 10

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

r0990[0...99] List of modified parameters 1 / List chang par 1

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0991, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0991[0...99] List of modified parameters 2 / List chang par 2

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0990, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0999[0...99] List of modified parameters 10 / List chang par 10

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0990, r0991

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

p1000[0...n] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999999	0

Description: Runs the corresponding macro files.

The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.

The selected macro file must be available on the memory card/device memory.

Example:

p1000 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0015, p0700, p1500, r8572

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8572. r8572 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector Input

p1001[0...n]	**CO: Fixed speed setpoint 1 / n_set_fixed 1**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 1.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1002[0...n]	**CO: Fixed speed setpoint 2 / n_set_fixed 2**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 2.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1003[0...n]	**CO: Fixed speed setpoint 3 / n_set_fixed 3**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 3.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1004[0...n]	**CO: Fixed speed setpoint 4 / n_set_fixed 4**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 4.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 5.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 6.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 7.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 8.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1009[0...n] CO: Fixed speed setpoint 9 / n_set_fixed 9

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 9.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1010[0...n] CO: Fixed speed setpoint 10 / n_set_fixed 10

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 10.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1011[0...n] CO: Fixed speed setpoint 11 / n_set_fixed 11

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 11.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1012[0...n] CO: Fixed speed setpoint 12 / n_set_fixed 12

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 12.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1013[0...n] CO: Fixed speed setpoint 13 / n_set_fixed 13

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 13.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1014[0...n] CO: Fixed speed setpoint 14 / n_set_fixed 14

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 14.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1015[0...n] CO: Fixed speed setpoint 15 / n_set_fixed 15

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3010
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Setting and connector output for fixed speed setpoint 15.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1020[0...n] BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3010, 3011
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for selecting the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1021, p1022, p1023, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1021[0...n]	**BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3010, 3011
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for selecting the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1022, p1023, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1022[0...n]	**BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3010, 3011
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for selecting the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1021, p1023, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1023[0...n]	**BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3010, 3011
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for selecting the fixed speed setpoint.

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.
Refer to: p1020, p1021, p1022, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

r1024 CO: Fixed speed setpoint effective / n_set_fixed eff

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3010, 3011
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the selected and active fixed speed setpoint.

This setpoint is the output value for the fixed speed setpoints and must be appropriately interconnected (e.g. with the main setpoint).

Recommend.: Interconnect the signal with the main setpoint (CI: p1070 = r1024).

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1070, r1197

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

p1030[0...n] Motorized potentiometer configuration / Mop configuration

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0110 bin

Description: Sets the configuration for the motorized potentiometer.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data save active	Yes	No	-
01	Automatic mode ramp-function generator active	Yes	No	-
02	Initial rounding-off active	Yes	No	-
03	Save in NVRAM active	Yes	No	-
04	Ramp-function generator always active	Yes	No	-

Notice: The following prerequisites must be fulfilled in order to be able to save the setpoint (Bit 03 = 1) in a non-volatile fashion:

- Firmware with V2.3 or higher.

- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).

Note: Re bit 00:

0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.

1: The setpoint for the motorized potentiometer is saved after OFF and after ON set to the saved value. In order to save in a non-volatile fashion, bit 03 should be set to 1.

Re bit 01:

0: Without ramp-function generator in the automatic mode (ramp-up/ramp-down time = 0).

1: With ramp-function generator in the automatic mode.

For manual operation (0 signal via BI: p1041), the ramp-function generator is always active.

Re bit 02:

0: Without initial rounding-off

1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed).

The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum speed (p1082). It is calculated as follows:

r = 0.01 % * p1082 [1/s] / 0.13^2 [s^2]

The jerk acts up until the maximum acceleration is reached (a_max = p1082 [1/s] / p1047 [s]), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p1047 is), the longer the ramp-up time increases with respect to the set ramp-up time.

Re bit 03:

0: Non-volatile data save de-activated.

1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for bit 00 = 1).

Re bit 04:

When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r1050.

p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to continually increase the setpoint for the motorized potentiometer.

The setpoint change (CO: r1050) depends on the set ramp-up time (p1047) and the duration of the signal that is present (BI: p1035).

Dependency: Refer to: p1036

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1036[0...n] BI: Motorized potentiometer lower setpoint / Mop lower

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to continuously lower the setpoint for the motorized potentiometer.

The setpoint change (CO: r1050) depends on the set ramp-down time (p1048) and the duration of the signal that is present (BI: p1036).

Dependency: Refer to: p1035

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1037[0...n] Motorized potentiometer maximum speed / MotP n_max

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the maximum speed/velocity for the motorized potentiometer.

Note: This parameter is automatically pre-assigned in the commissioning phase.

The setpoint output from the motorized potentiometer is limited to this value.

p1038[0...n] Motorized potentiometer minimum speed / MotP n_min

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the minimum speed/velocity for the motorized potentiometer.

Note: This parameter is automatically pre-assigned in the commissioning phase.
The setpoint output from the motorized potentiometer is limited to this value.

p1039[0...n] BI: Motorized potentiometer inversion / MotP inv

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to invert the minimum speed/velocity or the maximum speed/velocity for the motorized potentiometer.

Dependency: Refer to: p1037, p1038

Note: The inversion is only active during "motorized potentiometer raise" or "motorized potentiometer lower".

p1040[0...n] Motorized potentiometer starting value / Mop start value

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered up.

Dependency: Only effective if p1030.0 = 0.
Refer to: p1030

p1041[0...n] BI: Motorized potentiometer manual/automatic / Mop manual/auto

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to change over from manual to automatic when using a motorized potentiometer.
In the manual mode, the setpoint is changed using two signals - raise and lower. In the automatic mode, the setpoint must be interconnected via a connector input.

Dependency: Refer to: p1030, p1035, p1036, p1042

Note: The effectiveness of the internal ramp-function generator can be set in automatic mode.

p1042[0...n] CI: Motorized potentiometer automatic setpoint / Mop auto setpoint

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3020
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the setpoint of the motorized potentiometer in the automatic mode.

Dependency: Refer to: p1041

p1043[0...n] BI: Motorized potentiometer accept setting value / MotP acc set val

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 3020
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to accept the setting value for the motorized potentiometer.

Dependency: Refer to: p1044

Note: The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).

p1044[0...n] CI: Motorized potentiometer setting value / Mop set val

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3020
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the setting value for the motorized potentiometer.

Dependency: Refer to: p1043

Note: The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).

r1045 CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3020
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.

p1047[0...n] Motorized potentiometer ramp-up time / Mop ramp-up time

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	1000.000 [s]	10.000 [s]

Description: Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer.

The setpoint is changed from zero up to the speed/velocity limit (p1082) within this time (if no initial rounding-off has been activated).

Dependency: Refer to: p1030, p1048, p1082

Note: When the initial rounding-off is activated (p1030.2) the ramp-up time is correspondingly extended.

p1048[0...n] Motorized potentiometer ramp-down time / Mop ramp-down time

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3020
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	1000.000 [s]	10.000 [s]

Description: Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer.

The setpoint is changed from the speed/velocity limit (p1082) to zero within this time (if no initial rounding-off has been activated).

Dependency: Refer to: p1030, p1047, p1082

Note: The deceleration time is extended corresponding to the activated initial rounding-off (p1030.2).

r1050 CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3020
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Sets the effective setpoint after the internal motorized potentiometer ramp-function generator.

This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).

Recommend.: Interconnect the signal with main setpoint (p1070).

Dependency: Refer to: p1070

Note: For "With ramp-function generator", after an OFF1, OFF2, OFF3 or for a 0 signal via BI: p0852 (inhibit operation, suppress pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).

p1051[0...n] CI: Speed limit RFG positive direction of rotation / n_limit RFG pos

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1083[0]

Description: Sets the signal source for the speed limit of the positive direction on the ramp-function generator input.

Note: The OFF3 ramp-down time (p1135) is effective when the limit is reduced.

p1052[0...n] CI: Speed limit RFG negative direction of rotation / n_limit RFG neg

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1086[0]

Description: Sets the signal source for the speed limit of the negative direction on the ramp-function generator input.

Note: The OFF3 ramp-down time (p1135) is effective when the limit is reduced.

p1055[0...n] BI: Jog bit 0 / Jog bit 0

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 3030
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for jog 1.

Recommend.: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: Refer to: p0840, p1058

Notice: The drive is enabled for jogging using BI: p1055 or BI: p1056.
The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056.
Only the signal source that was used to power up can also be used to power down again.

p1056[0...n] BI: Jog bit 1 / Jog bit 1

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501, 3030
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for jog 2.

Recommend.: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: Refer to: p0840, p1059

Notice: The drive is enabled for jogging using BI: p1055 or BI: p1056.
The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056.
Only the signal source that was used to power up can also be used to power down again.

p1058[0...n] Jog 1 speed setpoint / Jog 1 n_set

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3001, 3030
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the speed for jog 1.
Jogging (JOG) is level-triggered, and allows the motor to be incrementally traversed.

Dependency: Refer to: p1055, p1056

p1059[0...n] Jog 2 speed setpoint / Jog 2 n_set

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3001, 3030
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-210000.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the speed for jog 2.
Jogging (JOG) is level-triggered, and allows the motor to be incrementally traversed.

Dependency: Refer to: p1055, p1056

p1063[0...n] Speed limit setpoint channel / n_limit setp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3040
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [rpm]	210000.000 [rpm]	40000.000 [rpm]

Description: Sets the speed limit/velocity limit effective in the setpoint channel.

Dependency: Refer to: p1082, p1083, p1085, p1086, p1088

p1070[0...n]	**CI: Main setpoint / Main setpoint**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3030
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1024[0]

Description: Sets the signal source for the main setpoint.
Examples:
r1024: Fixed speed setpoint effective
r1050: Motor. potentiometer setpoint after the ramp-function generator

Dependency: Refer to: p1071, r1073, r1078

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1071[0...n]	**CI: Main setpoint scaling / Main setp scal**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3030
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for scaling the main setpoint.

r1073	**CO: Main setpoint effective / Main setpoint eff**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3030
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the effective main setpoint.
The value shown is the main setpoint after scaling.

p1075[0...n]	**CI: Supplementary setpoint / Suppl setp**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3030
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the supplementary setpoint.

Dependency: Refer to: p1076, r1077, r1078

p1076[0...n]	**CI: Supplementary setpoint scaling / Suppl setp scal**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3030
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for scaling the supplementary setpoint.

r1077	CO: Supplementary setpoint effective / Suppl setpoint eff		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3030
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.

r1078	CO: Total setpoint effective / Total setpoint eff		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3030
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the total effective setpoint.
The value indicates the sum of the effective main setpoint and supplementary setpoint.

p1080[0...n]	Minimum speed / n_min		
VECTOR_G	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	19500.000 [rpm]	0.000 [rpm]

Description: Sets the lowest possible motor speed.
This value is not undershot in operation.

Dependency: Refer to: p1106

Notice: The effective minimum speed is formed from p1080 and p1106.

Note: The parameter value applies for both motor directions.
In exceptional cases, the motor can operate below this value (e.g. when reversing).

p1081	Maximum speed scaling / n_max scal		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3050, 3095
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	100.00 [%]	105.00 [%]	100.00 [%]

Description: Sets the scaling for the maximum speed (p1082).
For a higher-level speed control, this scaling allows the maximum speed to be briefly exceeded.

Dependency: Refer to: p1082

Notice: Continuous operation above a scaling of 100 % is not permitted.

p1082[0...n]	**Maximum speed / n_max**		
VECTOR_G	**Can be changed:** C2(1), T	**Calculated:** CALC_MOD_ALL	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 2820, 3020, 3050, 3060, 3070, 3095
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	1500.000 [rpm]

Description: Sets the highest possible speed.

Dependency: For vector control (p1300 = 20 ... 23) the maximum speed is limited to 60.0 / (8.333 x p0115[0] x r0313). This can be identified by a reduction in r1084. p1082 is not changed in this process due to the fact that the operating mode p1300 can be changed over.

If a sine-wave filter (p0230 = 3) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet). When using sine-wave filters (p0230 = 3, 4), the maximum speed r1084 is limited to 70% of the resonant frequency of the filter capacitance and the motor leakage inductance.

For reactors and dU/dt filters, it is limited to 150 Hz * 60 / r0313 (for chassis power units) or 120 Hz x 60 / r0313 (for booksize power units).

Refer to: p0115, p0230, r0313, p0322, p0324, r0336, p0532

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: The parameter applies for both motor directions.

The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer).

Since the parameter is part of quick commissioning (p0010 = 1), it is defined appropriately when p0310, p0311, p0322, p0324, p0530, p0531, and p0532 are changed.

The following limits are always effective for p1082:

p1082 <= min(p0324, p0532) if p0324 > 0 and p0532 > 0

p1082 <= p0322 if p0324 = 0 or p0532 = 0 and p0322 > 0

p1082 <= 60 x minimum (15 x r0336, 650 Hz) / r0313

p1082 <= 60 x Maximum power unit pulse frequency / (k x r0313)

k = 12 for vector control (r0108.2 = 1), k = 6.5 for U/f control (r0108.2 = 0)

For the automatic calculation (p0340 = 1) the value of the parameter is pre-assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors that are not catalog motors (p0301 = 0), the synchronous no-load speed is used as default (pre-assignment) value (p0310 x 60 / r0313).

For synchronous motors, the following additionally applies:

The maximum speed p1082 is restricted to speeds (r1084) where the EMF does not exceed the DC link voltage.

The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186.

p1082 is also available in the quick commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.

p1083[0...n]	**CO: Speed limit in positive direction of rotation / n_limit pos**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050, 6732
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	40000.000 [rpm]

Description: Sets the maximum speed for the positive direction.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

r1084	CO: Speed limit positive effective / n_limit pos eff		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3050, 3095
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]
Description:	Display and connector output for the active positive speed limit.		
Dependency:	Refer to: p1082, p1083, p1085		

p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1083[0]
Description:	Sets the signal source for the speed limit of the positive direction.		

p1086[0...n]	CO: Speed limit in negative direction of rotation / n_limit neg		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-210000.000 [rpm]	0.000 [rpm]	-40000.000 [rpm]
Description:	Sets the speed limit for the negative direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		

r1087	CO: Speed limit negative effective / n_limit neg eff		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3050, 3095
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]
Description:	Display and connector output for the active negative speed limit.		
Dependency:	Refer to: p1082, p1086, p1088		

p1088[0...n]	CI: Speed limit in negative direction of rotation / n_limit neg		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1086[0]
Description:	Sets the signal source for the speed/velocity limit of the negative direction.		

p1091[0...n]	**Skip speed 1 / n_skip 1**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets skip speed 1.

Dependency: Refer to: p1092, p1093, p1094, p1101

Notice: Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.

Note: The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.

p1092[0...n]	**Skip speed 2 / n_skip 2**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets skip speed 2.

Dependency: Refer to: p1091, p1093, p1094, p1101

Notice: Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.

p1093[0...n]	**Skip speed 3 / n_skip 3**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets skip speed 3.

Dependency: Refer to: p1091, p1092, p1094, p1101

Notice: Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.

p1094[0...n]	**Skip speed 4 / n_skip 4**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets skip speed 4.

Dependency: Refer to: p1091, p1092, p1093, p1101

Notice: Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.

p1098[0...n] CI: Skip speed scaling / n_skip scal

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for scaling the skip speeds.

Dependency: Refer to: p1091, p1092, p1093, p1094

r1099.0 CO/BO: Skip band status word / Skip band ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the skip bands.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	r1170 within the skip band	Yes	No	3050

Dependency: Refer to: r1170

Note: Re bit 00:

With the bit set, the setpoint speed is within the skip band after the ramp-function generator (r1170).

The signal can be used to switch over the drive data set (DDS).

p1101[0...n] Skip speed bandwidth / n_skip bandwidth

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3050
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [rpm]	210000.000 [rpm]	0.000 [rpm]

Description: Sets the bandwidth for the skip speeds/velocities 1 to 4.

Dependency: Refer to: p1091, p1092, p1093, p1094

Note: The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101.

Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.

Example:

p1091 = 600 and p1101 = 20

--> setpoint speeds between 580 and 620 [rpm] are skipped.

For the skip bandwidths, the following hysteresis behavior applies:

For a setpoint speed coming from below, the following applies:

r1170 < 580 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 580 [rpm]

For a setpoint speed coming from above, the following applies:

r1170 > 620 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 620 [rpm]

p1106[0...n]	CI: Minimum speed signal source / n_min s_src		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for lowest possible motor speed.

Dependency: Refer to: p1080

Notice: The effective minimum speed is formed from p1080 and p1106.

p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3040
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to disable the negative direction.

Dependency: Refer to: p1111

p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505, 3040
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to disable the positive direction.

Dependency: Refer to: p1110

r1112	CO: Speed setpoint after minimum limiting / n_set aft min_lim		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed setpoint after the minimum limiting.

Dependency: Refer to: p1091, p1092, p1093, p1094, p1101

p1113[0...n]	BI: Setpoint inversion / Setp inv		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2441, 2442, 2505, 3040
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to invert the setpoint.

Dependency: Refer to: r1198

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r1114	**CO: Setpoint after the direction limiting / Setp after limit**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3040, 3050
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed/velocity setpoint after the changeover and limiting the direction.

p1115	**Ramp-function generator selection / RFG selection**		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 3001, 3080
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the ramp-function generator type.

Value:
0: Basic ramp-function generator
1: Extended ramp-function generator

Note: Another ramp-function generator type can only be selected when the motor is at a standstill.

r1119	**CO: Ramp-function generator setpoint at the input / RFG setp at inp**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3050, 3060, 3070, 6300
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the setpoint at the input of the ramp-function generator.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.

p1120[0...n]	**Ramp-function generator ramp-up time / RFG ramp-up time**		
VECTOR_G	**Can be changed:** C2(1), U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3060, 3070
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	999999.000 [s]	10.000 [s]

Description: The ramp-function generator ramps-up the speed setpoint from standstill (setpoint = 0) up to the maximum speed (p1082) in this time.

Dependency: Refer to: p1082, p1138

Note: The ramp-up time can be scaled via connector input p1138.

The parameter is adapted during the rotating measurement (p1960 > 0). This is the reason that during the rotating measurement, the motor can accelerate faster than was originally parameterized.

For U/f control and sensorless vector control (see p1300), a ramp-up time of 0 s is not expedient. The setting should be based on the startup times (r0345) of the motor.

p1121[0...n] Ramp-function generator ramp-down time / RFG ramp-down time

VECTOR_G

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	999999.000 [s]	10.000 [s]

Description: Sets the ramp-down time for the ramp-function generator.

The ramp-function generator ramps-down the speed setpoint from the maximum speed (p1082) down to standstill (setpoint = 0) in this time.

Further, the ramp-down time is always effective for OFF1.

Dependency: Refer to: p1082, p1139

Note: For U/f control and sensorless vector control (see p1300), a ramp-down time of 0 s is not expedient. The setting should be based on the startup times (r0345) of the motor.

p1122[0...n] BI: Bypass ramp-function generator / Bypass RFG

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2505
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For VECTOR in encoderless operation, it is not permissible that the ramp-function generator is bypassed.

p1130[0...n] Ramp-function generator initial rounding-off time / RFG t_start_round

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

Note: Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

p1131[0...n] Ramp-function generator final rounding-off time / RFG t_end_delay

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the final rounding-off time for the extended ramp generator.

The value applies to ramp-up and ramp-down.

Note: Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

p1134[0...n] Ramp-function generator rounding-off type / RFG round-off type

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.

Value:
0: Cont smoothing
1: Discont smoothing

Dependency: No effect up to initial rounding-off time (p1130) > 0 s.

Note: p1134 = 0 (continuous smoothing)

If the setpoint is reduced while ramping-up, initially a final rounding-off is carried out and then the ramp-up completed. During the final rounding-off, the output of the ramp-function generator continues to go in the direction of the previous setpoint (overshoot). After the final rounding-off has been completed, the output goes toward the new setpoint.

p1134 = 1 (discontinuous smoothing)

If the setpoint is reduced while ramping-up, then the output goes immediately in the direction of the new setpoint. For the setpoint change there is no rounding-off.

p1135[0...n] OFF3 ramp-down time / OFF3 t_RD

VECTOR_G

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	600.000 [s]	3.000 [s]

Description: Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.

Note: This time can be exceeded if the DC link voltage reaches its maximum value.

p1136[0...n] OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the initial rounding-off time for OFF3 for the extended ramp generator.

p1137[0...n] OFF3 final rounding-off time / RFG OFF3 t_end_del

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the final rounding-off time for OFF3 for the extended ramp generator.

p1138[0...n] CI: Ramp-function generator ramp-up time scaling / RFG t_RU scal

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for scaling the ramp-up time of the ramp-function generator.

Dependency: Refer to: p1120

Note: The ramp-up time is set in p1120.

p1139[0...n] CI: Ramp-function generator ramp-down time scaling / RFG t_RD scal

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for scaling the ramp-down time of the ramp-function generator.

Dependency: Refer to: p1121

Note: The ramp-down time is set in p1121.

p1140[0...n] BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator".

For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4).

BI: p1140 = 0 signal:

Inhibits the ramp-function generator (the ramp-function generator output is set to zero).

BI: p1140 = 1 signal:

Ramp-function generator enable.

Dependency: Refer to: p1141, p1142

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1141[0...n] BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator".

For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5).

BI: p1141 = 0 signal:

Freezes the ramp-function generator.

BI: p1141 = 1 signal:
Continue ramp-function generator.

Dependency: Refer to: p1140, p1142

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The ramp-function generator is, independent of the state of the signal source, active in the following cases:
- OFF1/OFF3.
- ramp-function generator output within the suppression bandwidth.
- ramp-function generator output below the minimum speed.

p1142[0...n] BI: Enable setpoint/inhibit setpoint / Setpoint enable

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2501
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the command "enable setpoint/inhibit setpoint".
For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6).
BI: p1142 = 0 signal
Inhibits the setpoint (the ramp-function generator input is set to zero).
BI: p1142 = 1 signal
Setpoint enable.

Dependency: Refer to: p1140, p1141

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: When the function module "position control" (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard:
BI: p1142 = 0 signal

p1143[0...n] BI: Ramp-function generator, accept setting value / RFG accept set v

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for accepting the setting value of the ramp-function generator.

Dependency: The signal source for the ramp-function generator setting value is set using parameters.
Refer to: p1144

Note: 0/1 signal:
The ramp-function generator output is immediately (without delay) set to the setting value of the ramp-function generator.
1 signal:
The setting value of the ramp-function generator is effective.
1/0 signal:
The input value of the ramp-function generator is effective. The ramp-function generator output is adapted to the input value using the ramp-up time or the ramp-down time.
0 signal:
The input value of the ramp-function generator is effective.

p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3060, 3070
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the ramp-function generator setting value.

Dependency: The signal source for accepting the setting value is set using parameters.

Refer to: p1143

p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3080
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0	50.0	1.3

Description: Sets the ramp-function generator tracking.

The output value of the ramp-function generator is tracked (corrected) corresponding to the maximum possible drive acceleration.

The reference value is the deviation at the speed/velocity controller input that is necessary to ensure that the motor accelerates at the torque/force limit.

Recommend.: If at least one speed setpoint filter/velocity setpoint filter is activated (p1414), then the ramp-function generator tracking should be deactivated (p1145 = 0.0). When the speed setpoint filter is activated, the output value of the ramp-function generator can no longer be tracked (corrected) corresponding to the maximum possible drive acceleration.

Re p1145 = 0.0:

This value de-activates the ramp-function generator tracking.

Re p1145 = 0.0 ... 1.0:

Generally, these values are not practical. They cause the motor to accelerate below its torque limit. The lower the selected value, the greater the margin between the controller and torque limit when accelerating.

Re p1145 > 1.0:

The greater the value, the higher the permissible deviation between the speed setpoint and speed actual value.

Notice: If ramp-function generator tracking is activated and the ramp time is set too short, this can cause unsteady acceleration.

Remedy:

- switch off ramp-function generator tracking (p1145 = 0).
- increase the ramp-up/ramp-down time (p1120, p1121).

Note: In the U/f mode, ramp-function generator tracking is not active.

For SERVO with U/f operation, the following applies:

The complete ramp-function generator is not active, i.e. ramp-up and ramp-down time = 0.

p1148[0...n]	Ramp-function gen. tolerance for ramp-up and ramp-down active / RFG tol HL/RL act		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 3060, 3070
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [rpm]	1000.000 [rpm]	19.800 [rpm]

Description: Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active).

If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.

Dependency: Refer to: r1199

r1149 CO: Ramp-function generator acceleration / RFG acceleration

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3060, 3070
P-Group: Setpoints	**Units group:** 39_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2007	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rev/s²]	- [rev/s²]	- [rev/s²]

Description: Displays the acceleration of the ramp-function generator.

Dependency: Refer to: p1145

r1150 CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3080
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the setpoint at the output of the ramp-function generator.

p1151[0...n] Ramp-function generator configuration / RFG config

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for the extended ramp-function generator.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Disable rounding-off at the zero cross-over	Yes	No	3070
01	RFG tracking without polarity change	Yes	No	-
02	RFG tracking with polarity change	Yes	No	-

Dependency: Re bit 01, 02 = 1:

These bits are only effective when ramp-function generator tracking is activated (p1145 > 0).

When both bits are activated, RFG tracking with polarity change is active.

Re bit 01 = 0, bit 02 = 0:

When ramp-function generator tracking is active, the setpoint can only change in the direction of the target setpoint – or be frozen.

Notice: Re bit 00 = 1:

If the ramp-up time is longer than the ramp-down time (p1120 > p1121), then there is an acceleration step at the zero crossover. This can have a negative impact on the mechanical system.

Note: Re bit 00 = 1:

When the direction change is changed there is no rounding-off before and after the zero crossover.

Re bit 01 = 1:

For load surges, the ramp-function generator output tracks the actual value. The tracking (correction) ends at a setpoint of zero.

Re bit 02 = 1:

For load surges, the ramp-function generator output tracks the actual value. For a polarity change, the tracking (correction) is continued.

p1152 BI: Setpoint 2 enable / Setp 2 enab

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2711, 4015
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	899.15

Description: Sets the signal source for "setpoint 2 enable".

p1155[0...n] CI: Speed controller speed setpoint 1 / n_ctrl n_set 1

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3080, 5030, 6031
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for speed setpoint 1 of the speed controller.

Dependency: The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6.

Refer to: r0002, p0840, p0844, p0848, p0852, p0854, r0898, p1140, p1142, p1160, r1170, p1189

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1160[0...n] CI: Speed controller speed setpoint 2 / n_ctrl n_set 2

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 3001, 3080
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for speed setpoint 2 of the speed controller.

Dependency: Refer to: p1155, r1170

Note: For OFF1/OFF3, the ramp-function generator ramp is effective.

The ramp-function generator is set (SERVO: to the actual value, VECTOR: To the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).

When the function module "position control" (r0108.3 = 1) is activated, this connector input is interconnected as follows as standard:

CI: p1160 = r2562

r1169 CO: Speed controller speed setpoints 1 and 2 / n_ctrl n_set 1/2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3080
P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).

Dependency: Refer to: p1155, p1160

Note: The value is only correctly displayed at r0899.2 = 1 (operation enabled).

r1170 — CO: Speed controller setpoint sum / n_ctrl setp sum

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 3080, 6300
	P-Group: Setpoints	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the speed setpoint after selecting the ramp-function generator.

The value is the sum of speed setpoint 1 (p1155) and speed setpoint 2 (p1160).

Dependency: Refer to: r1150, p1155, p1160

p1189[0...n] — Speed setpoint configuration / n_ctrl config

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** 3080
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0011 bin

Description: Sets the configuration for the speed setpoint.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Interpolation ramp-fct gen/speed controller active	Yes	No	3080
01	Interpol. op-loop ctrl /speed controller active	Yes	No	3080

Note: Re bit 01:

The interpolator is only effective in following cases:

- isochronous PROFIBUS operation with a sign-of-life received from the master (STW2.12 ... STW2.15).

r1197 — Fixed speed setpoint number actual / n_set_fixed No act

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 3010
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the number of the selected fixed speed/velocity setpoint.

Dependency: Refer to: p1020, p1021, p1022, p1023

Note: If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

r1198.0...15 — CO/BO: Control word setpoint channel / STW setpoint chan

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2505
	P-Group: Setpoints	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and BICO output for the control word of the setpoint channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed setp bit 0	Yes	No	3010
01	Fixed setp bit 1	Yes	No	3010
02	Fixed setp bit 2	Yes	No	3010
03	Fixed setp bit 3	Yes	No	3010
05	Inhibit negative direction	Yes	No	3040

06	Inhibit positive direction	Yes	No	3040
11	Setpoint inversion	Yes	No	3040
13	Motorized potentiometer raise	Yes	No	3020
14	Motorized potentiometer lower	Yes	No	3020
15	Bypass ramp-function generator	Yes	No	3060, 3070

r1199.0...8 CO/BO: Ramp-function generator status word / RFG ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 3001, 3080
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the ramp-function generator (RFG).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ramp-up active	Yes	No	-
01	Ramp-down active	Yes	No	-
02	RFG active	Yes	No	-
03	Ramp-function generator set	Yes	No	-
04	Ramp-function generator held	Yes	No	-
05	Ramp-function generator tracking active	Yes	No	-
06	Maximum limit active	Yes	No	-
07	Ramp-function generator acceleration positive	Yes	No	-
08	Ramp-function generator acceleration negative	Yes	No	-

Note: Re bit 02:

The bit is the result of the OR logic operation - bit 00 and bit 01.

p1200[0...n] Flying restart operating mode / FlyRest op_mode

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	0

Description: Sets the operating mode for flying restart.

The flying restart allows the drive converter to be powered up while the motor is still rotating. In so doing, the drive converter output frequency is changed until the actual motor speed/velocity is found. The motor then accelerates up to the setpoint at the ramp-function generator setting.

Value:

0: Flying restart inactive
1: Flying restart always active (start in setpoint direction)
2: FlyRestart active after on, fault, OFF2 (start in setp. dir.)
3: FlyRestart active after fault, OFF2 (start in setp. direction)
4: Flying restart always active (start only in setpoint direction)
5: FlyRestart active after on, fault, OFF2 (start only in setp_dir)
6: FlyRestart active after fault, OFF2 (start only in setp. dir.)

Dependency: For induction motors, the following applies:

A differentiation is made between flying restart for U/f control and for vector control (p1300).

Flying restart, U/f control: p1202, p1203, r1204

Flying restart, vector control: p1202, p1203, r1205

For synchronous motors, the following applies:

Flying restart is not possible with U/f control or if, in the case of sensorless vector control, a Voltage Sensing Module (VSM) has not been connected and parameterized.

If two VSMs are connected to the Motor Module, then the motor voltage for the flying restart is measured using the second VSM (see p0151[1]).

If only one VSM is connected, then this can be used for the flying restart (p1200) (for induction motors, also see p0247 bit 5). When activating flying restart, line synchronization must be deactivated (p3800 = 0).

Refer to: p1201

Notice: The "flying restart" function must be used in cases where the motor may still be running (e.g. after a brief line supply interruption) or is being driven by the load. The system might otherwise shut down as a result of overcurrent.

It does not make sense to use "flying restart" together with the "motor holding brake function" (p1215 > 0) because then the flying restart will always be realized with the motor stationary.

Note: For p1200 = 1, 4, the following applies:

Flying restart is active after faults, OFF1, OFF2, OFF3.

For p1200 = 2, 5, the following applies:

The "power-on" is the first power-on operation after the drive system has been booted. This is practical for motors with a high-inertia load.

For p1200 = 1, 2, 3, the following applies: The search is made in both directions.

For p1200 = 4, 5, 6, the following applies: The search is only made in the setpoint direction. For a setpoint of zero, a search is not made in the negative direction of rotation.

For operation with encoder, the following applies:

p1200 = 1, 4 as well as p1200 = 2, 5 and p1200 = 3, 6 have the same meaning.

For U/f control (p1300 < 20), the following applies:

The speed can only be sensed for values above approx. 5 % of the rated motor speed. For lower speeds, it is assumed that the motor is at a standstill.

If p1200 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1200 have been changed by a parameter that was set when the drive was commissioned (e.g. p0300).

p1201[0...n] BI: Flying restart enable signal source / Fly_res enab S_src

VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source to enable the "flying restart" function.

Dependency: Refer to: p1200

Note: Withdrawing the enable signal has the same effect as setting p1200 = 0.

p1202[0...n] Flying restart search current / FlyRest I_srch

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10 [%]	400 [%]	100 [%]

Description: Sets the search current for the "flying restart" function.

The value is referred to the motor magnetizing current.

For U/f control, it may be necessary to increase the search current (e.g. 120 %) to ensure reliable flying restart.

Fast flying restart for induction motors with voltage model (see r1780.11):

Sets the initial setpoint for the field-generating current component.

Dependency: Refer to: r0331

Caution: An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

Note: In U/f control mode, the parameter serves as a threshold value for establishing the current at the beginning of the flying restart function. When the threshold value is reached, the prevailing search current is set dependent upon the frequency on the basis of voltage inputs.

Reducing the search current can also improve flying restart performance (if the system moment of inertia is not very high, for example).

p1203[0...n] Flying restart search rate factor / FlyRst v_Srch Fact

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10 [%]	4000 [%]	100 [%]

Description: Sets the factor for the search speed for flying restart.

The value influences the rate at which the output frequency is changed during a flying restart . A higher value results in a longer search time.

Recommend.: For encoderless vector control and motor cables longer than 200 m, set the factor p1203 >= 300 %.

Caution: An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

For vector control, a value that is too low or too high can cause flying restart to become unstable.

Note: The parameter factory setting is selected so that standard induction motors that are rotating can be found and restarted as quickly as possible (fast flying restart).

With this pre-setting, if the motor is not found (e.g. for motors that are accelerated as a result of active loads or with U/f control and low speeds), we recommend that the search rate is reduced (by increasing p1203).

This parameter is not relevant for a fast flying restart with voltage model (see r1780.11).

r1204.0...15 CO/BO: Flying restart U/f control status / FlyRest Uf st

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status for checking and monitoring flying restart states in the U/f control mode.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Current impressed	Yes	No	-
01	No current flow	Yes	No	-
02	Voltage input	Yes	No	-
03	Voltage reduced	Yes	No	-
04	Start ramp-function generator	Yes	No	-
05	Wait for execution	Yes	No	-
06	Slope filter act	Yes	No	-
07	Positive gradient	Yes	No	-
08	Current < thresh	Yes	No	-
09	Current minimum	Yes	No	-
10	Search in the positive direction	Yes	No	-
11	Stop after positive direction	Yes	No	-
12	Stop after negative direction	Yes	No	-
13	No result	Yes	No	-
14	Fast flying restart w/ voltage model for induction motor activ.	Yes	No	-
15	Flying restart with VSM active	Yes	No	-

r1205.0...20 CO/BO: Flying restart vector control status / FlyRest vector st

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the status for checking and monitoring flying restart states in the vector control mode.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Speed adaptation circuit record angle	Yes	No	-
01	Speed adaptation circuit set gain to 0	Yes	No	-
02	Isd channel enable	Yes	No	-
03	Speed control switched out	Yes	No	-
04	Quadrature arm switched in	Yes	No	-
05	Special transformation active	Yes	No	-
06	Speed adaptation circuit set I comp to 0	Yes	No	-
07	Current control on	Yes	No	-
08	Isd_set = 0 A	Yes	No	-
09	Frequency held	Yes	No	-
10	Search in the positive direction	Yes	No	-
11	Search Started	Yes	No	-
12	Current impressed	Yes	No	-
13	Search interrupted	Yes	No	-
14	Speed adaptation circuit deviation = 0	Yes	No	-
15	Speed control activated	Yes	No	-
16	Fast flying restart w/ voltage model for induction motor activ.	Yes	No	-
17	Fast flying restart w/ voltage model for induction motor exited	Yes	No	-
18	Apply VSM voltage to the monitor	Yes	No	-
19	Preassign flux ramp	Yes	No	-
20	Adaptation current controller and speed adapt. controller gain	Yes	No	-

Note: Re bit 00 ... 09:

Used to control internal sequences during the flying restart.

Depending on the motor type (p0300), the number of active bits differs.

Re bits 10 ... 17:

Are used to monitor the flying restart sequence.

p1206[0...9] Faults without automatic restart / F w/out auto AR

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets faults for which automatic restart should not be effective.

Dependency: The setting is only effective for p1210 = 6, 16.

Refer to: p1210

p1207 BI: AR connection following drive object / AR connection DO

B_INF

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Modifies the pre-charging monitoring of the infeed.

The active automatic restart (AR) of the following drive object can be interconnected using this binector input (BI: p1207 = r1214.2).

This means that when the automatic restart is operational, the pre-charging monitoring of the infeed is de-activated and is only re-activated under the following conditions:

- the absolute current in the DC link is greater than 2 % of the maximum current (r0209) of the infeed to provide protection against short-circuit in the DC link.

- if a Voltage Sensing Module (VSM) is being used, the line supply voltage amplitude is greater than 3 % of the parameterized unit supply voltage (p0210) to protect the pre-charging resistors against continuous filter current when the line supply partially returns.

Dependency: Refer to: r0209, p0210, r1214

p1208[0...1] BI: AR modification infeed / AR modification

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to modify the automatic restart (AR).

Interconnections between the automatic restart and infeed:

With the following interconnection in the mode p1210 = 6, the automatic restart can respond to infeed faults:

BI: p1208[0] = r2139.3

With the following interconnection, in the mode p1210 = 4, the automatic restart can respond to line supply failure of the infeed:

BI: p1208[1] = r0863.2

Index: [0] = Infeed fault
[1] = Infeed line supply failure

Dependency: Refer to: r0863, r2139

p1210 Automatic restart mode / AR mode

B_INF

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	0

Description: Sets the automatic restart mode (AR).

Value:
0: Inhibit automatic restart
1: Acknowledge all faults without restarting
6: Restart after fault with additional start attempts

Dependency: The automatic restart requires an active ON command (e.g., via a digital input). If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted.

When using an Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.

Refer to: p0840, p0857, p1267

Danger: If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

For p1210 > 1, the infeed is automatically started.

Note: When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).

Re p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. A minimum time of p1212 + 1 s must expire between a successful fault acknowledgement and a fault re-occurring if the signal ON/OFF1 (STW1.0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgement and a new fault must be at least 1 s. p1211 has no influence on the number of acknowledgment attempts.

Re p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1210	Automatic restart mode / AR mode		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	16	0

Description: Sets the automatic restart mode (AR).

Value:
0: Inhibit automatic restart
1: Acknowledge all faults without restarting
4: Restart after line supply failure w/o additional start attempts
6: Restart after fault with additional start attempts
14: Restart after line supply failure following man. acknowledgment
16: Restart after fault following manual acknowledgment

Recommend.: For brief line supply failures, the motor shaft may still be rotating when restarting. The "flying restart" function (p1200) might need to be activated to restart while the motor shaft is still rotating.

Dependency: The automatic restart requires an active ON command (e.g., via a digital input). If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted.

When using an Operator Panel in the LOCAL mode, then there is no automatic start.

For p1210 = 14, 16, a manual acknowledgement is required for an automatic restart.

Refer to: p0840, p0857, p1267

Danger: If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). When faults are present, therefore, the parameter cannot be changed.

For p1210 > 1, the motor is automatically started.

Note: When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).

Re p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. p1211 has no influence on the number of acknowledgment attempts.

Re p1210 = 4:

An automatic restart is only carried out if fault F30003 occurred at the Motor Module or a 1 signal is present at binector input p1208[1]. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V Control Unit power supply fails, then this is interpreted as a line supply failure.

Re p1210 = 6:

An automatic restart is carried out if any fault has occurred or there is a 1 signal at binector input p1208[0].

Re p1210 = 14:

As for p1210 = 4. However, faults that are present must be manually acknowledged.

Re p1210 = 16:

As for p1210 = 6. However, faults that are present must be manually acknowledged.

p1211	Automatic restart start attempts / AR start attempts		
B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10	3

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6.

Dependency: This parameter setting is active for p1210 = 6.

For p1210 = 4, the parameter only has an influence if, when attempting to start, an additional line phase failure (F06200) occurs.

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Refer to: p1210, r1214

Notice: After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

After a complete power failure the start counter always starts with the counter value that applied before the power failure, and decrements this start attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to power failure, e.g. when the CU remains active on power failure longer than the time p1212 / 2, the fault counter will already have been decremented once. In this case, the start counter is thus decreased by the value 2.

Note: A start attempt starts immediately when a fault occurs. The restart attempt is considered to have been completed if the infeed is powered up and an additional delay time of 1 s has expired.

As long as a fault is present, an acknowledge command is generated in the time intervals of p1212 / 2. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt (i.e. a fault/error has no longer occurred up to the end of the power-up operation) the start counter is again reset to the parameter value after 1 s. If faults re-occur, the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1211 Automatic restart start attempts / AR start attempts

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	10	3

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6.

Dependency: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Refer to: p1210, r1214

Notice: After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

After a complete power failure the start counter always starts with the counter value that applied before the power failure, and decrements this start attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to power failure, e.g. when the CU remains active on power failure longer than the time p1212 / 2, the fault counter will already have been decremented once. In this case, the start counter is thus decreased by the value 2.

Note: A start attempt starts immediately when a fault occurs. The start attempt is considered to been completed if the motor was magnetized (r0056.4 = 1) and an additional delay time of 1 s has expired.

As long as a fault is present, an acknowledge command is generated in the time intervals of p1212 / 2. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt, i.e. a fault/error has no longer occurred up to the end of the magnetizing phase, the start counter is again reset to the parameter value after 1 s. If a fault re-occurs - the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1212	**Automatic restart delay time start attempts / AR t_wait start**		
B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.1 [s]	1000.0 [s]	1.0 [s]

Description: Sets the delay time up to restart.

Dependency: This parameter setting is active for p1210 = 4, 6.

For p1210 = 1, the following applies:

Only automatic acknowledgment of the faults, no restart.

Refer to: p1210, r1214

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Note: The faults are automatically acknowledged and the system is powered up again after half of the delay time has expired and after the full delay time has expired.

p1212	**Automatic restart delay time start attempts / AR t_wait start**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.1 [s]	1000.0 [s]	1.0 [s]

Description: Sets the delay time up to restart.

Dependency: This parameter setting is active for p1210 = 4, 6.

For p1210 = 1, the following applies:

Faults are only automatically acknowledged in half of the waiting time, no restart.

Refer to: p1210, r1214

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Note: The faults are automatically acknowledged after half of the delay time has expired and the full delay time.

If the cause of a fault is not removed in the first half of the delay time, then it is no longer possible to acknowledge in the delay time.

p1213[0...1]	**Automatic restart monitoring time / AR t_monit**		
B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [s]	10000.0 [s]	0.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index: [0] = Restart
[1] = Reset start counter

Dependency: Refer to: p1210, r1214

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

Note: Re index 0:

The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If the drive has not restarted at the end of the monitoring time, fault F07320 is signaled.

The monitoring is de-activated with p1213 = 0. If p1213 is set to a value which is lower than in p1212, fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart.

The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).

Re index 1:

The start counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213[1] has expired. The delay time is not effective for fault acknowledgement without automatic restart (p1210 = 1). After a power failure (blackout) the delay time only starts after the line supply returns and the Control Unit boots. The start counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged.

The start counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

p1213[0...1] Automatic restart monitoring time / AR t_monit

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	10000.0 [s]	0.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index:
[0] = Restart
[1] = Reset start counter

Dependency: Refer to: p1210, r1214

Notice: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

Note: Re index 0:

The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If, after the monitoring time has expired, the drive has still not successfully started again (flying restart and magnetizing of the motor must have been completed: r0056.4 = 1), then fault F07320 is output.

The monitoring is de-activated with p1213 = 0. If p1213 is set lower than the sum of p1212, the magnetizing time p0346 and the additional delay time due to the flying restart, then fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart.

The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).

In the case of p1210 = 14, 16, the faults which are present must be acknowledged manually within the time in p1213[0]. Otherwise, fault F07320 is generated after the set time.

Re index 1:

The start counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213[1] has expired. The delay time is not effective for fault acknowledgement without automatic restart (p1210 = 1). After a power failure (blackout) the delay time only starts after the line supply returns and the Control Unit boots. The start counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged.

The start counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

r1214.0...15 CO/BO: Automatic restart status / AR status

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the automatic restart (AR).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Initialization	Yes	No	-
01	Wait for alarm	Yes	No	-
02	Auto restart act	Yes	No	-
03	Setting the acknowledgement command	Yes	No	-
04	Acknowledge alarms	Yes	No	-
05	Restart	Yes	No	-

06	Delay time running after automatic power-up	Yes	No	-
07	Fault	Yes	No	-
10	Effective fault	Yes	No	-
12	Start count. bit 0	ON	OFF	-
13	Start count. bit 1	ON	OFF	-
14	Start count. bit 2	ON	OFF	-
15	Start count. bit 3	ON	OFF	-

Note:

Re bit 00:

State to display the single initialization after POWER ON.

Re bit 01:

State in which the automatic restart function waits for faults (initial state).

Re bit 02:

General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re bit 03:

Displays the acknowledge command within the "acknowledge alarms" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:

State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:

State in which the drive is automatically powered up (only for p1210 = 4, 6).

Re bit 06:

State in which the system waits after having been powered up, to the end of the start attempt.

For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

Re bit 07:

State which is assumed after a fault occurs within the automatic restart function.

Re bits 12 ... 15:

Actual state of the start counter (binary coded).

r1214.0...15 CO/BO: Automatic restart status / AR status

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the automatic restart (AR).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Initialization	Yes	No	-
01	Wait for alarm	Yes	No	-
02	Auto restart act	Yes	No	-
03	Setting the acknowledgement command	Yes	No	-
04	Acknowledge alarms	Yes	No	-
05	Restart	Yes	No	-
06	Delay time running after automatic power-up	Yes	No	-
07	Fault	Yes	No	-
10	Effective fault	Yes	No	-
12	Start count. bit 0	ON	OFF	-
13	Start count. bit 1	ON	OFF	-
14	Start count. bit 2	ON	OFF	-
15	Start count. bit 3	ON	OFF	-

Note:

Re bit 00:

State to display the single initialization after POWER ON.

Re bit 01:

State in which the automatic restart function waits for faults (initial state).

Re bit 02:

General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re bit 03:

Displays the acknowledge command within the "acknowledge alarms" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:

State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:

State in which the drive is automatically powered up (only for p1210 = 4, 6).

Re bit 06:

State in which the system waits after having been powered up, to the end of the start attempt (to the end of the magnetizing process).

For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

Re bit 07:

State which is assumed after a fault occurs within the automatic restart function. This is only reset after acknowledging the fault and withdrawing the power-on command.

Re bit 10:

When the automatic restart function is active, r1214.7 is displayed, otherwise the active fault r2139.3.

Re bits 12 ... 15:

Actual state of the start counter (binary coded).

p1215 Motor holding brake configuration / Brake config

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2701, 2707, 2711
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the holding brake configuration.

Value:
0: No motor holding brake available
1: Motor holding brake acc. to sequence control
2: Motor holding brake always open
3: Motor holding brake like sequence control connection via BICO

Dependency: Refer to: p1216, p1217, p1226, p1227, p1228, p1278

Caution: For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.

Notice: If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are suppressed, the brake is closed even if the motor is still rotating. Pulse suppression can either be caused by a 0 signal at p0844, p0845 or p0852 or as a result of a fault with OFF2 response. If this is not desirable (e.g. for a flying restart), then the brake can be kept open using a 1 signal at p0855.

Note: If the configuration is set to "no holding brake present" when booting, then the motor holding brake will be automatically identified. If a motor holding brake is detected, the configuration is set to "motor holding brake as for sequence control".

If a motor holding brake is used via the brake connection of the Motor Module integrated in the drive, then it is not permissible that p1215 is set to 3.

if an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

When the function module "extended brake control" is activated (r0108.14 = 1), r1229.1 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = 1, p9802 = 1) is not practical if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

p1216 Motor holding brake opening time / Brake t_open

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2701, 2711
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	10000 [ms]	100 [ms]

Description: Sets the time to open the motor holding brake.

After controlling the holding brake (opens), the speed/velocity setpoint remains at zero for this time. After this, the speed/velocity setpoint is enabled.

Recommend.: This time should be set longer than the actual opening time of the brake. This ensures that the drive cannot accelerate when the brake is applied.

Dependency: Refer to: p1215, p1217

Note: For a motor with DRIVE-CLiQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.

For p1216 = 0 ms, the monitoring and the message A07931 "Brake does not open" are deactivated.

p1217 Motor holding brake closing time / Brake t_close

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2701, 2711
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	10000 [ms]	100 [ms]

Description: Sets the time to apply the motor holding brake.

After OFF1 or OFF3 and the holding brake is controlled (the brake closes), then the drive remains closed-loop controlled for this time stationary with a speed setpoint/velocity setpoint of zero. The pulses are suppressed when the time expires.

Recommend.: This time should be set longer than the actual closing time of the brake. This ensures that the pulses are only suppressed after the brake has closed.

Dependency: Refer to: p1215, p1216

Notice: If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag.

If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.

Note: For a motor with DRIVE-CLiQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.

For p1217 = 0 ms, the monitoring and the message A07932 "Brake does not close" are deactivated.

p1218[0...1] BI: Open motor holding brake / Open brake

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2707
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for a conditional opening of the motor holding brake.

Dependency: Refer to: p1215

Note: [0]: Signal, open brake, AND logic operation, input 1

[1]: Signal, open brake, AND logic operation, input 2

p1219[0...3]	BI: Immediately close motor holding brake / Close brake		
VECTOR_G (Ext brake)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2707
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	[0] 0 [1] 0 [2] 0 [3] 1229.9

Description: Sets the signal source for an unconditional (immediate) closing of the motor holding brake.

Dependency: Refer to: p1215, p1275

Note: [0]: Signal, immediately close brake, inversion via p1275.0
[1]: Signal, immediately close brake, inversion via p1275.1
[2]: Signal, immediately close brake
[3]: Signal, immediately close brake - refer to the factory setting
These four signals form an OR logic operation.

p1220	CI: Open motor holding brake signal source threshold / Open brake thresh		
VECTOR_G (Ext brake)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2707
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the command "open brake".

Dependency: Refer to: p1215, p1221, r1229, p1277

p1221	Open motor holding brake threshold / Open brake thresh		
VECTOR_G (Ext brake)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2707
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the threshold value for the command "open brake".

Dependency: Refer to: p1220, r1229, p1277

p1222	BI: Motor holding brake feedback signal brake closed / Brake feedb closed		
VECTOR_G (Ext brake)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2711
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the feedback signal "brake closed".
For motor holding brakes with feedback signal, the signal "brake closed" can be activated using p1275.5 = 1.

Dependency: Refer to: p1223, p1275

Note: 1 signal: Brake closed.

When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1223).

For r1229.5 = 1, OFF1/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.

p1223 BI: Motor holding brake feedback signal brake open / Brake feedb open

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2711
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the feedback signal "brake open".

For motor holding brakes with feedback signal, the signal "brake open" can be activated using p1275.5 = 1.

Dependency: Refer to: p1222, p1275

Note: 1 signal: Brake open.

When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1222).

p1224[0...3] BI: Close motor holding brake at standstill / Brk close standst

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2704
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for close brake at standstill.

Dependency: Refer to: p1275

Note: [0]: Signal, close brake at standstill, inversion via p1275.2

[1]: Signal, close brake at standstill, inversion via p1275.3

[2]: Signal, close brake at standstill

[3]: Signal, close brake at standstill

These four signals form an OR logic operation.

p1225 CI: Standstill detection threshold value / Standstill thresh

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2704
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	63[0]

Description: Sets the signal source "threshold value" for the standstill identification.

Dependency: Refer to: p1226, p1228, r1229

p1226[0...n] Threshold for zero speed detection / n_standst n_thresh

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 2701, 2704
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	20.00 [rpm]

Description: Sets the speed threshold for the standstill identification.

Acts on the actual value and setpoint monitoring.

When braking with OFF1 or OFF3, when the threshold is undershot, standstill is identified.

The following applies when the brake control is activated:

When the threshold is undershot, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then suppressed.

if the brake control is not activated, the following applies:

When the threshold is undershot, the pulses are suppressed and the drive coasts down.

Dependency: Refer to: p1215, p1216, p1217, p1227

Notice: For reasons relating to the compatibility to earlier firmware versions, a parameter value of zero in indices 1 to 31 is overwritten with the parameter value in index 0 when the Control Unit boots.

Note: Standstill is identified in the following cases:

- the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired.
- the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired.

The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.

p1227 Zero speed detection monitoring time / n_standst t_monit

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2701, 2704
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	4.000 [s]

Description: Sets the monitoring time for the standstill identification.

When braking with OFF1 or OFF3, standstill is identified after this time has expired, after the setpoint speed has fallen below p1226 (also refer to p1145).

After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are suppressed.

Dependency: Refer to: p1215, p1216, p1217, p1226

Notice: For p1145 > 0.0 (RFG tracking) the setpoint is not equal to zero dependent on the selected value. This can therefore cause the monitoring time in p1227 to be exceeded. In this case, for a driven motor, the pulses are not suppressed.

Note: Standstill is identified in the following cases:

- the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired.
- the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired.

For p1227 = 300.000 s, the following applies:

Monitoring is de-activated.

For p1227 = 0.000 s, the following applies:

With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately suppressed and the motor "coasts" down.

p1228 Pulse suppression delay time / Pulse suppr t_del

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2701, 2704
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	299.000 [s]	0.000 [s]

Description: Sets the delay time for pulse suppression.

After OFF1 or OFF3, the pulses are canceled, if at least one of the following conditions is fulfilled:

- the speed actual value falls below the threshold in p1226 and the time started after this in p1228 has expired.
- the speed setpoint falls below the threshold in p1226 and the time started after this in p1227 has expired.

Dependency: Refer to: p1226, p1227

Notice: When the motor holding brake is activated, pulse cancellation is additionally delayed by the brake closing time (p1217).

r1229.1...11 CO/BO: Motor holding brake status word / Brake ZSW

VECTOR_G (Ext brake)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the motor holding brake.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Command open brake (continuous signal)	Yes	No	2711
03	Pulse enable extended brake control	Yes	No	2711
04	Brake does not open	Yes	No	2711
05	Brake does not close	Yes	No	2711
06	Brake threshold exceeded	Yes	No	2707
07	Brake threshold undershot	Yes	No	2704
08	Brake monitoring time expired	Yes	No	2704
09	Pulse enable request missing/n_ctrl inhibited	Yes	No	2707
10	Brake OR logic operation result	Yes	No	2707
11	Brake AND logic operation result	Yes	No	2707

p1230[0...n] BI: Armature short-circuit / DC braking activation / ASC/DCBRK act

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7014, 7016, 7017
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to activate the armature short-circuit or DC braking.

Dependency: Refer to: p1231, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346

Note: 1 signal: Armature short-circuit/DC braking activated.

0 signal: Armature short-circuit/DC braking de-activated.

p1231[0...n] Armature short-circuit / DC braking configuration / ASC/DCBRK config

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 7014, 7016, 7017
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	14	0

Description: Setting to activate the various types for armature short-circuit / DC braking.

Value:
0: No function
1: External armature short-circuit with contactor feedback signal
2: Ext. armature short circuit without contactor feedback signal
3: Internal voltage protection
4: Internal armature short-circuit / DC braking
5: DC braking for OFF1/OFF3
14: DC braking below starting speed

Dependency: Refer to: p0300, p1230, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346

Danger: ⚠

Re p1231 = 1, 2:

- only short-circuit-proof motors may be used, or suitable resistors must be used to short-circuit the motor

Re p1231 = 3:

- when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!

- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).

- The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209).

- the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.

- if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.

- if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.

- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).

Re p1231 = 4 and synchronous motor:

- when armature short-circuit is active, all of the motor terminals are at half of the DC link potential.

- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).

- The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209).

Note:

Re p1231 = 1, 2:

The external armature short circuit can only be selected for synchronous motors (p0300). In this case, control bit BO: r1239.0 must be interconnected (e.g. to a digital input) to control the external contactor.

The external armature short circuit cannot be set as a fault response. It can be triggered via binector input p1230. It is also always activated in the case of pulse suppression.

Re p1231 = 3:

Internal voltage protection (using an internal armature short circuit) can only be selected for synchronous motors (p0300) and Motor Modules in booksize or chassis format. Further, it is not permissible for Safety Integrated to be active on blocksize Motor Modules (i.e. p9501 = 0 and p9601 = 0). The internal voltage protection prevents the DC link capacitance from being charged if there is no possibility of regenerating the EMF of a motor operated in the field-weakening mode. The Motor Module must support this function (r0192.9 = 1).

a) If the Motor Module does not support the autonomous, internal armature short-circuit (r0192.10 = 0), the armature short-circuit is activated as soon as the activation criterion is fulfilled (refer below):

b) If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module itself decides - using the DC link voltage - as to whether the short-circuit should be activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn. This therefore ensures that the required input voltage for the Control Supply Module is maintained.

For chassis units, the following applies:

The value for the voltage limits is calculated, depending on the voltage class, from EEPROM data of the particular power unit and a factor.

Re p1231 = 4:

The function is activated as soon as the activation criterion is fulfilled.

- the function can be superseded by OFF2

a) For synchronous motors (p0300 = 2xx, 4xx), the internal armature short-circuit is initiated.

- the Motor Module must support this function (r0192.9 = 1).

b) For induction motors (p0300 = 1xx), the DC braking is initiated.

Activation criterion (one of the following criteria is fulfilled):

- binector input p1230 = 1 signal (DC braking activation).

- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).

- the internal pulse enable is missing (r0046.19 = 0).

Re p1231 = 5:

DC braking can only be set for induction motors.

DC braking is activated if the OFF1 or OFF3 command is present. Binector input p1230 is ineffective. If the drive speed still lies above the speed threshold p1234, then initially, the drive is ramped-down to this threshold, demagnetized (see p0347) and is then switched into DC braking for the time set in p1233. After this, the drive is switched-off. If, at OFF1/OFF3, the drive speed is below p1234, then it is immediately demagnetized and switched into DC braking. A change is made into normal operation if the OFF1 command is withdrawn prematurely.

DC braking by means of fault response continues to be possible.

Re p1231 = 14:

DC braking can only be set for induction motors.

DC braking is initiated if binector input p1230 = 1 during operation and the actual speed is below the starting speed p1234 (before this, the drive must have operated above p1234 plus the hysteresis). Then, following upstream demagnetization (see p0347), the braking current p1232 is injected for the time set in p1233. The drive then changes into normal operation. During braking the command for DC braking can be withdrawn. If the time p1233 is exceeded, then DC braking is inhibited and the drive changes into normal operation.

For OFF1 and OFF3, DC braking is only executed, if binector input p1230 = 1 signal.

DC braking by means of fault response continues to be possible.

For operation with an encoder, the encoder signal may not exceed a ripple of 15 rpm in the range of p1234.

Re p1231 = 3, 4, 5, 14:

The value can only be changed to values not equal to 3, 4, 5 or 14 if p0491 is not equal to 4 and p2101 is not equal to 6 (armature short-circuit/DC braking not set).

Note:

ASC: Armature Short Circuit

CSM: Control Supply Module

DCBRK: DC Braking

IVP: Internal Voltage Protection

UPS: Uninterruptible Power Supply

p1232[0...n] DC braking braking current / DCBRK I_brake

VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 7017
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the braking current for DC braking.

Dependency: Refer to: p1230, p1231, p1233, p1234, r1239, p1345, p1346

Note: A change to the braking current becomes effective the next time that DC braking is switched on.

The value for p1232 is specified as an rms value in the 3-phase system. The magnitude of the braking current is the same as that of an identical output current at frequency zero (see r0067, r0068, p0640). The braking current is internally limited to r0067.

For the current controller, the settings of parameters p1345 and p1346 (I_max limiting controller) are used.

p1233[0...n] DC braking time / DCBRK time

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 7017
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [s]	3600.0 [s]	1.0 [s]

Description: Sets the DC braking time (as fault response).

Dependency: Refer to: p1230, p1231, p1232, p1234, r1239

Note: The time set is also effective when parameterizing DC braking as fault response.

If a speed encoder is being used, DC braking is ended as soon as the drive falls below the standstill threshold (p1226).

p1234[0...n]	Speed at the start of DC braking / DCBRK n_start		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 7017
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	40000.00 [rpm]

Description: Sets the starting speed for DC braking.

If the actual speed falls below this threshold, then DC braking is activated.

Dependency: Refer to: p1230, p1231, p1232, p1233, r1239

Notice: If an encoder fault occurs during closed-loop operation with an encoder, controlled deceleration of the drive down to the start speed p1234 is no longer possible. In this case, DC braking is activated immediately and injects the braking current p1232 for the braking time p1233 after de-magnetizing. The braking current and braking duration must, therefore, be dimensioned accordingly for this situation so that the drive can be decelerated to standstill.

In the case of operation with an encoder, this speed may not be set too low so as ensure that the oscillation movement induced by the residual flux/remanence of the motor does not cause DC braking to be de-activated again.

Note: Function p1231 = 14 is activated at 15 1/min higher than the value set in p1234. This hysteresis is required to prevent DC braking from being deactivated for speed encoder signals with ripple.

p1235[0...n]	BI: External armature short-circuit contactor feedback signal / ASC ext feedback		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the contactor feedback signal for external armature short-circuit.

Dependency: Refer to: p1230, p1231, p1236, p1237, r1239

Notice: In order that the pulses are not enabled when the contactor is closed, the contactor feedback signal must lag by a sufficiently long time when opening the contactor.

Note: 1 signal: The contactor is closed.

0 signal: The contactor is open.

p1236[0...n]	Ext. armature short-cct. contactor feedback signal monit. time / ASC ext t_monit		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	200 [ms]

Description: Sets the monitoring time of the contactor feedback signal for the external armature short-circuit configuration.

If the contactor feedback signal (p1235) is parameterized, then the appropriate feedback signal (r1239.1) is expected within this monitoring time after either opening or closing the contactor.

Dependency: Refer to: p1230, p1231, p1235, p1237, r1239

p1237[0...n]	External armature short-circuit delay time when opening / ASC ext t_wait		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	200 [ms]

Description: Sets the delay time when opening the contactor of the external armature short-circuit.

If no contactor feedback signal has been selected (p1235), then the system waits for this time before the pulses are switched in.

Dependency: Refer to: p1230, p1231, p1235, p1236, r1239

Notice: This delay time must be at least long enough so that the contactor contacts reliably open before the pulses are switched in. The delay time must be greater than the contactor response time. The Motor Module can be damaged if the delay time is too short.

r1238 CO: Armature short-circuit external state / EASC state

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2610
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: ASM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	-

Description: Displays the state for the external armature short-circuit.

Value:
0: Switched off
1: Ready
2: Active
3: Active - feedback signal "Closed" OK
4: Active - feedback signal "Closed" missing
5: Prompt to remove the armature short-circuit
6: Active - feedback signal "Open" missing

Dependency: Refer to: p1230, p1231, p1235, p1236, p1237, r1239

Note: Activation criterion (one of the following criteria is fulfilled):

- the signal at BI: p1230 (armature short-circuit activation) is 0.

- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).

- the internal pulse enable is missing (r0046.19 = 0).

Re state "switched out" (r1238 = 0):

- the external armature short-circuit can be selected with p1231 = 1.

Re state "ready" (r1238 = 1):

- as soon as the activation criterion is fulfilled, then a transition is made into the state "active" (r1238 = 2).

Regarding the state "active" (r1238 = 2), "active - feedback signal "Closed" OK" (r1238 = 3)", "active - feedback signal "Closed" missing" (r1238 = 4)":

- the control signal to close contactor r1239.0 is set to "1" (closed) and the pulses are suppressed.

- if a contactor feedback signal is not connected (BI: p1235 = 0 signal), then a transition is immediately made into state 3.

- if a contactor feedback signal is connected, then a transition is made into state 3 if the feedback signal at BI: p1235 goes to "1" (closed) within the monitoring time (p1236).

- otherwise, a transition is made into state 4.

Re state "prompt to remove the armature short-circuit" (r1238 = 5):

- the activation criterion is no longer fulfilled. An attempt is made to again remove the armature short circuit.

- the control signal to close the contactor r1239.0 is set to "0" (open) and the pulses remain suppressed.

- if a contactor feedback signal is not connected (BI: p1235 = 0 signal), the system waits for the delay time (p1237) to expire until a transition is made into state 1.

- if a contactor feedback signal is connected, the system waits until the feedback signal at BI:p1235 goes to "0" (open) until a transition is made into state 1. If this does not occur within the monitoring time (p1236), then a transition is made into state 6.

Re state "active - feedback signal "Open" missing" (r1238 = 6):

- this error state can be exited by de-selecting the external armature short-circuit (p1231 = 0).

r1239.0...13 CO/BO: Armature short-circuit / DC braking status word / ASC/DCBRK ZSW

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the status word for armature short-circuit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	External armature short-circuit	Active	Inactive	-
01	External armature short-circuit contactor feedback signal	Closed	Open	-
02	External armature short-circuit ready	Yes	No	-
03	External armature short-circuit with contactor feedback signal	Yes	No	-
04	Internal armature short-circuit	Active	Inactive	-
05	Internal armature short circuit feedback signal from power unit	Active	Inactive	-
06	Internal armature short-circuit ready	Yes	No	-
08	DC braking active	Yes	No	7017
09	DC current injection active	Yes	No	-
10	DC braking ready	Yes	No	7017
11	Armature short circuit/DC braking selected	Yes	No	-
12	DC braking selection internally inhibited	Yes	No	-
13	DC braking for OFF1/OFF3	Yes	No	-

Dependency: Refer to: p1230, p1231, p1232, p1233, p1234, p1235, p1236, p1237

Note: External armature short-circuit (bits 0 ... 3):

Re bit 00:

Using this signal, the motor is short-circuited through an external contactor circuit. This means that this BO: p1239.0 must be interconnected e.g. to a digital output.

Re bit 01:

This signal indicates the state of the contactor to establish the armature short-circuit. To do this, BI: p1235 must be interconnected to a digital input.

Re bit 02:

The external armature short-circuit configuration is ready and is activated as soon as the activation criterion is fulfilled.

Re bit 03:

1: A feedback signal from an external contactor was parameterized in BI: p1235.

Internal voltage protection / internal armature short-circuit (bits 4 ... 6):

Re bit 04:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The Motor Module decides autonomously whether the armature short-circuit is activated. In this case, the following applies: r1239.4 = r1239.5.

c) Internal armature short-circuit (p1231 = 4) was selected.

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

Re bit 05:

The Motor Module signals that the motor is short-circuited in the Motor Module through the power semiconductors.

Re bit 06:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The internal voltage protection is ready and is activated as soon as the activation criterion is fulfilled.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The internal voltage protection is ready and the Motor Module decides autonomously - using the DC link voltage - whether the short-circuit is activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short-circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn.

c) Internal armature short-circuit (p1231 = 4) was selected.

The internal armature short-circuit is ready and is activated as soon as the activation criterion is fulfilled.

Activation criterion (one of the following criteria is fulfilled):

- the signal at BI: p1230 (armature short-circuit activation) is 1.

- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).

- the internal pulse enable is missing (r0046.19 = 0).

Re bit 12, 13:

Only effective for p1231 = 14.

p1240[0...n] Vdc controller or Vdc monitoring configuration / Vdc ctrl config

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	6	1

Description: Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode.

Value:
0: Inhib Vdc ctrl
1: Enable Vdc_max controller
2: Enable Vdc_min controller (kinetic buffering)
3: Enable Vdc_min controller and Vdc_max controller
4: Activate Vdc_max monitoring
5: Activate Vdc_min monitoring
6: Activate Vdc_min monitoring and Vdc_max monitoring

Dependency: Refer to: p1245

Warning: When the Vdc_max controller is active, the motor can be accelerated (e.g. by driving loads or as a result of high DC link voltages). This can be caused by other drives that are operating on a common DC link busbar.

Caution: If several drives are operated from the same DC link busbar, then it is recommended that the Udc control is only activated for the drives with high moments of inertia. If the Udc controls for various drives are simultaneously active, then they can mutually influence one another. In this case, the controller dynamic performance should be reduced or the Udc control of individual drives should be deactivated.

Drives with Udc control must be able to brake and accelerate independently of one another.

Notice: An excessively high value in p1245 can possibly negatively influence the normal operation of the drive.

Note: p1240 = 1, 3:

When the DC link voltage limit specified for the Motor Module is reached the following applies:

- the Vdc_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking.

- the ramp-down times are automatically increased.

p1240 = 2, 3:

When the switch-in threshold of the Vdc_min controller is reached (p1245), the following applies:

- the Vdc_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating.

- the motor is braked in order to use its kinetic energy to buffer the DC link.

p1240 = 4, 5, 6:

When the threshold in r1242 or r1246 is reached, the DC link voltage monitoring initiates a fault (F07403 or F07404) with a response and therefore reduces additional negative effects on the DC link voltage.

If a braking resistor is connected to the DC link, then the Vdc_max control should be disabled (also see p1531).

r1242 Vdc_max controller switch-in level / Vdc_max on_level

VECTOR_G (n/M)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the switch-in level for the Vdc_max controller.

If p1254 = 0 (automatic sensing of the switch-in level = off), then the following applies:

AC/AC device: r1242 = 1.15 * sqrt(2) * p0210

DC/AC device: r1242 = 1.15 * p0210

If p1254 = 1 (automatic sensing of the switch-in level = on), then the following applies:

r1242 = Vdc_max - 50.0 V (Vdc_max: Overvoltage threshold of the power unit)

r1242 = Vdc_max - 25.0 V (for 230 V power units)

Notice: If the activation level of the Vdc_max controller is already exceeded in the deactivated state (pulse inhibit) by the DC link voltage, then the controller can be automatically deactivated (see F07401), so that the drive is not accelerated the next time that it is activated.

Note: The Vdc_max controller is not switched back off until the DC-link voltage falls below the threshold 0.95 * r1242 and the controller output is zero.

p1243[0...n] Vdc_max controller dynamic factor / Vdc_max dyn_factor

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1 [%]	10000 [%]	100 [%]

Description: Sets the dynamic factor for the DC link voltage controller (Vdc_max controller).

100% means that p1250, p1251, and p1252 (gain, integral time, and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.

If subsequent optimization is required, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1243.

If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.

Note: The pre-setting of the dynamic factor is based on the power units connected to DRIVE-CLiQ. It is assumed that the power units connected via DRIVE-CLiQ are also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.

p1245[0...n] Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	65 [%]	150 [%]	76 [%]

Description: Sets the switch-in level for the Vdc-min controller (kinetic buffering).

The value is obtained as follows:

AC/AC device: r1246[V] = p1245[%] * sqrt(2) * p0210

DC/AC device: r1246[V] = p1245[%] * p0210

Dependency: Refer to: p0210

Warning: An excessively high value may adversely affect normal drive operation.

The values up to 150 % are intended for operating modes p1240 = 5, 6.

Note: For SINAMICS GM/SM, the following applies:
Minimum value = 0.75, Maximum value = 0.90

r1246 Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level

VECTOR_G (n/M)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the switch-in level for the Vdc_min controller (kinetic buffering).

Note: The Vdc_min controller is not switched back off until the DC-link voltage rises above the threshold 1.05 * p1246 and the controller output is zero.

p1247[0...n] Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1 [%]	10000 [%]	100 [%]

Description: Sets the dynamic factor for the Vdc_min controller (kinetic buffering).

100% means that p1250, p1251, and p1252 (gain, integral time, and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.

If subsequent optimization is required, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1247.

If several components are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the component involved.

p1249[0...n] Vdc_max controller speed threshold / Vdc_max n_thresh

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	10.00 [rpm]

Description: Sets the lower speed threshold for the Vdc_max controller.

When this speed threshold is undershot, the Vdc_max control is switched out and the speed is controlled using the ramp-function generator.

Note: For fast braking where the ramp-function generator tracking was active, it is possible to prevent the drive rotating in the opposite direction by increasing the speed threshold and setting a final rounding-off time in the ramp-function generator (p1131). This is supported using a dynamic setting of the speed controller.

p1250[0...n] Vdc controller proportional gain / Vdc_ctrl Kp

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00	100.00	1.00

Description: Sets the proportional gain for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).

Dependency: The effective proportional gain is obtained taking into account p1243 (Vdc_max controller dynamic factor).

Note: The gain factor is proportional to the capacitance of the DC link. The parameter is pre-set to a value that is optimally adapted to the capacitance of the individual Motor Module. The capacitances of the other power units, which are connected to the DC link, can be taken into account using the dynamic factor (p1247 or p1243).

p1251[0...n] Vdc controller integral time / Vdc_ctrl Tn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6220
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the integral time for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).

Dependency: The effective integral time is obtained taking into account p1243 (Vdc_max controller dynamic factor).

Note: An integral time is normally not required for single axis drives. For multi-axis drives on the other hand, it may be possible to compensate for interference from other axes using the integral time (integral component) .

p1251 = 0: The integral component is de-activated.

p1252[0...n] Vdc controller rate time / Vdc_ctrl t_rate

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6220
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the rate time constant for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).

Dependency: The effective rate time is obtained taking into account p1243 (Vdc_max controller dynamic factor).

p1254 Vdc_max controller automatic ON level detection / Vdc_max SenseOnLev

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.

Value:
0: Automatic detection inhibited
1: Automatic detection enabled

p1255[0...n] Vdc_min controller time threshold / Vdc_min t_thresh

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	10000.000 [s]	0.000 [s]

Description: Sets the time threshold for the Vdc_min controller (kinetic buffering).

If this value is exceeded a fault is output; the required response can be parameterized.

Prerequisite: p1256 = 1

Notice: If a time threshold has been parameterized, the Vdc_max controller should also be activated (p1240 = 3) so that the drive does not shut down with overvoltage when Vdc_min control is exited (due to the time violation) and in the event of fault response OFF3. It is also possible to increase the OFF3 ramp-down time p1135.

p1256[0...n]	Vdc_min controller response (kinetic buffering) / Vdc_min response		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the response for the Vdc_min controller (kinetic buffering).

Value:
0: Buffer Vdc until undervoltage, n<p1257 -> F07405
1: Buff. Vdc until undervolt., n<p1257 -> F07405, t>p1255 -> F07406

p1257[0...n]	Vdc_min controller speed threshold / Vdc_min n_thresh		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	50.00 [rpm]

Description: Sets the speed threshold for the Vdc-min controller (kinetic buffering).

If this value is exceeded a fault is output; the required response can be parameterized .

Kinetic buffering is not started below the speed threshold.

Note: Exiting the Vdc_min control before reaching motor standstill prevents the regenerative braking current from increasing significantly at low speeds, and after a pulse inhibit, means that the motor coasts down.

However, the maximum braking torque can be set via the appropriate torque limiting.

r1258	CO: Vdc controller output / Vdc_ctrl output		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6220
	P-Group: Functions	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the actual output of the Vdc controller (DC link voltage controller)

Note: The regenerative power limit p1531 is used for vector control to pre-control the Vdc_max controller. The lower the power limit is set, the lower the correction signals of the controller when the voltage limit is reached.

p1260	Bypass configuration / Bypass config		
VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	3	0

Description: Sets the configuration for the bypass function.

Value:
0: Bypass de-activated
1: Bypass with synchronization and overlap
2: Bypass with synchronization without overlap
3: Bypass without synchronization

Note: If the bypass function is selected ((p1260 > 0), then when the power unit restarts after POWER OFF, the state of the bypass switch is evaluated. This means that after the ramp-up, it is possible to directly change into the standby mode. This is only possible for p1267 = 1 (bypass using the control signal) and if the control command after the system has been booted is still available (p1266). This function has a higher priority than the automatic restart function (p1210).

The "bypass" function can only be switched off again (p1260 = 0) if the bypass is not active or the bypass function has a fault.

The corresponding function should be activated in p3800 for bypass with synchronization.

r1261.0...11 CO/BO: Bypass control/status word / Bypass STW / ZSW

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Control and feedback signals of the bypass switch.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Command switch motor - power unit	Close	Open	-
01	Command switch motor - line supply	Close	Open	-
02	Synchronization requested	Yes	No	-
03	Staging status	Active	Not active	-
05	Feedback signal switch motor - power unit	Closed	Opened	-
06	Feedback signal switch motor - line supply	Closed	Opened	-
07	Bypass command (from p1266)	Yes	No	-
08	Feedback signal synchronization completed (from p1268)	Yes	No	-
09	Staging requested (from p2369)	Yes	No	-
10	Bypass in process sequence	Yes	No	-
11	Bypass enabled	Yes	No	-

Dependency: Refer to: p2369

Note: Control bits 0 and 1 should be interconnected to the signal outputs via which the switches in the motor feeder cables should be controlled. These should be selected/dimensioned for switching under load.

p1262[0...n] Bypass dead time / Bypass t_dead

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	20.000 [s]	1.000 [s]

Description: Sets the dead time for non-synchronized bypass.

Note: This parameter is used to define the changeover time of the contactors. It should not be shorter than the de-magnetizing time of the motor (p0347).

The total changeover time for the bypass is based on the total of p1262 plus the OFF time for the relevant switch (p1274[x]).

p1263 Debypass delay time / Debypass t_del

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	1.000 [s]

Description: Sets the delay time to switch back to converter operation for a non-synchronized bypass.

p1264 Bypass delay time / Bypass t_del

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	1.000 [s]

Description: Sets the delay time for switching to line operation for a non-synchronized bypass.

p1265 Bypass speed threshold / Bypass n_thresh

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	1480.00 [rpm]

Description: Sets the speed threshold to activate the bypass.

Note: When selecting p1260 = 3 and p1267.1 = 1, the bypass is automatically activated when this speed is reached.

p1266 BI: Bypass control command / Bypass command

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the control command to the bypass.

p1267 Bypass changeover source configuration / Chngov_src config

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the cause that should initiate the bypass.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bypass via signal (BI: p1266)	Yes	No	-
01	Bypass via reaching the speed threshold	Yes	No	-

Note: The parameter only has an effect for a non-synchronized bypass.

p1267.0 = 1:

The bypass is initiated by setting a binary signal. When the command is reset, after the debypass delay time (p1263) has expired, operation at the power unit is re-selected.

p1267.1 = 1:

When the speed threshold entered in p1265 is reached, the bypass is switched in. The system only switches back when the speed setpoint again falls below the threshold value.

p1268 — BI: Bypass feedback synchronization completed / FS sync compl

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	3819.2

Description: Sets the signal source for the feedback signal "synchronization completed" for the bypass function.

Dependency: Refer to: r3819

p1269[0...1] — BI: Bypass switch feedback signal / Bypass FS

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the feedback signal of the bypass switch.

Index:
[0] = Switch motor/drive
[1] = Switch motor/line supply

Note: In the case of switches without a feedback signal, interconnect the corresponding control bit as the signal source:

BI: p1269[0] = r1261.0

BI: p1269[1] = r1261.1

p1271[0...n] — Flying restart maximum frequency for the inhibited direction / FlyRes f_max dir

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [Hz]	650 [Hz]	0 [Hz]

Description: Sets the maximum search frequency for a flying restart in an inhibited setpoint direction (p1110, p1111).

Note: The parameter has no effect for an operating mode, which only searches in the setpoint direction (p1200 > 3).

p1272 — Simulation mode / Simulation mode

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: In the simulation mode, the closed-loop control or U/f control can be operated without motor.

The simulation mode is used to test the power unit. Even though the DC link voltage is missing, the pulses are enabled when powering up. The DC link pre-charging is bypassed and the undervoltage detection is disabled.

Closed-loop speed control with an encoder is possible if the torque setpoint (r0079) is used in order to operate a second drive in the closed-loop torque controlled mode.

Value:
0: OFF
1: ON

Dependency: The following functions are de-activated in the simulation mode:

- motor data identification routine
- motor data identification routine, rotating without encoder
- pole position identification

For U/f control and sensorless vector control, flying restart is not carried out (refer to p1200).

Refer to: r0192, p1900, p1910, p1960, p1990

Notice: In simulation mode, binector output r0863.1 = 1 is set. This is why you need to check whether other devices are powered up via this signal before activating simulation mode. You might need to disconnect the corresponding BICO interconnection temporarily.

Note: Simulation mode is only possible for DC link voltages below 40 V. In order that the closed-loop control can be calculated, the displayed DC link voltage (r0026, r0070) is set to the rated DC link voltage (refer to p0210). Closed-loop current control and motor model are switched out (disabled) - the same is true for the speed controller for encoderless closed-loop speed control.

When fault messages occur, the parameter is not automatically reset. This function is not implemented for SINAMICS GM.

p1274[0...1] Bypass switch monitoring time / Switch t_monit

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	5000 [ms]	1000 [ms]

Description: Sets the monitoring time for the bypass switch.

Index:
[0] = Switch motor/drive
[1] = Switch motor/line supply

Note: The monitoring is de-activated with p1274 = 0 ms.

The changeover time for the bypass (p1262) is extended by the value in this parameter.

p1275 Motor holding brake control word / Brake STW

VECTOR_G (Ext brake)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the control word for the motor holding brake.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Inversion BI: 1219[0]	Yes	No	2707
01	Inversion BI: 1219[1]	Yes	No	2707
02	Inversion BI: 1224[0]	Yes	No	2704
03	Inversion BI: 1224[1]	Yes	No	2704
05	Brake with feedback	Yes	No	2711
06	Enable with feedback signal	Yes	No	2711

Note: For p1275.6 = 1 and p1275.5 = 1, the following applies:

The pulse enable (BO: r1229.3) and the setpoint enable (BO: r0899.15) are independent of the timer that has been set (p1217, p1216). The particular enable is only defined by the feedback signal (BI: p1222, BI: p1223). The timers (p1216, p1217) only influence the alarm A07931 "Brake does not open" and A07932 "Brake does not close".

p1276 Motor holding brake standstill detection bypass / Brk standst bypass

VECTOR_G (Ext brake)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2704
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	300.000 [s]

Description: Sets the delay time for closing the brake at standstill.

After this time has expired, if the "close brake at standstill" or OFF1/OFF3 is present, the brake is closed and the pulses are suppressed.

For p1276 = 300.000 s, the timer is de-activated - this means that the timer output is always zero.

p1277 Motor holding brake braking threshold delay exceeded / Del thresh exceed

VECTOR_G (Ext brake)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2707
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	0.000 [s]

Description: Sets the delay time for the signal "braking threshold exceeded" (BO: r1229.6).

Dependency: Refer to: p1220, p1221, r1229

p1278 Brake control diagnostics evaluation / Brake diagnostics

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the brake control type (with or without diagnostics evaluation).

Example for brake control with diagnostics evaluation.

- brake control in the Motor Modules in booksize format
- Safe Brake Relay for AC Drive

Example for brake control without diagnostics evaluation.

- Brake Relay for AC Drive

Value:

0: Brake control with diagnostics evaluation
1: Brake control without diagnostics evaluation

Note: If the configuration of the motor holding brake (p1215) is set to "no holding brake present" when booting, then an automatic identification of the motor holding brake will be carried out. If a brake control is detected without diagnostics evaluation (e.g. Brake Relay for AC Drive), then the parameter is set to "brake control without diagnostics evaluation".

It is not permissible to parameterize "brake control without diagnostics evaluation" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).

p1279[0...3] BI: Motor holding brake OR/AND logic operation / Brake OR AND

VECTOR_G (Ext brake)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2707
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the OR/AND logic operation.

Dependency: Refer to: r1229

Note: [0]: OR logic operation, input 1 --> the result is displayed in r1229.10.

[1]: OR logic operation, input 2 --> the result is displayed in r1229.10.

[2]: AND logic operation, input 1 --> the result is displayed in r1229.11.

[3]: AND logic operation, input 2 --> the result is displayed in r1229.11.

p1280[0...n] Vdc controller or Vdc monitoring configuration (U/f) / Vdc_ctr config U/f

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	1

Description: Sets the configuration of the controller for the DC link voltage (Vdc controller) in the U/f operating mode.

Value:
0: Inhib Vdc ctrl
1: Enable Vdc_max controller
2: Enable Vdc_min controller (kinetic buffering)
3: Enable Vdc_min controller and Vdc_max controller
4: Activate Vdc_max monitoring
5: Activate Vdc_min monitoring
6: Activate Vdc_min monitoring and Vdc_max monitoring

Warning: When the Vdc_max controller is active, the motor can be accelerated (e.g. by driving loads or as a result of high DC link voltages). This can be caused by other drives that are operating on a common DC link busbar.

Caution: If several drives are operated from the same DC link busbar, then it is recommended that the Udc control is only activated for the drives with relatively high moments of inertia.

If the Udc controls for various drives are simultaneously active, then they can mutually influence one another. In this case, the controller dynamic performance should be reduced or the Udc control of individual drives should be deactivated.

Drives with Udc control must be able to brake and accelerate independently of one another.

Note: Re p1280 = 4, 5, 6:

When the threshold in r1282 or r1286 is reached, the DC link voltage monitoring initiates a fault (F07403 or F07404) with a response and therefore reduces additional negative effects on the DC link voltage.

If a braking resistor is connected to the DC link, then the Vdc_max control should be disabled.

Re p1280 = 1, 3:

Only U/f control: When the Vdc max controller is active, fault F07404 is initiated if the speed setpoint ramp is stopped (held) longer than the time set in p1284.

r1282 Vdc_max controller switch-in level (U/f) / Vdc_max on_level

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the switch-in level for the Vdc_max controller.

If p1294 = 0 (automatic sensing of the switch-in level = off), then the following applies:

AC/AC device: r1282 = 1.15 * sqrt(2) * p0210

DC/AC device: r1282 = 1.15 * p0210

If p1294 = 1 (automatic sensing of the switch-in level = on), then the following applies:

r1282 = Vdc_max - 50.0 V (Vdc_max: Overvoltage threshold of the power unit)

r1282 = Vdc_max - 25.0 V (for 230 V power units)

Notice: If the activation level of the Vdc_max controller is already exceeded in the deactivated state (pulse inhibit) by the DC link voltage, then the controller can be automatically deactivated (see F07401), so that the drive is not accelerated the next time that it is activated.

Note: The Vdc_max controller is not switched back off until the DC-link voltage falls below the threshold 0.95 * r1282 and the controller output is zero.

p1283[0...n] Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1 [%]	10000 [%]	100 [%]

Description: Sets the dynamic factor for the DC link voltage controller (Vdc_max controller).

100% means that p1290, p1291, and p1292 (gain, integral time, and rate time) are used in accordance with their basic settings and on the basis of a theoretical controller optimization.

If subsequent optimization is required, this can be carried out using the dynamic factor. In this case, p1290, p1291, and p1292 are weighted with the dynamic factor p1283.

If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.

Note: The pre-setting of the dynamic factor is based on the power units connected to DRIVE-CLiQ. It is assumed that the power units connected via DRIVE-CLiQ are also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.

p1284[0...n] Vdc_max controller time threshold (U/f) / Vdc_max t_thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	300.000 [s]	4.000 [s]

Description: Sets the monitoring time for the Vdc_max controller.

If the down ramp of the speed setpoint is held for longer than the time set in p1284, then fault F07404 is output.

p1285[0...n] Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
65 [%]	150 [%]	76 [%]

Description: Sets the switch-in level for the Vdc-min controller (kinetic buffering).

The value is obtained as follows:

AC/AC unit: p1286[V] = p1285[%] * sqrt(2) * p0210

DC/AC unit: p1286[V] = p1285[%] * p0210

Warning: An excessively high value may adversely affect normal drive operation. The values up to 150 % are intended for operating modes p1240 = 5, 6.

r1286 Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the switch-in level for the Vdc_min controller (kinetic buffering).

Note: The Vdc_min controller is not switched back off until the DC-link voltage rises above the threshold 1.05 * p1286 and the controller output is zero.

p1287[0...n] Vdc_min controller dynamic factor (kinetic buffering) (U/f) / Vdc_min dyn_factor

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1 [%]	10000 [%]	100 [%]

Description: Sets the dynamic factor for the Vdc_min controller (kinetic buffering).

100% means that p1290, p1291, and p1292 (gain, integral time, and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.

If subsequent optimization is required, this can be carried out using the dynamic factor. In this case, p1290, p1291, and p1292 are weighted with the dynamic factor p1287.

If several modules are connected to the DC link, then the dynamic factor must be increased corresponding to the ratio of the additional capacitances to the capacitance of the module involved.

Note: The pre-setting of the dynamic factor is based on the power units connected to DRIVE-CLiQ. It is assumed that the power units connected via DRIVE-CLiQ are also electrically connected to the DC link. If this is not the case, then the dynamic factor must be optimized manually.

p1288[0...n] Vdc_max controller feedback coupling factor ramp-fct. gen. (U/f) / Vdc_max factor RFG

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	100.000	0.500

Description: Sets the feedback factor for the ramp-function generator.

Its ramp times are decelerated relative to the output signal of the Vdc_max controller.

Note: For values p1288 = 0.0 to 0.5, the controller dynamics are automatically adapted internally.

p1289[0...n] Vdc_max controller speed threshold (U/f) / Vdc_max n_thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	10.00 [rpm]

Description: Sets the lower speed threshold for the Vdc_max controller.

When this speed threshold is undershot, the Vdc_max control is switched out and the speed is controlled using the ramp-function generator.

p1290[0...n] Vdc controller proportional gain (U/f) / Vdc_ctrl Kp

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	1.00

Description: Sets the proportional gain for the Vdc controller (DC link voltage controller).

Note: The gain factor is proportional to the capacitance of the DC link. The parameter is pre-set to a value that is optimally adapted to the capacitance of the individual Motor Module. The capacitances of the other power units which are connected to the DC link can be taken into account using the dynamic factor (p1287 or p1283).

p1291[0...n]	Vdc controller integral time (U/f) / Vdc_ctrl Tn		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	10000 [ms]	40 [ms]

Description: Sets the integral time for the Vdc controller (DC link voltage controller).

p1292[0...n]	Vdc controller rate time (U/f) / Vdc_ctrl t_rate		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	10 [ms]

Description: Sets the rate time constant for the Vdc controller (DC link voltage controller).

p1293[0...n]	Vdc min controller output limit (U/f) / Vdc_min outp_lim		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6320
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	600.00 [Hz]	10.00 [Hz]

Description: Sets the output limit for the Vdc min controller (DC link undervoltage controller).

p1294	Vdc_max controller automatic detection ON signal level (U/f) / Vdc_max SenseOnLev		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller. When the sensing function is de-activated, the activation threshold r1282 for the Vdc_max controller is determined from the parameterized connection voltage p0210.

Value:
0: Automatic detection inhibited
1: Automatic detection enabled

p1295[0...n]	Vdc_min controller time threshold (U/f) / Vdc_min t_thresh		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	10000.000 [s]	0.000 [s]

Description: Sets the time threshold for the Vdc_min controller (kinetic buffering).

If this value is exceeded a fault is output; the required response can be parameterized.

Prerequisite: p1296 = 1

Notice: If a time threshold has been parameterized, the Vdc_max controller should also be activated (p1280 = 3) so that the drive does not shut down with overvoltage when Vdc_min control is exited (due to the time violation) and in the event of fault response OFF3. It is also possible to increase the OFF3 ramp-down time p1135.

p1296[0...n] Vdc_min controller response (kinetic buffering) (U/f / Vdc_min response

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the response for the Vdc_min controller (kinetic buffering).

Value:
0: Buffer Vdc until undervoltage, n<p1297 -> F07405
1: Buff. Vdc until undervolt., n<p1297 -> F07405, t>p1295 -> F07406

Note: Re p1296 = 1:

The quick stop ramp entered in p1135 must not be equal to zero, to prevent overcurrent shutdown if F07406 is triggered.

p1297[0...n] Vdc_min controller speed threshold (U/f) / Vdc_min n_thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	50.00 [rpm]

Description: Sets the speed threshold for the Vdc-min controller (kinetic buffering).

If this value is exceeded a fault is output; the required response can be parameterized .

Note: Exiting the Vdc_min control before reaching motor standstill prevents the regenerative braking current from increasing significantly at low speeds, and after a pulse inhibit, means that the motor coasts down.

r1298 CO: Vdc controller output (U/f) / Vdc_ctrl output

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6320
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual output of the Vdc controller (DC link voltage controller)

p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode

VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6301, 8012
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	19	0

Description: Sets the U/f control mode of the drive.

Value:
0: U/f control with linear characteristic
1: U/f control with linear characteristic and FCC
2: U/f control with parabolic characteristic
3: U/f control with parameterizable characteristic
4: U/f control with linear characteristic and ECO
5: U/f control for drives requiring a precise freq. (e.g. textiles)
6: U/f control for drives requiring a precise frequency and FCC

	7: U/f control for a parabolic characteristic and ECO 15: Operation with braking resistor 19: U/f control with independent voltage setpoint
Recommend.:	The use of the vector control operating modes is recommended for synchronous motors.
Dependency:	If you are working with reduced supply voltages (p0212.0 = 1), only U/f control with independent voltage setpoint (p1300 = 19) can be set as the operating mode. p1300 = 15 (operation with braking resistor), can only be activated or deactivated in quick commissioning (p0010 = 1). This operating mode is only possible for chassis power units (DC/AC Motor Module).
Notice:	Active slip compensation is required in the U/f control types with Eco mode (p1300 = 4, 7). The scaling of the slip compensation (p1335) should be set so that the slip is completely compensated (generally 100%). The Eco mode is only effective in steady-state operation and when the ramp-function generator is not bypassed. In the case of analog setpoints, if required the tolerance for ramp-up and ramp-down should be actively increased for the ramp-function generator using p1148 in order to reliably signal a steady-state condition.
Note:	The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3. For motors, type p0300 = 14, operation with U/f control is only recommended for diagnostic purposes.

p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode

VECTOR_G (n/M)			
	Can be changed: C2(1), T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6301, 8012
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	23	20

Description:	Sets the open and closed-loop control mode of a drive.
Value:	0: U/f control with linear characteristic 1: U/f control with linear characteristic and FCC 2: U/f control with parabolic characteristic 3: U/f control with parameterizable characteristic 4: U/f control with linear characteristic and ECO 5: U/f control for drives requiring a precise freq. (e.g. textiles) 6: U/f control for drives requiring a precise frequency and FCC 7: U/f control for a parabolic characteristic and ECO 15: Operation with braking resistor 18: I/f control with fixed current 19: U/f control with independent voltage setpoint 20: Speed control (encoderless) 21: Speed control (with encoder) 22: Torque control (encoderless) 23: Torque control (with encoder)
Recommend.:	The use of the vector control operating modes is recommended for synchronous motors.
Dependency:	Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400). Closed-loop speed or torque control can be selected if the closed-loop speed/torque control was selected as operating mode (p0108.2). Only operation with U/f characteristic is possible if the rated motor speed is not entered (p0311). A reluctance motor can only be operated in a U/f control mode (p1300 < 20). Sensorless control on separately excited synchronous motors is only possible with a VSM module (see p0150, p0151). For chassis power units with reduced line voltage (see r0212 bit 0), the drive can only be operated in a control mode (p1300 = 20...23) and with the DC link voltage control activated. Refer to: p0108, r0108, p0212, p0300, p0311, p0400, p1501
Notice:	Active slip compensation is required in the U/f control types with Eco mode (p1300 = 4, 7). The scaling of the slip compensation (p1335) should be set so that the slip is completely compensated (generally 100%). The Eco mode is only effective in steady-state operation and when the ramp-function generator is not bypassed. In the case of analog setpoints, if required the tolerance for ramp-up and ramp-down should be actively increased for the ramp-function generator using p1148 in order to reliably signal a steady-state condition.

Note: The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3.

For the open-loop control modes p1300 = 5 and 6 (textile sector), slip compensation p1335, resonance damping p1338, and the Imax frequency controller are switched off internally so that the output frequency can be set precisely. The Imax voltage controller remains active.

For the open-loop control modes p1300 = 4 and 7 (Eco mode), the efficiency can be optimized by varying the voltage (when the operating point is constant).

Separately-excited synchronous motors can only be operated in modes p1300 = 20, 21 and 23 - or for diagnostic purposes in modes p1300 = 0, 3 and 18. For I/f control (p1300 = 18), the current amplitude can be set using p1609. Both for U/f as well as for I/f control only a small load may be applied to the separately-excited synchronous motor because the excitation current is not calculated as a function of the load.

During operation (pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing over drive data sets.

p1300 is pre-assigned depending on r0108.2 and p0187.

p1302[0...n] U/f control configuration / U/f config

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the configuration for the U/f control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Output voltage starting angle zero	Yes	No	-
01	Take into account the setpoint voltage sign	Yes	No	-
02	Reserved	-	-	-
04	Field orientation	Yes	No	-
06	Immediate setpoint transfer for pulse inhibit	Yes	No	-

Note: Re bit 00:

If the bit is set the device will always start up with setpoint angle zero on pulse enable. This also affects the setpoint angle for DC braking (p1231).

Re bit 01:

If the bit is set, in the case of U/f control with independent voltage setpoint (p1300 = 19) and negative setpoint voltages at the input of p1330, the setpoint angle is rotated through 180 degrees, thereby achieving a negative output voltage. The voltage boost is in this case not active (p1310, p1311).

Re bit 02:

Only for internal Siemens use.

Re bit 06:

Only for p1300 = 19.

When the bit is set, the setpoints from p1330 for pulse inhibit are transferred without any delay.

p1310[0...n] Starting current (voltage boost) permanent / I_start (Ua) perm

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	250.0 [%]	50.0 [%]

Description: Defines the voltage boost as a [%] referred to the rated motor current (p0305).

The magnitude of the permanent voltage boost is reduced with increasing frequency so that at the rated motor frequency, the rated motor voltage is present.

The magnitude of the boost in Volt at a frequency of zero is defined as follows:

Voltage boost [V] = 1.732 x p0305 (rated motor current [A]) x r0395 (stator/primary section resistance [ohm]) x p1310 (permanent voltage boost [%]) / 100 %

At low output frequencies, there is only a low output voltage in order to maintain the motor flux. However, the output voltage can be too low in order to achieve the following:

- magnetize the induction motor.
- hold the load.
- compensate for losses in the system.

This is the reason that the output voltage can be increased using p1310.

The voltage boost can be used for both linear as well as square-law U/f characteristics.

Dependency: The starting current (voltage boost) is limited by the current limit p0640.

The accuracy of the starting current depends on the setting of the stator and feeder cable resistance (p0350, p0352).

Refer to: p1300, p1311, p1312, r1315

Notice: The starting current (voltage boost) increases the motor temperature (particularly at zero speed).

Note: The starting current as a result of the voltage boost is only effective for U/f control (p1300).

The boost values are combined with one another if the permanent voltage boost (p1310) is used in conjunction with other boost parameters (acceleration boost (p1311), voltage boost for starting (p1312)).

However, these parameters are assigned the following priorities: p1310 > p1311, p1312

p1311[0...n] Starting current (voltage boost) when accelerating / I_start accel

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	250.0 [%]	0.0 [%]

Description: p1311 only results in a voltage boost when accelerating and generates a supplementary torque to accelerate the load.

The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached. The build-up and withdrawal of the voltage boost are smoothed.

The magnitude of the boost in Volt at a frequency of zero is defined as follows:

Voltage boost [V] = 1.732 * p0305 (rated motor current [A]) x r0395 (stator/primary section resistance [ohm]) x p1311 (voltage boost when accelerating [%]) / 100 %

Dependency: The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1312, r1315

Notice: The voltage boost results in a higher motor temperature increase.

Note: The voltage boost when accelerating can improve the response to small, positive setpoint changes.

Assigning priorities for the voltage boosts: refer to p1310

p1312[0...n] Starting current (voltage boost) when starting / I_start start

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	250.0 [%]	0.0 [%]

Description: Setting for an additional voltage boost when powering-up, however, only for the first acceleration phase.

The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached. The build-up and withdrawal of the voltage boost are smoothed.

Dependency: The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1311, r1315

Notice: The voltage boost results in a higher motor temperature increase.

Note: The voltage boost when accelerating can improve the response to small, positive setpoint changes.

Assigning priorities for the voltage boosts: refer to p1310

r1315 Voltage boost total / U_boost total

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the total resulting voltage boost in volt.

r1315 = p1310 + p1311 + p1312

Dependency: Refer to: p1310, p1311, p1312

p1320[0...n] U/f control programmable characteristic frequency 1 / Uf char f1

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the first point along the characteristic.

Dependency: Selects the freely programmable characteristic using p1300 = 3.

The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.

Refer to: p1300, p1310, p1311, p1321, p1322, p1323, p1324, p1325, p1326, p1327

Note: Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

p1321[0...n] U/f control programmable characteristic voltage 1 / Uf char U1

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the first point along the characteristic.

Dependency: Selects the freely programmable characteristic using p1300 = 3.

Refer to: p1310, p1311, p1320, p1322, p1323, p1324, p1325, p1326, p1327

Note: Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

p1322[0...n] U/f control programmable characteristic frequency 2 / Uf char f2

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the second point along the characteristic.

Dependency: The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.
Refer to: p1310, p1311, p1320, p1321, p1323, p1324, p1325, p1326, p1327

p1323[0...n] U/f control programmable characteristic voltage 2 / Uf char U2

VECTOR_G			
	Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the second point along the characteristic.

Dependency: Refer to: p1310, p1311, p1320, p1321, p1322, p1324, p1325, p1326, p1327

p1324[0...n] U/f control programmable characteristic frequency 3 / Uf char f3

VECTOR_G			
	Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the third point along the characteristic.

Dependency: The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.
Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1325, p1326, p1327

p1325[0...n] U/f control programmable characteristic voltage 3 / Uf char U3

VECTOR_G			
	Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the voltage of the third point along the characteristic.

Dependency: Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1326, p1327

p1326[0...n] U/f control programmable characteristic frequency 4 / Uf char f4

VECTOR_G			
	Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	10000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.
This parameter specifies the frequency of the fourth point along the characteristic.

Dependency: Selects the freely programmable characteristic using p1300 = 3.
The following applies for the frequency values:
p1320 <= p1322 <= p1324 <= p1326
Otherwise, a standard characteristic is used that contains the rated motor operating point.
Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1325, p1327

Note: Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327. For output frequencies above p1326, the characteristic is extrapolated with the gradient between the characteristic points p1324/p1325 and p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

p1327[0...n] U/f control programmable characteristic voltage 4 / Uf char U4

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the fourth point along the characteristic.

Dependency: Selects the freely programmable characteristic using p1300 = 3.

Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1325, p1326

Note: Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

p1330[0...n] CI: U/f control independent voltage setpoint / Uf U_set independ.

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the voltage setpoint for U/f control with an independent voltage setpoint (p1300 = 19).

Dependency: Selects the U/f control with independent voltage setpoint via p1300 = 19.

Refer to: p1300

p1331[0...n] Voltage limiting / U_lim

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300
P-Group: -	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
50.00 [Vrms]	2000.00 [Vrms]	1000.00 [Vrms]

Description: Limiting the voltage setpoint.

This means that the output voltage can be reduced with respect to the calculated maximum voltage r0071 and the start of field weakening.

Note: The output voltage is only limited if, as a result of p1331, the maximum output voltage (r0071) is fallen below.

p1333[0...n] U/f control FCC starting frequency / U/f FCC f_start

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6301
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: Sets the starting frequency at which FCC (Flux Current Control) is activated.

Dependency: The correct operating mode must be set (p1300 = 1, 6).

Warning: An excessively low value can result in instability.

⚠

Note: For p1333 = 0 Hz, the FCC starting frequency is automatically set to 6 % of the rated motor frequency.

p1334[0...n] U/f control slip compensation starting frequency / Slip comp start

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: Sets the starting frequency of the slip compensation.

Note: For p1334 = 0, the starting frequency of the slip compensation is automatically set to 6 % of the rated motor frequency.

p1335[0...n] Slip compensation scaling / Slip comp scal

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	600.0 [%]	0.0 [%]

Description: Sets the setpoint for slip compensation in [%] referred to r0330 (motor rated slip).

p1335 = 0.0 %: Slip compensation de-activated.

p1335 = 100.0 %: The slip is completely compensated.

Dependency: Prerequisite for a precise slip compensation for p1335 = 100 % are the precise motor parameters (p0350 ... p0360).

If the parameters are not precisely known, a precise compensation can be achieved by varying p1335.

For U/f control types with Eco optimization (4 and 7), the slip compensation must be activated in order to guarantee correct operation.

Note: The purpose of slip compensation is to maintain a constant motor speed regardless of the applied load. The fact that the motor speed decreases with increasing load is a typical characteristic of induction motors.

For synchronous motors, this effect does not occur and the parameter has no effect in this case.

For the open-loop control modes p1300 = 5 and 6 (textile sector), the slip compensation is internally disabled in order to be able to precisely set the output frequency.

If p1335 is changed during commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1335 have been changed by a parameter that was set when the drive was commissioned (e.g. p0300).

p1336[0...n] Slip compensation limit value / Slip comp lim val

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	600.00 [%]	250.00 [%]

Description: Sets the limit value for slip compensation in [%] referred to r0330 (motor rated slip).

r1337 CO: Actual slip compensation / Slip comp act val

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the actual compensated slip [%] referred to r0330 (rated motor slip).

Dependency: p1335 > 0 %: Slip compensation active.

Refer to: p1335

p1338[0...n] U/f mode resonance damping gain / Uf Res_damp gain

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	0.00

Description: Sets the gain for resonance damping for U/f control.

Dependency: Refer to: p1300, p1339, p1349

Note: The resonance damping function dampens active current oscillations that frequency occur under no-load conditions.

The resonance damping is active in a range from approximately 6 % of the rated motor frequency (p0310). The shutoff frequency is determined by p1349.

For the open-loop control modes p1300 = 5 and 6 (textile sectors), the resonance damping is internally disabled in order that the output frequency can be precisely set.

p1339[0...n] U/f mode resonance damping filter time constant / Uf Res_damp T

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6310
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [ms]	1000.00 [ms]	20.00 [ms]

Description: Sets the filter time constant for resonance damping for U/f control.

Dependency: Refer to: p1300, p1338, p1349

p1340[0...n] I_max frequency controller proportional gain / I_max_ctrl Kp

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	0.500	0.000

Description: Sets the proportional gain of the I_max frequency controller.

The I_max controller reduces the drive converter output current if the maximum current (r0067) is exceeded.

In the U/f operating modes (p1300) for the I_max control, one controller is used that acts on the output frequency and one controller that acts on the output voltage. The frequency controller reduces the current by decreasing the converter output frequency. The frequency is reduced down to a minimum value (equaling twice rated slip). If the overcurrent condition cannot be successfully resolved using this measure, then the drive converter output voltage is reduced using the I_max voltage controller. Once the overcurrent condition has been resolved, the drive is accelerated along the ramp set in p1120 (ramp-up time).

Dependency: In the U/f modes (p1300) for textile applications and for external voltage setpoints, only the I_max voltage controller is used.

Notice: When de-activating the I_max controller, the following must be carefully observed:

When the maximum current (r0067) is exceeded, the output current is no longer reduced. The drive is switched off when the overcurrent limits are exceeded.

Note: The I_max limiting controller becomes ineffective if the ramp-function generator is de-activated with p1122 = 1.

p1341 = 0: I_max frequency controller de-activated and I_max voltage controller activated over the complete speed range.

p1341[0...n]	I_max frequency controller integral time / I_max_ctrl Tn		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	50.000 [s]	0.300 [s]

Description: Sets the integral time for the I_max frequency controller.

Dependency: Refer to: p1340

Note: When p1341 = 0, the current limiting controller influencing the frequency is de-activated and only the current limiting controller influencing the output voltage remains active (p1345, p1346).

r1343	CO: I_max controller frequency output / I_max_ctrl f_outp		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6300
	P-Group: U/f open-loop control	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the effective frequency limit.

Dependency: Refer to: p1340

r1344	I_max controller voltage output / I_max_ctrl U_outp		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6300
	P-Group: U/f open-loop control	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the amount by which the converter output voltage is reduced.

Dependency: Refer to: p1340

p1345[0...n]	I_max voltage controller proportional gain / I_max_U_ctrl Kp		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 7017
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000	100000.000	0.000

Description: Sets the proportional gain for the I_max voltage controller.

Dependency: Refer to: p1340

Note: The controller settings are also used in the current controller of the DC braking (refer to p1232).

p1346[0...n]	I_max voltage controller integral time / I_max_U_ctrl Tn		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300, 7017
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	50.000 [s]	0.030 [s]

Description: Sets the integral time for the I_max voltage controller.

Dependency: Refer to: p1340

Note:	The controller settings are also used in the current controller of the DC braking (refer to p1232). For p1346 = 0, the following applies: The integral time of the I_max voltage controller is de-activated.

r1348 CO: U/f control Eco factor actual value / U/f Eco fac act v

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6300, 6301
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description:	Displays the economic factor determined for optimizing motor consumption.
Dependency:	Refer to: p1335
Note:	The value is only determined for operating modes with Economic (p1300 = 4, 7).

p1349[0...n] U/f mode resonance damping maximum frequency / Uf res_damp f_max

VECTOR_G			
	Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6310
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description:	Sets the maximum output frequency for resonance damping for U/f control. Resonance damping is inactive above this output frequency.
Dependency:	Refer to: p1338, p1339
Note:	For p1349 = 0, the changeover limit is automatically set to 95 % of the rated motor frequency - however, to a max. of 45 Hz.

p1350[0...n] U/f control soft start / U/f soft start

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6300
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description:	Sets whether the voltage is continuously increased during the magnetizing phase (p1350 = 1, On) or whether it jumps directly to the voltage boost (p1350 = 0, Off).
Value:	0: OFF 1: ON
Dependency:	The function is not effective for p1300 = 15.
Note:	The settings for this parameter have the following advantages and disadvantages: 0 = off (jump directly to voltage boost) Advantage: Flux is established quickly -> torque is quickly available Disadvantage: The motor can move while it is being magnetized 1 = on (voltage is continually established) Advantage: The motor is unlikely to rotate Disadvantage: The flux is established slower -> torque is available later

p1351[0...n]	CO: Motor holding brake starting frequency / Brake f_start		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6310
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-300.00 [%]	300.00 [%]	0.00 [%]

Description: Sets the frequency setting value at the slip compensation output for starting up with motor holding brake.

Dependency: When setting p1351 > 0, then slip compensation is automatically activated (p1335 = 100 %).

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: A value of 100% corresponds to the motor rated slip (r0330).

p1356[0...n]	CI: U/f control angular setpoint / Uf ang setpoint		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** -
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2005	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the differential angular generation for U/f control.

p1358[0...n]	Angular difference symmetrizing actual angle / Sym act angle		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the dead time for the symmetrizing of the actual angle value for the differential angular generation.
The selected multiplier refers to the current controller clock cycle (dead time= p1358 * p0115[0]).

r1359	CO: Angular difference / Angular difference		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2005	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°]	- [°]	- [°]

Description: Displays the output of the differential angular generation.

Note: The difference between the setpoint angle, read-in in p1356 and the actual value of the U/f control delayed with p1358 is displayed.

p1360	Braking chopper braking resistor cold / Br_chop R cold		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [ohm]	10.000 [ohm]	0.000 [ohm]

Description: Sets the braking resistor for the braking chopper.

Dependency: Select operation with braking resistor: p1300 = 15
Refer to: p1362, r1363, p1364

p1362[0...1] Braking chopper activation threshold / Br_chop thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [V]	1158 [V]	[0] 0 [V] [1] 60 [V]

Description: Sets the activation threshold for the brake chopper.
The hysteresis defines the range of the output voltage from zero up to the maximum voltage.

Index: [0] = Braking chopper threshold value
[1] = Braking chopper hysteresis

Dependency: Select operation with braking resistor: p1300 = 15
Refer to: p1360, r1363, p1364

r1363 CO: Braking chopper output voltage / Br_chop U_output

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual power unit output voltage (Motor Module) in braking chopper operation.

Dependency: Select operation with braking resistor: p1300 = 15
Refer to: p1360, p1362, p1364

p1364 Braking chopper resistor asymmetry / Br_chop R asym

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: U/f open-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	100.00 [%]	25.00 [%]

Description: Sets the percentage value for the asymmetry detection for the braking chopper.
The ripple of the absolute current r0068 is monitored.
The reference value is the average value of the absolute current.
The minimum monitoring value is 10 % of the power unit rated current.

Dependency: Select operation with braking resistor: p1300 = 15
Refer to: p1360, p1362, r1363

Note: For p1364 = 0, dissymmetry identification is deactivated.
Asymmetry can also be displayed if the absolute current manifests ripple, caused by load-related ripple of the DC link voltage. In this particular case, p1364 must be increased.

r1369[0] CO: Phase current actual value filtered / I_ph act val filt

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6300
P-Group: U/f open-loop control	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the measured actual phase currents as peak value.
This value is averaged for the display in the speed controller sampling time (p0115[1]).

Index: [0] = Phase U

Dependency: The signal is only displayed in operating mode p1300 = 19 (U/f control with independent voltage setpoint) and is used to control DC currents (e.g. for excitation (field) controllers).

p1400[0...n] Speed control configuration / n_ctrl config

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6490
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 1000 0000 0010 0001 bin

Description: Sets the configuration for the closed-loop speed control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Automatic Kp/Tn adaptation active	Yes	No	6040
01	Sensorless vector control freeze I comp	Yes	No	6040
02	Acceleration pre-control source	External (p1495)	Internal (n_set)	6031
03	Reference model speed setpoint I component	ON	OFF	6031
05	Kp/Tn adaptation active	Yes	No	6040
06	Free Tn adaptation active	Yes	No	6050
14	Torque pre-control	Always active	For n_ctrl enab	6060
15	Sensorless vector control speed pre-control	Yes	No	6030
16	I component for limiting	Enable	Hold	6030
18	Moment of inertia estimator active	Yes	No	6030
19	Anti-windup for integral component	Yes	No	6030
20	Acceleration model	ON	OFF	6031
22	Obtain moment of inertia estimator value for pulse inhibit	Yes	No	6030
23	Acceleration model (with speed encoder)	Yes	No	6030

Note: Re bit 01:

When the bit is set, the I component of the speed controller is kept when changing into the open-loop controlled mode.

Re bit 16:

When the bit is set, the integral component of the speed controller is only held if it reaches the torque limit.

Re bit 19:

When this bit is set, speed overshoots when accelerating along the torque limit and for load surges are reduced. If the setpoint torque reaches the torque limit, then the integral component is set to the difference between the torque limit and P component.

Re bit 20:

The acceleration model for the speed setpoint is only active for encoderless vector control if p1496 is not zero.

p1401[0...n] Flux control configuration / Flux ctrl config

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6491
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 1110 bin

Description: Sets the configuration for flux setpoint control

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Flux setpoint soft starting active	Yes	No	6722, 6725
01	Flux setpoint differentiation active	Yes	No	6723, 6726

	02	Flux build-up control active	Yes	No	6722, 6723, 6725, 6726
	03	Flux characteristic load-dependent	Yes	No	6725
	04	Flux controller (ASM with encoder)	Yes	No	-
	05	Flux impression (ASM with encoder)	with model chngov	From 30 % n_rated	-
	06	Quick magnetizing	Yes	No	6722
	07	Pre-control speed limitation	Yes	No	6640
	08	Speed limiting controller	With M_limits	With I_limits	6640
	09	Flux boost when establishing torque	Yes	No	-
	10	Flux boost at low speed	Yes	No	-

Note: Re bit 00 (only for induction motors):

Initially, the flux is only established with a low rate of rise when magnetizing the induction motor. The flux setpoint p1570 is reached again at the end of the magnetizing time p0346.

Re bit 01 (only for induction motors and separately excited synchronous motors):

The flux differentiation can be switched out if a significant ripple occurs in the field-generating current setpoint (r0075) when entering the field weakening range. However, this is not suitable for fast acceleration operations because then, the flux decays more slowly and the voltage limiting responds.

Re bit 02 (only for induction motors):

The flux build-up control operates during the magnetizing phase p0346 of the induction motor. If it is switched out, a constant current setpoint is injected and the flux is built up corresponding to the rotor time constant. When quick magnetizing (p1401.6 = 1) is selected and when flux build-up control is de-energized alarm A07416 is displayed.

Re bit 03:

The load-dependent calculation of the flux characteristic is available for separately-excited synchronous motors.

Re bit 04 (only for induction motors with encoder):

The flux controller does not operate in the range of the current model and not in the range of the flux impression (refer to p1750.4).

Re bit 05 (only for induction motors with encoder):

Extremely rugged control operation is possible by directly toggling between the current model and flux impression. We therefore recommend that, in addition, the time-controlled model change is switched in (p1750.4 = 1) or the model changeover limits are significantly increased (p1752 > 0.35 * p0311; p1753 = 5 %).

Re bit 06 (not for induction motors):

Magnetizing is carried out with the maximum current (0.9 * r0067 <= p1603 * r0209). Magnetization has been completed if the flux threshold value p1573 or the magnetizing time p0346 has been reached. With active identification of the stator resistance (see p0621) quick magnetizing is internally de-activated and alarm A07416 is displayed. During a flying restart of a rotating motor (see p1200) no quick magnetizing takes place.

Re bit 07:

if the speed of the drive exceeds the effective speed limit of the speed limiting controller, the torque limit is reduced linearly to zero as the deviation becomes greater. This reduces the integral component of the speed controller and, in turn, the overshoot during load shedding (see also F07901 and p2162).

Re bit 08:

The speed limiting controller sets the speed to maximum by opening the torque limits as far as the current limits (bit 8 = 0) or taking the torque limits into account (bit 8 = 1).

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0001 bin

Description: Sets the configuration for the closed-loop control and the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Speed-following error correction active	Yes	No	-
02	Current controller adaptation active	Yes	No	-
07	Taking into account slip for speed and frequency calculation	Yes	No	-

Bit	Signal name	1 signal	0 signal	FP
08	Changeover current model/voltage model with speed setpoint	Yes	No	-
10	d-current controller adaptation model-based	Yes	No	-
15	Current controller precontrol active for Vdc controller oper.	Yes	No	-

Note: Re bit 00:

When the bit is set, the speed following error is compensated that is obtained as a result of the smoothing time constant in p1441.

Re bit 02:

The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

Re bit 07:

Only with encoderless control of separately excited synchronous motors.

Re bit 08:

Only with encoderless control of separately excited synchronous motors.

Re bit 15:

For DC link voltage control (see FP7960) the dynamic current controller pre-control is activated (scalable using p1702, p1703).

r1406.4...15 CO/BO: Control word speed controller / STW n_ctrl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2520
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the control word of the speed controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	Hold speed controller I component	Yes	No	6040
05	Set speed controller I component	Yes	No	6040
08	Travel to fixed stop	Yes	No	8012
11	Droop enable	Yes	No	6030
12	Torque control active	Yes	No	6060
15	Set speed adaptation controller I component	Yes	No	-

r1407.0...26 CO/BO: Status word speed controller / ZSW n_ctrl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2522
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the speed controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	U/f control active	Yes	No	-
01	Encoderless operation active	Yes	No	-
02	Torque control active	Yes	No	6030, 6060, 8010
03	Speed control active	Yes	No	6040
05	Speed controller I component frozen	Yes	No	6040
06	Speed controller I component set	Yes	No	6040
07	Torque limit reached	Yes	No	6060
08	Upper torque limit active	Yes	No	6060
09	Lower torque limit active	Yes	No	6060
10	Droop enabled	Yes	No	6030
11	Speed setpoint limited	Yes	No	6030
12	Ramp-function generator set	Yes	No	-

13	Encoderless operation due to a fault	Yes	No	-
14	I/f control active	Yes	No	-
15	Torque limit reached (without pre-control)	Yes	No	6060
17	Speed limiting control active	Yes	No	6640
23	Acceleration model activated	Yes	No	-
24	Moment of inertia estimator active	Yes	no	-
25	Load estimate active	Yes	no	-
26	Moment of inertia estimator stabilized	Yes	No	-

r1408.0...15 CO/BO: Status word current controller / ZSW I_ctrl

VECTOR_G (n/M)

Can be changed: - | **Calculated:** - | **Access level:** 3

Data type: Unsigned16 | **Dyn. index:** - | **Func. diagram:** 2530

P-Group: Closed-loop control | **Units group:** - | **Unit selection:** -

Not for motor type: REL | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Display and BICO output for the status word of the current controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Current controller act	Active	Not active	-
01	Id control I component limiting	Active	Not active	6714
03	Voltage limiting	Active	Not active	6714
10	Speed adaptation limiting	Active	Not active	-
11	Speed adaptation speed deviation	Out tolerance	In tolerance	6719
12	Motor stalled	Yes	No	6719, 8018
13	Separately excited synchronous motor is excited	Yes	No	-
14	Current model FEM: magnetizing excitation current limited to 0	Yes	No	6726
15	Excitation current differential exceeded	Yes	No	6726

Note: Re bit 11:

For operation with speed encoder, this bit is set as a result of steps/jumps in the speed signal (see p0492) or due to deviations at the adaptation controller output (see p1744).

p1416[0...n] Speed setpoint filter 1 time constant / n_set_filt 1 T

VECTOR_G (n/M)

Can be changed: U, T | **Calculated:** - | **Access level:** 3

Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Func. diagram:** 6020, 6030

P-Group: Closed-loop control | **Units group:** - | **Unit selection:** -

Not for motor type: REL | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0.00 [ms]	5000.00 [ms]	0.00 [ms]

Description: Sets the time constant for the speed setpoint filter 1 (PT1).

p1428[0...n] Speed pre-control balancing dead time / n_prectrBal t_dead

VECTOR_G (n/M)

Can be changed: U, T | **Calculated:** - | **Access level:** 3

Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Func. diagram:** 6031

P-Group: Closed-loop control | **Units group:** - | **Unit selection:** -

Not for motor type: REL | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0.0	3.0	0.0

Description: Sets the dead time to symmetrize the speed setpoint for active torque pre-control.

The selected multiplier refers to the speed controller clock cycle (dead time= p1428 * p0115[1]).

Dependency: In conjunction with p1429, this parameter can emulate the characteristics of how the torque is established (dynamic response of closed current control loop).

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, a fixed dead time is used.

Refer to: p1429, p1511

p1429[0...n] Speed pre-control balancing time constant / n_prectr bal T

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5030, 5042, 5210, 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	10000.00 [ms]	0.00 [ms]

Description: Sets the time constant (PT1) for symmetrizing the speed setpoint for active torque pre-control.

Dependency: In conjunction with p1428, this parameter can emulate the characteristics of how torque is established (dynamic response of the closed current control loop).

For VECTOR (r0107) the following applies:

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for sensorless vector control) is used.

Refer to: p1428, p1511

r1431 CO: Speed pre-control to motor model / n_prectrl mot_mod

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed setpoint for pre-controlling the motor model with sensorless vector control.

Note: With p1400.15 = 0 or encoderless torque control, the pre-control signal is kept continuously in the range of the voltage model.

p1433[0...n] Speed controller reference model natural frequency / n_ctrl RefMod fn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5030, 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [Hz]	8000.0 [Hz]	0.0 [Hz]

Description: Sets the natural frequency of a PT2 element for the reference model of the speed controller.

Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1. For sensorless vector control (p1300 = 20) the reference model is disabled in open-loop speed controlled operation (refer to p1755).

Refer to: p1434, p1435

p1434[0...n] Speed controller reference model damping / n_ctrl RefMod D

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5030, 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	5.000	1.000

Description: Sets the damping of a PT2 element for the reference model of the speed controller.

Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be emulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p1433, p1435

p1435[0...n] Speed controller reference model dead time / n_ctrRefMod t_dead

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5030, 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	3.00	0.00

Description: Sets the "fractional" dead time for the reference model of the speed controller.

This parameter emulates the computing dead time of the proportionally controlled speed control loop.

The selected multiplier refers to the speed controller clock cycle (dead time= p1435 * p0115[1]).

Recommend.: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be emulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p0115, p1433, p1434

r1436 CO: Speed controller reference model speed setpoint output / RefMod n_set outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5030, 6031
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the speed setpoint at the output of the reference model.

Dependency: For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

p1437[0...n] CI: Speed controller reference model I component input / n_ctrRefMod I_comp

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1436[0]

Description: Sets the signal source for speed setpoint for the integral component of the speed controller.

Dependency: The reference model is activated with p1400.3 = 1.

Refer to: p1400

Notice: In should be ensured that a speed setpoint is selected as signal source that corresponds to the setpoint for the P component of the speed controller.

r1438	CO: Speed controller speed setpoint / n_ctrl n_set		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3001, 5019, 5030, 5042, 5210, 6020, 6031
	P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output of the speed setpoint after setpoint limiting for the P component of the speed controller.

For U/f operation, the value that is displayed is of no relevance.

Dependency: Refer to: r1439

Note: In the standard state (the reference model is de-activated), r1438 = r1439.

r1439	Speed setpoint I component / n_set I_comp		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5030, 5040, 6031
	P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed setpoint for the I component of the speed controller (output of the reference model after the setpoint limiting).

Dependency: Refer to: r1438

Note: In the standard state (the reference model is de-activated), r1438 = r1439.

p1440[0...n]	CI: Speed controller speed actual value / n_ctrl n_act		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6040
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	63[0]

Description: Sets the signal source for the speed actual value of the speed controller.

Dependency: Refer to: r1443

Danger: When using external speed actual values for the speed controller, for a direction of rotation change via p1821 = 1, then its polarity must also be changed (e.g. for an encoder DO via p0410). Otherwise, a positive coupling can occur in the speed control loop and the drive would then be accelerated up to the speed limit.

Caution: Speed control with encoder (p1300 = 21):

For the speed or position signal of the motor model there must always be a motor encoder available (evaluation via SMC/SMI, see p0400). The actual speed of the motor (r0061) and the position data for synchronous motors continue to come from this motor encoder and are not affected by the setting of p1440.

Interconnection of p1440:

If connector input p1440 is interconnected with an external speed actual value, the identical scaling of the speed should be observed (p2000).

Notice: Speed control without encoder (p1300 = 20):

Dependent upon the transmission path of the external speed signal there will be dead times which have to be taken into account when setting the speed controller parameters (p1470, p1472) and can lead to dynamic losses accordingly. It is for this reason that signal transmission times have to be kept as low as possible.

So that the speed controller can also work at standstill, set p1750.2 = 1 (closed-loop operation from zero speed for passive loads). If you do not make this setting, operation will switch to open-loop speed control in the low speed range, switching the closed-loop speed controller off and rendering the measured actual speed ineffective.

Note: Speed control with encoder (p1300 = 21):

An external speed signal should, on the average, correspond to the speed of the motor encoder (r0061).

p1441[0...n] Actual speed smoothing time / n_act T_smooth

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4710, 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	1000.00 [ms]	0.00 [ms]

Description: Sets the smoothing time constant (PT1) for the speed actual value.

Dependency: Refer to: r0063

Notice: Smoothing times above 20 ms are only possible if the drive is accelerated or braked with the appropriately long ramp-up/ramp-down times. Otherwise, significant torque errors can occur and there is the danger that the drive is powered down (tripped) with F07902 (motor stalled).

Note: The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.

After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).

p1442[0...n] Speed controller speed actual value smoothing time / n_ctr n_act T_smth

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	32000.00 [ms]	4.00 [ms]

Description: Sets the smoothing time for the actual speed value of the speed controller for closed-loop control with encoder.

Note: The smoothing must be increased if there is gear backlash. For longer smoothing times, the integral time of the speed controller must also be increased (e.g. using p0340 = 4).

r1443 CO: Speed controller speed actual value at actual value input / n_ctrl n_act inp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed actual value at the speed controller's free-wiring actual value input p1440.

Dependency: Refer to: p1440

Note: This speed signal is only used by the speed controller and not by the motor model.

r1444 Speed controller speed setpoint steady-state (static) / n_ctrl n_set stat

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5030
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the sum of all speed setpoints that are present.

The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- speed setpoint 1 (p1155).
- speed setpoint 2 (p1160).
- speed setpoint for the speed pre-control (p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active).

Dependency: Refer to: r1119, p1155, p1160

r1445 — CO: Actual speed smoothed / n_act smooth

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the actual smoothed speed actual value of the speed control.

p1451[0...n] — Motor model speed actual value smoothing time sensorless / Mot_mod n_act t_sm

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000 [ms]	4 [ms]

Description: Sets the smoothing time for the speed actual value calculated by the motor model in sensorless operation.

p1452[0...n] — Speed controller speed actual value smoothing time (sensorless) / n_C n_act T_s SL

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	32000.00 [ms]	10.00 [ms]

Description: Sets the smoothing time for the actual speed of the speed controller for encoderless closed-loop speed control.

Note: The smoothing must be increased if there is gear backlash. For longer smoothing times, the integral time of the speed controller must also be increased (e.g. using p0340 = 4).

r1454 — CO: Speed controller system deviation I component / n_ctrl sys dev Tn

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the system deviation of the I component of the speed controller.

When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).

p1455[0...n] — CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.

Dependency: Refer to: p1456, p1457, p1458, p1459

p1456[0...n] Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	400.00 [%]	0.00 [%]

Description: Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed controller.

The values are in % and refer to the set source of the adaptation signal.

Dependency: Refer to: p1455, p1457, p1458, p1459

Note: If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.

p1457[0...n] Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	400.00 [%]	0.00 [%]

Description: Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed controller.

The values are in % and refer to the set source of the adaptation signal.

Dependency: Refer to: p1455, p1456, p1458, p1459

Note: If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.

p1458[0...n] Adaptation factor lower / Adapt_factor lower

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200000.0 [%]	100.0 [%]

Description: Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.

Dependency: Refer to: p1455, p1456, p1457, p1459

Note: If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.

p1459[0...n] Adaptation factor upper / Adapt_factor upper

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200000.0 [%]	100.0 [%]

Description: Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.

Dependency: Refer to: p1455, p1456, p1457, p1458

Note: If the upper transition point p1457 of the speed controller adaptation is set to lower values than the lower transition p1456, then the controller gain below p1457 is adapted with p1459 and above p1456, with p1458.

p1460[0...n]	Speed controller P gain adaptation speed lower / n_ctrl Kp n lower		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6040
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000	999999.000	0.300

Description: Sets the P gain of the speed controller before the adaptation speed range (0 ... p1464).

This value corresponds to the basic setting of the P gain of the speed controller without adaptation (p1461 = 100 %).

Dependency: For p0528 = 1, the speed controller gain is represented without any dimensions.

Refer to: p1461, p1464, p1465

p1461[0...n]	Speed controller Kp adaptation speed upper scaling / n_ctr Kp n up scal		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	200000.0 [%]	100.0 [%]

Description: Sets the P gain of the speed controller for the upper adaptation speed range (> p1465).

The entry is made referred to the P gain for the lower adaptation speed range of the speed controller (% referred to p1460).

Dependency: Refer to: p1460, p1464, p1465

Note: If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition p1464, then the controller gain below p1465 is adapted with p1461. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.

p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5040, 5042, 6020, 6040
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	100000.00 [ms]	20.00 [ms]

Description: Sets the integration time of the speed controller before the adaptation speed range (0 ... p1464).

This value corresponds to the basic setting of the integral time of the speed controller without adaptation (p1461 = 100 %).

Dependency: Refer to: p1463, p1464, p1465

Note: The integral component is stopped if the complete controller output or the sum of controller output and torque pre-control reach the torque limit.

p1463[0...n]	Speed controller Tn adaptation speed upper scaling / n_ctr Tn n up scal		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	200000.0 [%]	100.0 [%]

Description: Sets the integral time of the speed controller after the adaptation speed range (> p1465).

The entry is made referred to the integral time for the lower adaptation speed range of the speed controller (% referred to p1462).

Dependency: Refer to: p1462, p1464, p1465

Note: If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition point p1464, then the controller integral time below p1465 is adapted with p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.

p1464[0...n] Speed controller adaptation speed lower / n_ctrl n lower

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the lower adaptation speed of the speed controller.
No adaptation is effective below this speed.

Dependency: The parameter is set by the speed controller optimization. Adaptation to the application should then be subsequently made.
Refer to: p1460, p1461, p1462, p1463, p1465

Note: If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition point p1464, then the controller below p1465 is adapted with p1461 or p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.

p1465[0...n] Speed controller adaptation speed upper / n_ctrl n upper

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]

Description: Sets the upper adaptation speed of the speed controller.
No adaptation is effective above this speed.
For the proportional gain, p1460 x p1461 is effective.
For the integral time, p1462 x p1463 is effective.

Dependency: The parameter is set by the speed controller optimization. Adaptation to the application should then be subsequently made.
Refer to: p1460, p1461, p1462, p1463, p1464

Note: If the upper transition point p1465 of the speed controller adaptation is set to lower values than the lower transition point p1464, then the controller below p1465 is adapted with p1461 or p1463. This means that an adaptation can be implemented for low speeds without having to change the controller parameters.

p1466[0...n] CI: Speed controller P-gain scaling / n_ctrl Kp scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the scaling of the P gain of the speed controller.
This also makes the effective P gain (including adaptations) scalable.

r1468 CO: Speed controller P-gain effective / n_ctr Kp eff

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective P gain of the speed controller.

Dependency: For p0528 = 1, the speed controller gain is represented without any dimensions. In this case, connector output signal r1468 is increased by a factor of 100 in order to improve the resolution.

r1469 Speed controller integral time effective / n_ctr Tn eff

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5040, 5042, 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the effective integral time of the speed controller.

p1470[0...n] Speed controller encoderless operation P-gain / n_ctrl SL Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6040, 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	999999.000	0.300

Description: Sets the P gain for encoderless operation for the speed controller.

Dependency: For p0528 = 1, the speed controller gain is represented without any dimensions.

Note: The product p0341 x p0342 is taken into account when automatically calculating the speed controller (p0340 = 1, 3, 4).

p1472[0...n] Speed controller encoderless operation integral time / n_ctrl SL Tn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6040, 6050
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	100000.0 [ms]	20.0 [ms]

Description: Set the integral time for encoderless operation for the speed controller.

Note: The integral component is stopped if the complete controller output or the sum of controller output and torque pre-control reach the torque limit.

p1475[0...n] CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the torque setting value when starting up with motor holding brake.

Recommend.: To hold the actual torque when stopping the motor, you are advised to set p1400 bit 1 = 1. As a result, the integral component of the speed controller is frozen when changing to the open-loop controlled operating range.

Dependency: The switching in of the torque setting value for the motor holding brake has a higher priority than the setting of the integrator value using p1477 and p1478.

Note: The setting of the integral output of the speed controller begins after magnetizing (see p0346, r0056 bit 4) and ends at the end of the brake control opening time p1216. A setting value of zero means that no setting procedure will take place.

p1476[0...n] BI: Speed controller hold integrator / n_ctrl integ stop

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2520, 5040, 5042, 5210, 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to hold the integrator for the speed controller.

p1477[0...n] BI: Speed controller set integrator value / n_ctrl integ set

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2520, 5040, 5042, 5210, 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to set the integrator setting value (p1478).

Dependency: Refer to: p1478, p1479

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

p1478[0...n] CI: Speed controller integrator setting value / n_ctr integ_setVal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the integrator setting value for the velocity controller.

The signal to set this integrator setting value is interconnected via p1477.

Dependency: The setting value of the speed controller integrator is weighted with the scaling factor of the signal source in p1479.

If p1478 is interconnected to the integral output of the speed controller (r1482), then after the magnetizing time (r0346) and if the speed controller is enabled, the integral component of the controller is set to the last value before the pulse inhibit. This value is set if no setting command (p1477) is interconnected or, at the instant that the pulses were inhibited, a setting command is available, which is not de-activated up to the next time that the pulses are inhibited. For sensorless vector control, in addition p1400.1 should be set to 1 so that when the drive is stopped, the integral component of the speed controller is not controlled down to zero.

In order that when setting the integrator output, only the static torque is detected, we recommend that the accelerating torque is completely pre-controlled (e.g. p1496).

If p1478 is interconnected to another output other than r1482, then after magnetizing and speed controller enable, the integral output is set once if the setting command is not interconnected (p1477 = 0).

Refer to: p1477, p1479

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1479[0...n] CI: Speed controller integrator setting value scaling / n_ctrl I_val scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6040
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for scaling the integrator setting value (p1478) of the speed controller.

Dependency: Refer to: p1477, p1478

r1480 CO: Speed controller PI torque output / n_ctrl PI-M_outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5019, 5040, 5042, 5060, 5210, 6060
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the torque setpoint at the output of the PI speed controller.

r1481 CO: Speed controller P torque output / n_ctrl P-M_outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5040, 5042, 5210, 6040
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the torque setpoint at the output of the P speed controller.

r1482 CO: Speed controller I torque output / n_ctrl I-M_outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5040, 5042, 5210, 6030, 6040
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the torque setpoint at the output of the I speed controller.

p1486[0...n] CI: Droop compensation torque / Droop M_comp

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the compensation torque to be output within the droop calculation.

This parameter should be interconnected with the torque setpoint of the drive (corresponding to the selection p1488), with which load equalization should be performed.

p1487[0...n] Droop compensation torque scaling / Droop M_comp scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the compensation torque within the droop calculation.

p1488[0...n] Droop input source / Droop input source

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the source for droop feedback.

With increasing torque, the speed setpoint is reduced (enabled using p1492), so that for mechanically coupled drives a load equalization (load compensation) is obtained.

A load difference compensation is also possible, if p1486 is interconnected with the torque setpoint of the other drive.

Value:
0: Droop feedback not connected
1: Droop from torque setpoint
2: Droop from speed controller output
3: Droop from integral output speed controller

Dependency: Refer to: p1486, p1487, p1489, r1490, p1492

Caution: For active acceleration precontrol of the speed controller (refer to p1496), it is not recommended that p1488 is set to 1, as this could result in positive coupling effects. Instead of this, as source of the droop feedback, the output signal of the speed controller should be used, which generally sets the load torque.

p1489[0...n] Droop feedback scaling / Droop scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	0.500	0.050

Description: Sets the scaling for the droop feedback

Dependency: Refer to: p1486, p1487, p1488, r1490, p1492

Note: Example:

A value of 0.05 means that for a torque equal to the rated motor torque, the rated motor speed is reduced by 5 %.

r1490 CO: Droop feedback speed reduction / Droop n_reduction

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the output signal of the droop calculation. The droop feedback result is subtracted from the speed setpoint when activated (p1492).

Dependency: Refer to: p1486, p1487, p1488, p1489, p1492

p1492[0...n]	BI: Droop feedback enable / Droop enable		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2520, 6030
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Enables the droop to be applied to the speed/velocity setpoint.

Dependency: Refer to: p1486, p1487, p1488, p1489, r1490

Note: Even when not enabled, the droop speed is calculated but not subtracted from the setpoint speed. This makes it possible to subtract the result of this calculation from the speed of another drive.

r1493	CO: Moment of inertia total, scaled / M_mom inert tot_sc		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6031
	P-Group: Closed-loop control	**Units group:** 25_1	**Unit selection:** p0100
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [kgm²]	- [kgm²]	- [kgm²]

Description: Display and connector output for the parameterized total moment of inertia.

The value is calculated with ((p0341 * p0342) * p1496).

The scaling is not take into account using p1497.

p1495[0...n]	CI: Acceleration pre-control / a_prectrl		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6031
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2007	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the acceleration pre-control.

Dependency: The signal source for the acceleration is activated with p1400.2 = 1.

For p1400.2 = 0, the acceleration pre-control is calculated from the speed setpoint change from r0062.

For p1400.2 = 0 and activate reference model (p1400.3 = 1) the acceleration pre-control is switched out.

Refer to: p1400, p1496

Note: If the acceleration is entered as external signal, then the accelerating torque is calculated as follows (r1518):

r1518 = acceleration (% of p2007) / 100 % * (p2007 * 60 s) / p0311 * r0345 / 1 s * r0333

p1496[0...n]	Acceleration pre-control scaling / a_prectrl scal		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6031
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	10000.0 [%]	0.0 [%]

Description: Sets the scaling for the acceleration pre-control of the speed/velocity controller.

Dependency: When the reference model is activated (p1400.3 = 1) and for an internal acceleration pre-control (p1400.2 = 0), the acceleration pre-control is switched out (disabled). The reference model (p1400.3 = 1) and external acceleration pre-control (p1400.2 = 1) can be operated together.

Refer to: p0341, p0342

Warning:

The acceleration precontrol r1518 is kept at the old value if the ramp-function generator tracking (r1199.5) is active or the ramp-function generator output is set (r1199.3). This is used to avoid torque peaks. Depending on the application, it may therefore be necessary to disable the ramp-function generator tracking (p1145 = 0) or the acceleration precontrol (p1496 = 0).

The acceleration precontrol is set to zero, if the Vdc control is active (r0056.14/15).

Note:

The parameter is set to 100% by the rotating measurement (refer to p1960).

The acceleration pre-control may not be used if the speed setpoint manifests significant ripple (e.g. analog setpoint) and the rounding-off in the speed ramp-function generator is disabled.

We also recommend that the pre-control mode is not used if there is gearbox backlash.

p1497[0...n] CI: Moment of inertia scaling signal source / M_inert scal s_src

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 5042, 5210, 6030, 6031
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for scaling the motor moment of inertia.

p1498[0...n] Load moment of inertia / Load M_inertia

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5042, 5210
P-Group: Closed-loop control	**Units group:** 25_1	**Unit selection:** p0100
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [kgm²]	100000.00000 [kgm²]	0.00000 [kgm²]

Description: Sets the load moment of inertia.

Note: (p0341 * p0342) + p1498 influence the speed/torque pre-control in encoderless operation.

p1499[0...n] Accelerating for torque control scaling / a for M_ctrl scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6030
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	400.0 [%]	100.0 [%]

Description: Sets the scaling for the acceleration integrator at low speeds (only for encoderless torque control).

Dependency: Refer to: p0341, p0342

p1500[0...n] Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set

VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	999999	0

Description: Runs the corresponding macro files.

The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.

The selected macro file must be available on the memory card/device memory.

Example:

p1500 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0015, p0700, p1000, r8573

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector Input

p1501[0...n] BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl

VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2520, 6020
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for toggling between speed and torque control.

0 signal: Closed-loop speed control

1 signal: Closed-loop torque control

Dependency: The input connectors to enter the torque are provided using p1511, p1512 and p1513.

Refer to: p1300

Notice: If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse suppression when standstill is detected (p1226, p1227).

Note: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1502[0...n] BI: Freeze moment of inertia estimator / J_estim freeze

VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to freeze the estimated moment of inertia.

0 signal:

Moment of inertia estimator active

1 signal:

Determined moment of inertia frozen.

Dependency: Refer to: p1300

Note: Only active when the "moment of inertia estimator" function module is active (r0108.10 = 1) and p1400.18 =1.

For operation with encoder, in addition, p1402.4 must be set to 1.

p1503[0...n] CI: Torque setpoint / M_set

VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6060
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the torque setpoint for torque control.

Note: A change is made to closed-loop torque control if, in p1300, closed-loop torque control was selected or if the selection was made using the changeover source in p1501.

it is also possible to change over in operation using p1501.

r1508 — CO: Torque setpoint before supplementary torque / M_set bef. M_suppl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6030, 6060, 6722
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the torque setpoint before entering the supplementary torque.

For closed-loop speed control, r1508 corresponds to the speed controller output; for closed-loop torque control, r1508 corresponds to the torque setpoint of the signal source assigned in p1503.

p1511[0...n] — CI: Supplementary torque 1 / M_suppl 1

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for supplementary torque 1.

p1512[0...n] — CI: Supplementary torque 1 scaling / M_suppl 1 scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 5060, 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for scaling the supplementary torque 1.

p1513[0...n] — CI: Supplementary torque 2 / M_suppl 2

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for supplementary torque 2.

p1514[0...n] — Supplementary torque 2 scaling / M_suppl 2 scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for supplementary torque 2.

r1515	**Supplementary torque total / M_suppl total**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6020, 6060
	P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the total supplementary torque.

The displayed value is the total of supplementary torque values 1 and 2 (p1511, p1512, p1513, p1514).

r1516	**CO: Supplementary torque and acceleration torque / M_suppl + M_accel**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6060
	P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the total supplementary torque and the accelerating torque.

The displayed value is the total of the smoothed supplementary torque and the accelerating torque (p1516 = p1518[1] + r1515).

p1517[0...n]	**Accelerating torque smoothing time constant / M_accel T_smooth**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5042, 5210, 6060
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	100.00 [ms]	4.00 [ms]

Description: Sets the smoothing time constant of the accelerating torque.

Note: For servo drives, the following applies:

- For p1402.4 = 1, the highest dynamic performance is achieved with p1517 = 0 ms.
- In encoderless operation, p1517 should be set >= 0.5 ms; for an induction motor with current displacement rotor p1517 >= 20 ms is recommended.

For vector drives, the following applies:

- The acceleration pre-control is inhibited if the smoothing is set to the maximum value.

r1518[0...1]	**CO: Accelerating torque / M_accel**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6060
	P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the accelerating torque for pre-control of the speed controller.

Index: [0] = Unsmoothed
[1] = Smoothed

Dependency: Refer to: p0341, p0342, p1496

p1520[0...n] CO: Torque limit upper / M_max upper

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6630
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the fixed, upper torque limit.

Dependency: Refer to: p1521, p1522, p1523, r1538, r1539

Danger: Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).

p1521[0...n] CO: Torque limit lower / M_max lower

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6020, 6630
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-20000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: Sets the fixed, lower torque limit.

Dependency: Refer to: p1520, p1522, p1523

Danger: Positive values when setting the lower torque limit (p1521 > 0) can result in the motor accelerating in an uncontrollable fashion.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).

p1522[0...n] CI: Torque limit upper / M_max upper

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1520[0]

Description: Sets the signal source for the upper torque limit.

Dependency: Refer to: p1520, p1521, p1523

Danger: Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1523[0...n] CI: Torque limit lower / M_max lower

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1521[0]

Description: Sets the signal source for the lower torque limit.

Dependency: Refer to: p1520, p1521, p1522

Danger: Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1524[0...n] CO: Torque limit upper scaling / M_max upper scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper torque limit.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the meaning stated above if it is interconnected from connector input p1528.

p1525[0...n] CO: Torque limit lower scaling / M_max lower scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the lower torque limit.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the meaning stated above if it is interconnected from connector input p1528.

r1526 CO: Torque limit upper without offset / M_max up w/o offs

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6060, 6630, 6640
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the upper torque limit of all torque limits without offset.

Dependency: Refer to: p1520, p1521, p1522, p1523, p1528, p1529

r1527 — CO: Torque limit lower without offset / M_max low w/o offs

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6060, 6630, 6640
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the lower torque limit of all torque limits without offset.

Dependency: Refer to: p1520, p1521, p1522, p1523, p1528, p1529

p1528[0...n] — CI: Torque limit upper scaling / M_max upper scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1524[0]

Description: Sets the signal source for the scaling of the upper torque limit in p1522.

Danger: For p1400.4 = 0 (torque limiting, upper/lower) the following applies:
Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1529[0...n] — CI: Torque limit lower scaling / M_max lower scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1525[0]

Description: Sets the signal source for the scaling of the lower torque limit in p1523.

Danger: For p1400.4 = 0 (torque limiting, upper/lower) the following applies:
Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1530[0...n] — Power limit motoring / P_max mot

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6640
P-Group: Closed-loop control	**Units group:** 14_5	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [kW]	100000.00 [kW]	0.00 [kW]

Description: Sets the power limit when motoring.

Dependency: Refer to: p0500, p1531

Note: The power limit is limited to 300% of the rated motor power.

p1531[0...n]	**Power limit regenerative / P_max gen**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6640
	P-Group: Closed-loop control	**Units group:** 14_5	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-100000.00 [kW]	-0.01 [kW]	-0.01 [kW]

Description: Sets the regenerative power limit.

Dependency: Refer to: p0500, p1530

Note: The power limit is limited to 300% of the rated motor power.

For power units without regenerative feedback into the line supply, the regenerative power limit is pre-set to 30% of the motoring power limit p1530 and in the ratio rated drive converter power to rated motor power. If a braking resistor is connected to the DC link, then the power limit can be correspondingly increased.

r1533	**Current limit torque-generating total / Iq_max total**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6640
	P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum torque/force generating current as a result if all current limits.

r1536[0...1]	**Current limit maximum torque-generating current / Isq_max**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6640, 6710
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum limit for the torque-generating current component.

Index 0 indicates the signal limited by the Vdc controller.

Index: [0] = Limited
[1] = Unlimited

r1537[0...1]	**Current limit minimum torque-generating current / Isq_min**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6640, 6710
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the minimum limit for the torque-generating current component.

Index 0 indicates the signal limited by the Vdc controller.

Index: [0] = Limited
[1] = Unlimited

r1538	CO: Upper effective torque limit / M_max upper eff		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6020, 6640
	P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the actual effective upper torque limit.

Note: The effective upper torque limit is reduced with respect to the selected upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).

The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1540).

The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1539	CO: Lower effective torque limit / M_max lower eff		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6020, 6640
	P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the actual effective lower torque limit.

Note: The effective lower torque limit is reduced with respect to the selected lower torque limit p1521, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).

The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1541).

The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

p1540[0...n]	CI: Torque limit speed controller upper scaling / M_max n-ctr upScal		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6060
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output.

p1541[0...n]	CI: Torque limit. speed controller lower scaling / M_max nctr lowScal		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6020, 6060
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output.

p1545[0...n] BI: Activates travel to a fixed stop / TfS activation

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2520, 3617, 8012
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to activate/de-activate the "travel to fixed stop" function

1: Travel to fixed stop is active

0: Travel to fixed stop is inactive

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: EPOS uses the parameter (refer to p2686).

When traveling to fixed stop, the fault F07900 "motor blocked" is suppressed.

r1547[0...1] CO: Torque limit for speed controller output / M_max outp n_ctrl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6060
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the torque limit to limit the speed controller output.

Index: [0] = Upper limit
[1] = Lower limit

r1548[0...1] CO: Stall current limit torque-generating maximum / Isq_max stall

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the limit for the torque-generating current component using the stall calculation, the current limit of the Motor Module as well as the parameterization in p0640.

Index: [0] = Upper limit
[1] = Lower limit

p1551[0...n] BI: Torque limit variable/fixed signal source / M_lim var/fixS_src

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 5620, 5630, 6060, 6630
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source to change over the torque limits between variable and fixed torque limit.

BI: p1551 = 1 signal:

The variable torque limit applies (fixed torque limit + scaling).

BI: p1551 = 0 signal:

The fixed torque limit applies.

Example:
In order that for a Quick Stop (OFF3) the fixed torque limit is effective, binector input: p1551 must be interconnected to r0899.5.

p1552[0...n] CI: Torque limit upper scaling without offset / M_max up w/o offs

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output without taking into account the current and power limits.

p1553[0...n] Stall limit scaling / Stall limit scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
80.0 [%]	130.0 [%]	100.0 [%]

Description: Sets the scaling of the stall limit for the start of field weakening.

Danger: If the stall current limit is increased, then the q current setpoint can exceed the stall limit; as a consequence, a hysteresis effect can occur when loading and unloading.

p1554[0...n] CI: Torque limit lower scaling without offset / M_max low w/o offs

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6060
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output without taking into account the current and power limits.

p1555[0...n] CI: Power limit / P_max

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6640
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** r2004	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the motoring and negative regenerative power limit.

Dependency: Refer to: p1530, p1531

Note: The resulting motoring power limit is the minimum from p1530 and the signal which is read in.
The resulting regenerative power limit is the maximum from p1531 and the negative signal which is read in.

p1556[0...n] Power limit scaling / P_max scal

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6640
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	340.28235E36	0.00

Description: Sets the scaling of the signal source for the motoring and negative regenerative power limit.

0 signifies no power limiting.

p1560[0...n] Moment of inertia estimator accelerating torque threshold value / J_est M thresh

VECTOR_G (J_estimator)

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.10 [%]	100.00 [%]	10.00 [%]

Description: Sets the threshold for the accelerating torque for the moment of inertia estimator.

The moment of inertia estimator is active above this threshold.

The value is referred to the rated torque (r0333).

Dependency: Refer to: p1400, p1561, p1562

Note: The moment of inertia estimation is inaccurate at very low accelerating torques/accelerating forces. As a consequence, below this threshold, the estimator does not provide any new values.

p1561[0...n] Moment of inertia estimator change time moment of inertia / J_est t J

VECTOR_G (J_estimator)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.00 [ms]	5000.00 [ms]	500.00 [ms]

Description: Sets the change time for the moment of inertia for the moment of inertia estimator.

Lower values mean that faster changes are possible.

For a higher value, this estimated value is smoothed more significantly.

Dependency: Refer to: p1400, p1560, p1562

p1562[0...n] Moment of inertia estimator change time load / J_est t load

VECTOR_G (J_estimator)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5.00 [ms]	5000.00 [ms]	10.00 [ms]

Description: Sets the change time for the load torque/load force for the moment of inertia estimator.

Lower values mean that faster changes are possible.

For a higher value, this estimated value is smoothed more significantly.

Dependency: Refer to: p1400, p1560, p1561

p1563[0...n]	CO: Mom. of inertia estimator load torque direction of rotation pos. / J_est M pos		
VECTOR_G (J_estimator)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-340.28235E36 [Nm]	340.28235E36 [Nm]	0.00 [Nm]

Description: Display and connector output for the monitored load torque in the positive direction of rotation.
The moment of inertia estimator estimates the load torque drawn while the speed is constant.

Dependency: Refer to: p1400, p1560, p1561

p1564[0...n]	CO: Mom. of inertia estimator load torque direction of rotation neg. / J_est M neg		
VECTOR_G (J_estimator)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-340.28235E36 [Nm]	340.28235E36 [Nm]	0.00 [Nm]

Description: Display and connector output for the monitored load torque in the negative direction of rotation.
The moment of inertia estimator estimates the load torque drawn while the speed is constant.

Dependency: Refer to: p1400, p1560, p1561

r1568[0...5]	CO: Open-loop flux control closed-loop controlled reluctance motor / Flux ctrl SRM		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL, FEM	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays signals of the open-loop flux control of the closed-loop controlled reluctance motor.

Index:
[0] = Setpoint before filter
[1] = Output MTPC characteristic
[2] = Lower limit at low torque
[3] = Lower limit at low speed
[4] = Upper limit from field weakening controller total
[5] = Upper limit from field weakening controller precontrol

p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	3841[0]

Description: Sets the signal source for supplementary torque 3.

Dependency: Refer to: p3842

Notice: The signal input is after the torque limit (r1538, r1539). For vector drives, the signals that are entered are only limited by the current and power limits.

Note: The signal input is preferably used to enter the friction characteristic. The friction compensation is also effective if the speed controller output reaches its torque limits, but the current limits have still not been reached (this only applies to vector drives).

p1570[0...n] CO: Flux setpoint / Flex setp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6722
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
50.0 [%]	200.0 [%]	100.0 [%]

Description: Sets the flux setpoint referred to rated motor flux.

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: For p1570 > 100%, the flux setpoint increases as a function of the load from 100% (no-load operation) to the setting in p1570 (above rated motor torque), if p1580 > 0% has been set.

p1571[0...n] CI: Supplementary flux setpoint / Suppl flux setp

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6725
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the supplementary flux setpoint.

Notice: Low flux setpoints can cause the drive to stall at higher loads. This is the reason that the flux setpoint should only be adapted for slow load changes.

Note: The supplementary flux setpoint is limited to +/- 50 %.

p1572[0...n] Supplementary flux setpoint / Suppl flux setp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6726
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets the supplementary flux setpoint for the flux controller.

The value is referred to the rated motor flux.

Notice: The parameter should be set back to 0% again for normal closed-loop control operation.

Note: The parameter is used to optimize the flux controller. The current model is not influenced by the setting.

p1573[0...n] Flux threshold value magnetizing / Flux thresh magnet

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6722
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	200.0 [%]	100.0 [%]

Description: Sets the flux threshold value for enabling the speed setpoint and the end of magnetizing (r0056.4).

Note: The parameter only has an influence if the flux actual value reaches the threshold value p1573 more quickly during magnetizing than the time set in p0346. This is generally the case when selecting fast magnetization (p1401 bit 6).

The parameter has no influence for flying restart (see p1200) and after DC braking (see p1231).

p1574[0...n] Voltage reserve dynamic / U_reserve dyn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6723, 6724
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [Vrms]	150.0 [Vrms]	10.0 [Vrms]

Description: Sets a dynamic voltage reserve.

Note: In the field weakening range, it must be expected that the control dynamic performance is somewhat restricted due to the limited possibilities of controlling/adjusting the voltage. This can be improved by increasing the voltage reserve. Increasing the reserve reduces the steady-state maximum output voltage (r0071).

p1575[0...n] Voltage target value limit / U_tgt val lim

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6725
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
50.00 [%]	200.00 [%]	200.00 [%]

Description: Sets the limit of the voltage target value.

In steady-state field weakening operation this corresponds to the required output voltage.

The value of 100% refers to p0304.

Note: The output voltage is only limited if the maximum output voltage (r0071) minus the voltage reserve (p1574) corresponds to a value higher than p1575.

Limiting via p1575 allows the influence of the voltage ripple of the line supply voltage to be eliminated at the operating point.

p1576[0...n] Flux boost adaptation speed, lower / Flux boost n lower

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6725
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the lower adaptation speed of the flux boost.

Below this speed, p1570 is set as reference (setpoint) flux.

p1577[0...n] Flux boost adaptation speed upper / Flux boost n upper

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6725
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.0 [%]	10000.0 [%]	200.0 [%]

Description: Sets the upper adaptation speed of the flux boost.

Above this speed, the rated motor flux (100 %) is set as reference (setpoint) flux.

Dependency: The parameter value refers to the lower adaptation speed of the flux boost.

Refer to: p1576

p1580[0...n]	**Efficiency optimization / Efficiency opt.**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6722
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [%]	100 [%]	0 [%]

Description: Sets the efficiency optimization.
When optimizing the efficiency, the flux setpoint of the closed-loop control is adapted as a function of the load.
For p1580 = 100 %, under no-load operating conditions, the flux setpoint is reduced to 50 % of the rated motor flux.

Note: It only makes sense to activate this function if the dynamic response requirements of the speed controller are low.
In order to avoid oscillations, if required, the speed controller parameters should be adapted (increase Tn, reduce Kp).
Further, the smoothing time of the flux setpoint filter (p1582) should be increased.

p1582[0...n]	**Flux setpoint smoothing time / Flux setp T_smth**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6722, 6724, 6725
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	4 [ms]	5000 [ms]	15 [ms]

Description: Sets the smoothing time for the flux setpoint.

r1583	**Flux setpoint smoothed / Flux setp smooth**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6722, 6723, 6724
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the smoothed flux setpoint.
The value is referred to the rated motor flux.

p1584[0...n]	**Field weakening operation flux setpoint smoothing time / Field weak T_smth**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6722
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	20000 [ms]	0 [ms]

Description: Sets the smoothing time for the flux setpoint in the field-weakening range

Recommend.: Smoothing should be especially used if there is no regenerative feedback into the line supply. This means that the DC link voltage can quickly increase in regenerative operation

Note: Only the flux setpoint rise is smoothed

p1585[0...n] Flux actual value smoothing time / Flux actVal T_smth

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6726
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the smoothing time for the flux actual value.

p1586[0...n] Field weakening characteristic scaling / Field weak scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
80.0 [%]	120.0 [%]	100.0 [%]

Description: Sets the scaling of the pre-control characteristic for the start of field weakening.

For values above 100 % and for partial load situations, the field weakening starts at higher speeds.

Note: If the start of field weakening is shifted to lower speeds, then the voltage reserve is increased for partial load situations.

If the start of field weakening is shifted to higher speeds, the voltage reserve is appropriately reduced so that for fast load changes, it can be expected that this will have a negative impact on the dynamic performance.

r1589 Field-weakening current pre-control value / I_FieldWeak prectr

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6724
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the pre-control value for the field weakening current.

p1590[0...n] Flux controller P gain / Flux controller Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6723
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0	999999.0	10.0

Description: Sets the proportional gain for the flux controller.

Note: The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameters (p0340 = 4), this value is re-calculated.

p1592[0...n] Flux controller integral time / Flux controller Tn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6723
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	10000 [ms]	30 [ms]

Description: Sets the integral time for the flux controller.

Note: The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameters (p0340 = 4), this value is re-calculated.

r1593[0...1] CO: Field weakening controller / flux controller output / Field/Fl_ctrl outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6723, 6724, 6726
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the output of the field weakening controller (synchronous motor) or the output of the flux controller (separately-excited synchronous motor, induction motor).

Index: [0] = PI output
[1] = I output

p1594[0...n] Field-weakening controller P gain / Field_ctrl Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6724
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	1000.00	0.00

Description: Sets the P gain of the field-weakening controller.

p1595[0...n] Field weakening controller additional setpoint / Field_ctr add_setp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6726
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	50.00 [%]	0.00 [%]

Description: Sets an additional setpoint for the field weakening controller.

The value refers to the dynamic voltage reserve (p1574).

Note: With a value equal to zero, when the target voltage limited with p1575 is reached, the field weakening controller is activated.

Higher values mean that the field weakening controller intervenes later.

p1596[0...n] Field weakening controller integral-action time / Field_ctrl Tn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6723, 6724
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10 [ms]	10000 [ms]	50 [ms]

Description: Sets the integral-action time of the field-weakening controller.

r1597	**CO: Field weakening controller output / Field_ctrl outp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6723
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the output of the field weakening controller.

The value is referred to the rated motor flux.

r1598	**CO: Total flux setpoint / Flux setp total**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714, 6723, 6724, 6725, 6726, 8018
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the effective flux setpoint.

The value is referred to the rated motor flux.

p1599[0...n]	**Flux controller excitation current difference / Flux ctr I_exc_dif**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	100.0 [%]	3.0 [%]

Description: Sets the permissible difference between the actual excitation current and the excitation current setpoint.

The excitation current flux controller is active within this difference.

If the difference lies outside the specified limit value, then the I component of the excitation current flux controller is kept. Instead of this, for the flux controller of the field-generating current, an additional I controller is switched in (integral time according to p1592).

If the difference again lies within the bandwidth, the I component of the excitation current flux controller is re-activated and the I component of the flux controller of the field-generating current is reduced as an exponential function with respect to time. The reduction of the I component over time depends on the rotor time constant (r0384).

p1600[0...n]	**P flux controller P gain / P flux ctrl Kp**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0	999999.0	10.0

Description: Sets the proportional gain of the P flux controller for separately-excited synchronous motors (FEM).

Note: The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameters (p0340 = 4), this value is re-calculated.

r1602 CO: P flux controller output / P flux ctrl outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6726, 6727
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the output of the P flux controller for separately-excited synchronous motors (FEM).

p1604[0...n] Pulse technique current limit / Pulse current lim

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the effective current limit within the pulse technique.

Note: The saturation characteristic of the motor defines the available operating range for the pulse technique.
This operating range can be adjusted using the current limit.
When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.
Otherwise, the rated motor current is used as pre-assigned value.

p1605[0...n] Pulse technique pattern configuration / Puls pattrn config

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	2

Description: Sets the applied pulse patterns for estimating the continuous rotor position.
Remark:
See p1750 for the activation of the pulse-pattern technique.

Value:
1: pm
2: ppmm

Dependency: Refer to: p1750

Note: When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.

r1606 CO: Pulse technique pattern actual / Puls pattern act

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	-

Description: Displays the currently applied pulse patterns for estimating the continuous rotor position.

Value:
0: None
1: pm
2: ppmm

Dependency: Refer to: p1605, p1750

p1607[0...n] Pulse technique stimulus / Puls stimulus

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [mVs]	20000.000 [mVs]	32.000 [mVs]

Description: Sets the excitation amplitude (voltage-time pulse) for the pulse technique for estimating the continuous rotor position.

Dependency: Refer to: p1605, p1750

r1608[0...6] CO: Pulse technique response / Puls response

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the signal responses to the excitation of the pulse technique.

Index:
[0] = Phase R
[1] = Phase S
[2] = D estimated
[3] = Q estimated
[4] = D estimated AC
[5] = Q estimated AC
[6] = Pointer length AC

Dependency: Refer to: p1605, p1607, p1750

p1609[0...n] I/f operation current setpoint / I/f op I_setp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the stator current setpoint for operation of a separately-excited synchronous motor (FEM) in operating mode I/f (p1300 = 18).

p1610[0...n] Torque setpoint static (sensorless) / M_set static

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6700, 6721, 6722, 6726
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.0 [%]	200.0 [%]	50.0 [%]

Description: Sets the static torque setpoint for sensorless vector control.

This parameter is entered as a percentage referred to the rated motor torque (r0333).

For sensorless vector control, when the motor model is shut down, an absolute current is impressed. p1610 represents the maximum load that occurs at a constant setpoint speed.

Notice: p1610 should always be set to at least 10 % higher than the maximum steady-state load that can occur.

Note: For p1610 = 0%, a current setpoint is calculated that corresponds to the no-load case (ASM: rated magnetizing current).

For p1610 = 100 %, a current setpoint is calculated that corresponds to the rated motor torque.

Negative values are converted into positive setpoints in the case of induction and permanent-magnet synchronous motors.

p1611[0...n] Additional acceleration torque (sensorless) / M_suppl_accel

VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6700, 6721, 6722, 6726
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	200.0 [%]	30.0 [%]

Description: Enters the dynamic torque setpoint for the low-speed range for sensorless vector control.

This parameter is entered as a percentage referred to the rated motor torque (r0333).

Note: When accelerating and braking p1611 is added to p1610 and the resulting total torque is converted into an appropriate current setpoint and controlled.

For pure accelerating torques, it is always favorable to use the torque pre-control of the speed controller (p1496).

p1612[0...n] Current setpoint magnetizing open-loop controlled / Id_set ctrl

VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the magnetizing current setpoint in the open-loop controlled encoderless operation.

The value is only valid during the current model orientation.

Dependency: Refer to: p1610, p1611

Note: The value is effective at speeds less than p1755 and represents a reserve for a possibly existing load torque or torque error in the moment of inertia.

r1614 EMF maximum / EMF max

VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6725
	P-Group: Displays, signals	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual maximum possible electromotive force (EMF) of the separately-excited synchronous motor.

Dependency: The value is the basis for the flux setpoint.

The maximum possible EMF depends on the following factors:

- Actual DC link voltage (r0070).
- Maximum modulation depth (p1803).
- Field-generating and torque-generating current setpoint.

p1616[0...n] Current setpoint smoothing time / I_set T_smooth

VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6721, 6722, 6726
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	4 [ms]	10000 [ms]	40 [ms]

Description: Sets the smoothing time for the current/torque setpoint in the open-loop-controlled operating range in the case of sensorless vector control.

Note: This parameter is only effective in the range where current is injected for sensorless vector control.
For permanent magnet synchronous motors, the parameter is effective over the complete speed range.
For induction motors, the current setpoint is calculated from p1610 and p1611 and for separately excited synchronous motors the torque setpoint is calculated from p1610 and p1611.

r1617 CO: Torque setpoint (controlled) / M_set op-loop ctrl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Torque setpoint for sensorless control of the separately excited synchronous motor in the open-loop-controlled operating range (under p1755 * p1756).

r1618 Current model controller pre-control / I_mod_ctrl prectrl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the pre-control value of the current model controller.
It involves a magnetizing current in the d-direction.

p1619[0...n] Setpoint/actual value tracking threshold / SetAct track thrsh

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Threshold for setpoint/actual value tracking of the stator current in the q axis of the current model.

p1620[0...n] Stator current minimum / I_stator min

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10000.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the minimum stator current for separately-excited synchronous motors (FEM).
A negative value means that the field-generating stator current (d-axis) has a negative sign. The valid value is internally limited to 50% of the rated motor current (p0305).

p1621[0...n] Changeover speed inner cos phi = 1 / n_chngov cos phi=1

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the speed where a change is made from the inner to the outer cos phi = 1.

If the value that is entered exceeds the rated speed, then a change is made to the inner cos phi = 1 over the complete speed range.

p1622[0...n] Field-generating current setpoint smoothing time constant / Id_setp T_smth

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [ms]	200.0 [ms]	20.0 [ms]

Description: Sets the smoothing time constant for the setpoint of the field-generating current components.

The current filtered in this way is included in the calculation of the cos phi.

r1623[0...1] Field-generating current setpoint (steady-state) / Id_set stationary

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6723, 6726, 6727
P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: PEM, REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the steady-state field generating current setpoint (Id_set).

Note: Re index 1:

Displays the stationary field-generating current on the stator side in the case of separately excited synchronous motors without the excitation current monitoring component (r1644).

r1624 Field-generating current setpoint total / Id_setp total

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6640, 6721, 6723, 6727
P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the limited field-generating current setpoint (Id_set).

This value comprises the steady-state field-generating current setpoint r1623 and a dynamic component that is only set when changes are made to the flux setpoint.

p1625[0...n] Excitation current setpoint calibration / I_exc_setp cal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.0 [%]	200.0 [%]	100.0 [%]

Description: Sets the gain factor to weight the excitation current setpoint.

r1626	CO: Excitation current setpoint / I_exc_setp		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the calculated excitation current setpoint.

Dependency: Refer to: p0390

r1627	CO: Current model load angle / I_mod load angle		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** p2005	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°]	- [°]	- [°]

Description: Displays the load angle of the current model.

p1628[0...n]	Current model controller dynamic factor / I_mod_ctr dyn_fact		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1 [%]	400 [%]	50 [%]

Description: Sets the dynamic response factor for the current model controller.

p1629[0...n]	Current model controller P gain / I_mod_ctrl Kp		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000	100000.000	0.000

Description: Sets the proportional gain for the current model controller.
This value is automatically pre-set using p3900 or p0340 when commissioning has been completed.

p1630[0...n]	Current model controller integral time / I_mod_ctrl Tn		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	10000.00 [ms]	0.00 [ms]

Description: Sets the integral time for the current model controller.
This value is automatically pre-set using p3900 or p0340 when commissioning has been completed.

r1631	**Current model controller P gain effective / I_mod ctrl Kp eff**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-
Description:	Displays the effective P gain of the current model controller.		

r1632	**Current model controller integral time effective / I_mod_ctrl Tn eff**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ms]	- [ms]	- [ms]
Description:	Displays the effective integral time of the current model controller.		

r1633	**Current model flux setpoint / I_mod flux setp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]
Description:	Displays the effective flux setpoint of the current model. The value is referred to the rated motor flux.		

r1634	**Current model flux actual value / I_mod flux act val**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]
Description:	Displays the effective flux actual value of the current model. The value is referred to the rated motor flux.		

r1635	**Current model controller I component / I_mod_ctrl I comp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the I component of the current model controller.		

r1636	**Current model controller output / I_mod_ctrl outp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the output of the current model controller.		

r1637	**Current model magnetizing current d axis / I_mod I_mag d-ax**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the magnetizing current of the current model in the d-axis.		

r1638	**Current model magnetizing current q axis / I_mod I_mag q-ax**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the magnetizing current of the current model in the q-axis.		

r1639	**CO: Current model Isq after actual value tracking / I_mod Isq track**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the stator current in the q axis after the current actual value tracking.		

p1640[0...n]	**CI: Excitation current actual value signal source / I_exc_ActVal S_src**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0
Description:	Sets the signal source for the excitation current actual value		

r1641	**Excitation current actual value / I_exc_act val**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727, 8018
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the excitation current actual value that is read in.

Dependency: Refer to: p0390

p1642[0...n]	**Minimum excitation current / Min I_exc**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.1 [%]	50.0 [%]	5.0 [%]

Description: Sets the minimum excitation current.
This means that negative excitation currents can be avoided.

p1643[0...n]	**Minimum excitation current closed-loop control gain factor / I_exc_min Kp**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00	5.00	0.40

Description: Sets the gain factor for the minimum excitation current, closed-loop control.
This is active if the excitation current is below 75 % of p1642.

Dependency: Refer to: p1642

r1644	**CO: Excitation current monitoring output / I_exc_monit outp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6727
	P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
	Not for motor type: ASM, PEM, REL	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the output of the excitation current monitoring for separately excited synchronous motors.

p1645[0...7]	**BI: Excitation feedback signals signal source / Exc FS S_src**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 6495
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	[0...6] 1 [7] 0

Description: Sets the signal source for the individual feedback signals from the excitation.

Index: [0] = Excitation ready to be powered up
[1] = Excitation ready
[2] = Excitation operational
[3] = Excitation group signal fault
[4] = Excitation group signal alarm
[5] = Not used
[6] = Not used
[7] = Excitation at the voltage limit

Dependency: Refer to: r1649

p1646 Excitation monitoring time / Excit t_monit

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6495
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2.0 [s]	1300.0 [s]	20.0 [s]

Description: Sets the monitoring time of the excitation.

After an ON command, the feedback signal must be received within this monitoring time.

Note: After the on command for the excitation (r1648.0 = 1), its feedback signal must be available at r1649.1 within this monitoring time (BI: p1645[1]).

The same monitoring time is effective after the excitation is enabled for operation (r1648.3 = 1) up to the feedback signal "excitation operational" (r1649.2 = 1, BI: p1645[2]).

p1647 Excitation switch-off delay time / Exc t_off

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6495
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	5.0 [s]	0.8 [s]

Description: Sets the switch-off delay time to shut down the excitation equipment.

Note: The delay time starts if, when powering down, r0863.0 = 0.

r1648.0 and r1648.3 are reset at the end of the delay time.

r1648.0...11 CO/BO: Excitation control word / Excitation STW

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 6495
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the control word for the excitation equipment.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Power up excitation	Yes	No	-
01	Excitation no OFF2	Yes	No	-
02	Excitation no OFF3	Yes	No	-
03	Excitation operation enable	Yes	No	-
07	Excitation acknowledge fault	Yes	No	-
10	Master control by excitation equipment	Yes	No	-
11	ccw rotating field excitation invert excitation current setpoint	Yes	No	-

Note: Re bit 00:

This bit is set dependent on r0863.0.

r1649.0...8 CO/BO: Excitation status word / Excitation ZSW

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 6495
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the excitation equipment.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Excitation ready to be powered up feedback signal	Yes	No	-
01	Excitation ready feedback signal	Yes	No	-
02	Excitation operational feedback signal	Yes	No	-
03	Excitation group signal fault	Yes	No	-
07	Excitation group signal alarm	Yes	No	-
08	Excitation at the voltage limit	Yes	No	-

Dependency: Refer to: p1645

r1650 Current setpoint torque-generating before filter / Iq_set before filt

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5710
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the torque generating current setpoint Iqset after the torque limits and the clock cycle interpolation is ahead of the current setpoint filters.

r1651 CO: Torque setpoint function generator / M_set FG

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the torque setpoint of the function generator.

p1653[0...n] Current setpoint torque-generating smoothing time minimum / Isq_s T_smth min

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [ms]	20.0 [ms]	0.1 [ms]

Description: Sets the minimum smoothing time constant for the setpoint of the torque-generating current components.

p1654[0...n] Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [ms]	50.0 [ms]	4.8 [ms]

Description: Sets the smoothing time constant for the setpoint of the torque-generating current components.

Note: The smoothing time does not become effective until the field-weakening range is reached.

p1655[0...4] CI: Current setpoint/Speed actual value filter nat. frequency tuning / I/n_setp_filt f_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6700, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for tuning the natural frequency of the current setpoint filter 1, 2 and speed actual value filter 5.

Index:
[0] = Filter 1
[1] = Filter 2
[2] = Reserved
[3] = Reserved
[4] = Filter 5

p1656[0...n] Current setpoint/Speed actual value filter activation / I_setp_filt act

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0001 bin

Description: Setting for activating/de-activating the current setpoint filter 1, 2 and speed actual value filter 5.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Filter 1	Active	Inactive	-
01	Filter 2	Active	Inactive	-
04	Filter 5	Active	Inactive	-

Dependency: The individual current setpoint/speed actual value filters are parameterized starting at p1657.

Note: If not all of the filters are required, then the filters should be used consecutively starting from filter 1.

p1657[0...n] Current setpoint filter 1 type / I_set_filt 1 type

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	1

Description: Sets the current setpoint filter 1 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

Note: For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:
f_3dB bandwidth = 2 * D_denominator * f_bandstop frequency

p1658[0...n] Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1659[0...n] Current setpoint filter 1 denominator damping / I_set_filt 1 D_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.001	10.000	0.700

Description: Sets the denominator damping for current setpoint filter 1.

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1660[0...n] Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 1 (general filter).

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1661[0...n] Current setpoint filter 1 numerator damping / I_set_filt 1 D_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	10.000	0.700

Description: Sets the numerator damping for current setpoint filter 1.

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1662[0...n] Current setpoint filter 2 type / I_set_filt 2 type

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	1

Description: Sets the current setpoint filter 2 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

Note: For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

f_3dB bandwidth = 2 * D_denominator * f_bandstop frequency

p1663[0...n] Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 2 (PT2, general filter).

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1664[0...n] Current setpoint filter 2 denominator damping / I_set_filt 2 D_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.001	10.000	0.700

Description: Sets the denominator damping for current setpoint filter 2.

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1665[0...n] Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 2 (general filter).

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1666[0...n] Current setpoint filter 2 numerator damping / I_set_filt 2 D_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5710, 6710
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	10.000	0.700

Description: Sets the numerator damping for current setpoint filter 2.

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1677[0...n] Speed actual value filter 5 type / n_act_filt 5 type

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	2

Description: Sets the speed actual value filter 5 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: The speed actual value filter is activated via p1656.4 and parameterized via p1677 ... p1681.

Note: For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

f_3dB bandwidth = 2 * D_denominator * f_bandstop frequency

p1678[0...n] Speed actual value filter 5 denominator natural frequency / n_act_filt 5 fn_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the denominator natural frequency for speed actual value filter 5 (PT2, general filter).

Dependency: The speed actual value filter is activated via p1656.4 and parameterized via p1677 ... p1681.

p1679[0...n] Speed actual value filter 5 denominator damping / n_act_filt 5 D_d

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.001	10.000	0.700

Description: Sets the denominator damping for speed actual value filter 5.

Dependency: The speed actual value filter is activated via p1656.4 and parameterized via p1677 ... p1681.

p1680[0...n] Speed actual value filter 5 numerator natural frequency / n_act_filt 5 fn_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the numerator natural frequency for speed actual value filter 5 (general filter).

Dependency: The speed actual value filter is activated via p1656.4 and parameterized via p1677 ... p1681.

p1681[0...n] Speed actual value filter 5 numerator damping / n_act_filt 5 D_n

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4715
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	10.000	0.700

Description: Sets the numerator damping for speed actual value filter 5.

Dependency: The speed actual value filter is activated via p1656.4 and parameterized via p1677 ... p1681.

p1699 Filter data acceptance / Filt data accept

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates data acceptance for parameter changes for the filter.

p1699 = 0:

The new filter data are immediately accepted.

p1699 = 1:

The new filter data are only accepted when this parameter is reset.

Dependency: Speed setpoint filter 1, 2 (p1414 and following)

Current setpoint filter 1 ... 4 (p1656 and following)

Current setpoint filter 5 ... 10 (function module, p5200 and following)

Refer to: p1656

p1702[0...n] Isd current controller pre-control scaling / Isd_ctr_prectrScal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200.0 [%]	70.0 [%]

Description: Sets the scaling of the dynamic current controller pre-control for the flux-generating current component Isd.

Note: The parameter is effective for permanent and separately-excited synchronous motors.

p1703[0...n] Isq current controller pre-control scaling / Isq_ctr_prectrScal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200.0 [%]	70.0 [%]

Description: Sets the scaling of the dynamic current controller pre-control for the torque/force-generating current component Isq.

p1704[0...n] Isq current controller pre-control EMF scaling / Isq_ctrl EMF scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714, 6726
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200.0 [%]	100.0 [%]

Description: Sets the scaling of the EMF pre-control for the Isq current controller.

p1705[0...n] Flux setpoint/actual value tracking threshold / Flux track thresh

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714, 6726
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	100.0 [%]	100.0 [%]

Description: Threshold for the setpoint - actual value tracking of the EMF pre-control of the Isq current controller.

p1715[0...n] Current controller P gain / I_ctrl Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6700, 6714, 7017
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	100000.000	0.000

Description: Sets the proportional gain of the current controller for the lower adaptation current range.
This value is automatically pre-set using p3900 or p0340 when commissioning has been completed.

Dependency: Refer to: p0391, p0392, p0393

Note: For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

p1717[0...n] Current controller integral-action time / I_ctrl Tn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 5714, 6700, 6714, 7017
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	1000.00 [ms]	2.00 [ms]

Description: Sets the integral-action time of the current controller.

Dependency: Refer to: p1715

r1718 CO: Isq controller output / Isq_ctrl outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual output of the Isq current controller (torque/force generating current, PI controller).
The value contains the proportional and integral components of the PI controller.

r1719	**Isq controller integral component / Isq_ctrl I_comp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
	P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the integral component of the Isq current controller (torque/force-generating current, PI controller).

r1723	**CO: Isd controller output / Isd_ctrl outp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
	P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual output of the Isd current controller (flux-generating current, PI controller).
The value contains the proportional and integral components of the PI controller.

r1724	**Isd controller integral component / Isd_ctrl I_comp**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
	P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the integral component of the Isd current controller (flux-generating current, PI controller).

r1725	**Isd controller integral component limit / Isd_ctrl I_limit**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
	P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the limit value for the integral component of the Isd current controller.

p1726[0...n]	**Quadrature arm decoupling scaling / Transv_decpl scal**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	200.0 [%]	75.0 [%]

Description: Sets the scaling of the quadrature arm decoupling

Note: This parameter is ineffective for sensorless vector control. In this case, p1727 is always used. If p1726 is set to 0, then the quadrature de-coupling is de-activated. The integral component of the Isd current controller remains effective in the complete speed control range.
For the closed-loop control of synchronous motors, this parameter is used to scale the current controller de-coupling.

p1727[0...n] Quadrature arm decoupling at voltage limit scaling / TrnsvDecplVmaxScal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	200.0 [%]	50.0 [%]

Description: Sets the scaling of quadrature arm decoupling when the voltage limit is reached.

r1728 De-coupling voltage in-line axis / U_dir-axis_decoupl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual output of the quadrature channel de-coupling for the d axis.

r1729 De-coupling voltage quadrature axis / U_quad_decoupl

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6714
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the actual output of the quadrature channel de-coupling for the q axis.

p1730[0...n] Isd controller integral component shutdown threshold / Isd ctrl Tn shutd

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
30 [%]	150 [%]	30 [%]

Description: Sets the speed threshold for deactivating the integral component of the Isd controller.

The d current controller is only effective as P controller for speeds greater than the threshold value. Instead of the integral component, the quadrature arm decoupling is effective.

Warning: For settings above 80%, the d current controller is active up to the field weakening limit. When operated at the voltage limit, this can result in an unstable behavior. In order to avoid this, the dynamic voltage reserve p1574 should be increased.

Note: The parameter value is referred to the synchronous rated motor speed.

p1731[0...n] Isd controller combination current time component / Isd ctr I_combi T1

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	10000.00 [ms]	0.00 [ms]

Description: Sets the time constant to calculate the d current DC component difference (combination current) to add to the d current controller actual value.

Note: It is not added for p1731 = 0.

r1732[0...1] CO: Direct-axis voltage setpoint / Direct U set

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5700, 5714, 6714, 5718
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Display and connector output for the direct axis voltage setpoint Ud.

Index:
[0] = Unsmoothed
[1] = Smoothed with p0045

r1733[0...1] CO: Quadrature-axis voltage setpoint / Quad U set

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 5700, 5714, 5718, 6714, 6719
P-Group: Closed-loop control	**Units group:** 5_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Display and connector output for the quadrature axis voltage setpoint Uq.

Index:
[0] = Unsmoothed
[1] = Smoothed with p0045

p1740[0...n] Gain resonance damping for encoderless closed-loop control / Gain res_damp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	10.000	0.025

Description: Defines the gain of the controller for resonance damping for operation with sensorless vector control in the range that current is injected.

p1744[0...n] Motor model speed threshold stall detection / MotMod n_thr stall

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	100.00 [rpm]

Description: Sets the speed threshold value to detect a stalled motor.

If the adaptation controller output exceeds the parameterized speed difference, then in status word r1408.11 is set = 1.

Dependency: If a stalled drive is detected (r1408.11 = 1), fault F07902 is output after the delay time set in p2178.

Refer to: p2178

Note: Speed monitoring is only effective in operation with a speed encoder (refer to p1300).

Stalling is also identified if steps/jumps occur in the speed signal, which exceed the value in p0492.

p1745[0...n] Motor model error threshold stall detection / MotMod ThreshStall

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	1000.0 [%]	5.0 [%]

Description: Sets the fault threshold in order to detect a motor that has stalled.

If the error signal (r1746) exceeds the parameterized error threshold, then status signal r1408.12 is set to 1.

Dependency: If a stalled drive is detected (r1408.12 = 1), fault F07902 is output after the delay time set in p2178.

Refer to: p2178

Note: Monitoring is only effective in the low-speed range (below p1755 * (100% - p1756)).

r1746 Motor model error signal stall detection / MotMod sig stall

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Signal to initiate stall detection

Note: The signal is not calculated while magnetizing and only in the low speed range (below p1755 * (100 % - p1756)).

p1748[0...n] Motor model lower changeover speed n_set -> n_act / MotMod low n_chng

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	90.0 [%]	50.0 [%]

Description: Sets the lower speed for the transition "n_set -> n_act" in encoderless operation.

This value is entered as a percentage referred to p1749.

Dependency: Refer to: p1749, p1752

p1749[0...n] Motor model upper changeover speed / increase changeover speed / Up/incr n_chngov

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	99.0 [%]	50.0 [%]

Description: Separately-excited synchronous motor:

Sets the upper speed for the transition "n_set -> n_act" in sensorless operation.

This value is entered as a percentage of p1755.

Induction motor without speed encoder:

Depending on the machine data, the drive has calculated a minimum value of the operating frequency for rugged operation.

If the minimum value is greater than the lower changeover limit parameterized with p1755 * (1 - 2 * p1756), then the difference is displayed using p1749 * p1755. The parameter value cannot be changed.

Dependency: Refer to: p1748, p1752, p1755, p1756

p1750[0...n]	**Motor model configuration / MotMod config**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 bin

Description: Sets the configuration for the motor model.

Bit 0 = 1: Forces open-loop speed-controlled starting (ASM).

Bit 1 = 1: Forces the system to pass through frequency zero, open-loop-controlled (ASM).

Bit 2 = 1: Drive remains in full closed-loop control mode, even at zero frequency (ASM).

Bit 3 = 1: Motor model evaluates the saturation characteristic (ASM).

Bit 4 = 1: Time-controlled change between current and observer models (ASM).

Bit 5 = 1: HF signal injection to estimate the continuous rotor position (PESM).

Bit 6 = 1: If the motor is blocked, sensorless vector control remains speed-controlled (ASM).

For a stalled (blocked) synchronous motor (PEM), the encoderless vector control remains open-loop speed controlled.

Bit 7 = 1: Use rugged switchover limits to switchover the model between open-loop and closed-loop controlled operation (ASM).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Controlled start	Yes	No	-
01	Controlled through 0 Hz	Yes	No	-
02	Closed-loop ctrl oper. down to zero freq. for passive loads	Yes	No	-
03	Motor model Lh_pre = f(PsiEst)	Yes	No	-
04	Model changeover	Time controlled	Freq. controlled	-
05	Cl.-loop control mode PESM up to f=0Hz with HF signal injection	Yes	No	-
06	Closed-loop/open-loop controlled (PEM) for blocked motor	Yes	No	-
07	Use rugged changeover limits	Yes	No	-

Caution: Do not use bit 6 = 1 if the motor can be slowly reversed by the load at the torque limit. Long delay times due to blocking (p2177 > p1758) can cause the motor to stall. In this case you should de-activate the function or use closed-loop control throughout the speed range (note the information re bit 2 = 1).

Note: Bit 0 ... 3 only have influence for sensorless vector control, bit 4 only for vector control with encoder. Bit 2 is pre-assigned depending on p0500.

Re bit 2 = 1:

The sensorless vector control is effective down to zero frequency. A change is not made into the open-loop speed controlled mode.

This operating mode is possible for passive loads. These include applications where the load itself does not generate any active torque and therefore only acts reactively to the drive torque of the induction motor.

If bit 2 = 1, then bit 3 is automatically set to 1. Manual de-selection is possible and may be sensible if the saturation characteristic (p1960) was not measured for third-party motors. Generally, for standard SIEMENS motors, the already pre-assigned (default value) saturation characteristic is adequate.

When the bit is set, the selection of bits 0 and 1 is ignored.

Re bit 2 = 0:

If the model feedback is deactivated (p1784 = 0), with bit 2 = 0, then bit 3 is also automatically set to 0.

Re bit 5 = 1:

The selection of HF signal injection is only relevant for permanent-magnet synchronous motors (PESM). Therefore, activation of bit 5 is only possible outside of motor commissioning (p0010 = 0).

In order to achieve user-friendly configuration of the power unit components in the oversampling mode, when activated for the first time, initially p1810.3 is set, and then an automatic system boot is initiated. This is only possible if all of the axes connected to the Control Unit are switched off (refer to the setting conditions for p0009); otherwise, it is not possible to set the bit.

When deactivating p1750.5, p1810.3 remains unchanged and the system does not boot again.

Therefore, to reverse configure the power unit components from the oversampling mode (after manually deselecting p1750 bit 5) then initially p1810 bit 3 must be manually deleted and then a manual warm restart initiated.

As an alternative to a warm restart: save the parameters and carry out a POWER ON (switch-off/switch-on).

When the function "safety without encoder" (p9306/p9506) is activated, this setting is not permissible and results in monitoring errors.

Re bit 6 = 1:

The following applies for encoderless vector control of induction motors:

For a blocked motor (see p2175, p2177) the time condition in p1758 is bypassed and a change is not made into open-loop controlled operation.

The following applies for encoderless vector control of synchronous motors:

For a blocked motor (see p2175, p2177), the speed ramp-function generator is held in open-loop speed controlled operation, and a change is not made into closed-loop controlled operation.

Re bit 7 = 1:

The following applies for encoderless vector control of induction motors:

If the changeover limits are parameterized too low (p1755, p1756), then they are automatically increased to rugged values by the absolute amount p1749 * p1755.

The effective time condition for changing over into open-controlled operation is obtained from the minimum of p1758 and 0.5 * r0384.

Activation can make sense for applications that demand a high torque at low frequencies and therefore low speed gradients.

Adequate parameterization must be ensured (p1610, p1611).

r1751 Motor model status / MotMod status

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Controlled operation	Active	Inactive	6721
01	Set ramp-function generator	Active	Inactive	-
02	Stop RsLh adaptation	Yes	No	-
03	Feedback	Active	Inactive	-
04	Encoder operation	Active	Inactive	-
05	Holding angle	Yes	No	-
06	Acceleration criterion	Active	Inactive	-
07	Set angular integrator PEM	Yes	No	-
08	Stop Kt adaptation PEM	Yes	No	-
09	PolID active PEM sensorless	Yes	No	-
10	I injection PEM	Yes	No	-
11	Speed controller output cannot be set to zero	Yes	No	-
12	Rs adapt waits	Yes	No	-
13	Motor operation	Yes	No	-
14	Stator frequency sign	Positive	Negative	-
15	Torque sign	Motor mode	Regenerative mode	-
16	Pulse injection active PEM	Yes	No	-
17	Operation with rugged model feedback	Enabled	Inhibited	-
18	Operation of the current model with current feedback	Enabled	Inhibited	-
19	Current feedback in the current model	Active	Inactive	-
20	Rugged increase of the changeover limits	Active	Inactive	-
21	Motor blocked (RFG stop) PEM	No	Yes	-

Note: Re bit 17:

Displays the status when enabling the rugged model feedback (p1784) for operation with and without encoder.

The feedback is used to increase the parameter ruggedness of the motor model and is effective in the operating range of the two-component closed loop current control.

Re bit 18:

Displays the status when enabling the differential current feedback in the current model for operation with encoder.

The function is automatically enabled with p1784 > 0 or p1731 > 0. The feedback is used for a rugged change between the current model and complete machine model with active rugged model feedback and combination current.

Re bit 19:

Displays the currently active stator circuit feedback in current model operation.

Re bit 20:

Displays the currently effective increase of the changeover limits by the value p1749 * p1755.

Re bit 21:

For a blocked synchronous motor, the speed ramp-function generator is held in the open-loop speed controlled operating range if the torque setpoint reaches the torque limit and the speed is less than the threshold value in p2175.

p1752[0...n] Motor model changeover speed operation with encoder / MotMod n_chgov enc

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]

Description: Sets the speed to change over the motor model for operation with encoder.

Dependency: In U/f characteristic mode the parameter is of no significance.

Using the friction characteristic for operation with encoder:

When changing the motor model changeover speed p1752, the points along the friction characteristic should be recalculated (p0340 = 5) and the friction characteristic recorded again (p3845). For slight changes, only the associated friction characteristic points must be recorded (see p3844).

Refer to: p1756

p1753[0...n] Motor model changeover speed hysteresis operation with encoder / MotMod n_chgovHysE

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	90.0 [%]	0.0 [%]

Description: Sets the hysteresis for the changeover speed of the motor model for operation with speed encoder.

Dependency: Refer to: p1752

Note: The value refers to p1752. In the case of separately excited synchronous motors, the lower hysteresis value is calculated with p1752 * p1753; in the case of all other types of motor, p1752 * (1 - p1753) is used.

p1754[0...n] Flux angle difference smoothing time / Angle diff T_smth

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6733
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [ms]	10000.0 [ms]	5.0 [ms]

Description: Sets the smoothing time constant to filter the main flux angle difference from the voltage and current models.

The filtered value is included in the calculation of the total flux angle.

PESM: Sets the smoothing time constant for the angular difference display between motor model and encoder.

Note: In the case of a separately excited synchronous motor and sensorless vector control, the parameter must be set to the minimum value to improve motor model changeover.

p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorl		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]

Description: Sets the speed to change over the motor model to encoderless operation.

Dependency: In U/f characteristic mode the parameter is of no significance.

Refer to: p1749, p1756

Notice: The changeover speed represents the steady-state minimum speed up to which the motor model can be used in sensorless steady-state operation.

If the stability is not adequate close to the changeover speed, it may make sense to increase the parameter value.

Note: The changeover speed applies for the changeover between open-loop and closed-loop control mode.

p1756	Motor model changeover speed hysteresis encoderless operation / MotMod n_chgov hys		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6730, 6731, 6732, 6733
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [%]	95.0 [%]	50.0 [%]

Description: Sets the hysteresis for the changeover speed of the motor model for encoderless operation. In the case of separately excited synchronous motors, the lower hysteresis value is calculated with p1756 * p1755; in the case of all other types of motor, p1755 * (1 - p1756) is used.

Dependency: In U/f characteristic mode the parameter is of no significance.

Refer to: p1755

Note: The parameter value refers to p1755.

In the case of separately excited synchronous motors, the lower hysteresis value is calculated with p1755 * p1756; in the case of all other types of motor, p1755 * (1 - p1756) is used.

p1757[0...n]	Motor model w/o enc. op./cl.-loop controlled stab. controller Kp / MotMod w/o enc Kp		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.01	10.00	0.70

Description: Sets the gain of the transient response controller when the motor model changes over from open-loop controlled operation to closed-loop controlled operation.

Note: Only for ASM and PSM in encoderless operation:

The settling range starts at 0.5 * p1755 * p1756.

For ASM it ends at p1755 * p1756 or at p1755, if p1759 is at the maximum value.

For PSM it always ends at p1755 * p1756.

p1758[0...n]	Motor model changeover delay time closed/open-loop control / MotMod t cl_op		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	100 [ms]	10000 [ms]	1000 [ms]

Description: Sets the minimum time for falling below the changeover speed when changing from closed-loop controlled operation to open-loop controlled operation.

Dependency: The wait time has no significance if the setpoint speed before the ramp-function generator lies in the open-loop speed controlled operating range. In this case, the change is made without any delay.

Refer to: p1755, p1756

Note: If p1758 is changed, commissioning must be selected in order to validate the value for the blocking monitoring.

p1759[0...n]	Motor model changeover delay time open/closed-loop control / MotMod t op_cl		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	2000 [ms]	0 [ms]

Description: Sets the minimum time for a transition from open-loop controlled to closed-loop controlled operation after the lower changeover speed p1755 * (1 - p1756 / 100 %) has been exceeded.

Dependency: Refer to: p1755, p1756

Note: With p1759 = 2000 ms, the delay time becomes ineffective and the model changeover is determined by the output frequency only (changeover for p1755).

p1760[0...n]	Motor model with encoder speed adaptation Kp / MotMod wE n_ada Kp		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000	100000.000	1000.000

Description: Sets the proportional gain of the controller for speed adaptation with encoder

p1761[0...n]	Motor model with encoder speed adaptation Tn / MotMod wE n_ada Tn		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	4 [ms]

Description: Sets the integral-action time of the controller for speed adaptation with encoder

r1762[0...1] Motor model deviation component 1 / MotMod dev comp 1

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6721, 6730, 6731
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Induction motor (ASM):
Displays the referred imaginary system deviation for the adaptation circuit of the motor model.
Permanent magnet synchronous motor (PEM):
Displays the system deviation for speed adaptation.
r1762[0]: Angular deviation [rad-el] of the estimated EMF.
r1762[1]: Angular deviation [rad-el] of the low-level signal response for pulse technique.

Index: [0] = Deviation model 1
[1] = Deviation model 2

r1763 Motor model deviation component 2 / MotMod dev comp 2

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Induction motor (ASM):
Displays the referred real system deviation for the adaptation circuit of the motor model.
Permanent magnet synchronous motor (PEM):
Not used.

p1764[0...n] Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6730
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	100000.000	1000.000

Description: Sets the proportional gain of the controller for speed adaptation without encoder.

r1765 Motor model speed adaptation Kp effective / MotM n_ada Kp act

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective proportional gain of the controller for the speed adaptation.

p1766[0...n] Motor model voltage model calculation enable / U_mod calc enab

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	90.0 [%]	50.0 [%]

Description: Sets the speed to enable the voltage model to calculate the speed actual value.
This value is entered as a percentage referred to p1752.
For separately-excited synchronous motors without encoder, the parameter is referred to p1748.

Dependency: Refer to: p1748, p1752

p1767[0...n] Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6730
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1 [ms]	200 [ms]	4 [ms]

Description: Sets the integral time of the controller for speed adaptation without encoder

r1768 Motor model speed adaptation Vi effective / MotM n_ada Vi act

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective gain of the integral component of the controller for speed adaptation.

r1770 CO: Motor model speed adaptation proportional component / MotMod n_adapt Kp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6730
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL, FEM	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the P component of the controller for speed adaptation.

r1771 CO: Motor model speed adaptation I comp. / MotMod n_adapt Tn

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6730
P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL, FEM	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the I component of the controller for speed adaptation.

r1773[0...1]	Motor model slip speed / MotMod slip		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Displays estimated (speed) signals of the motor model.

r1773[0]: Displays the estimated (mechanical) slip of the motor model.

r1773[1]: Displays the estimated input speed of the motor model.

Index: [0] = Slip speed estimated
[1] = Speed estimated

p1774[0...n]	Motor model offset voltage compensation alpha / MotMod offs comp A		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-5.000 [V]	5.000 [V]	0.000 [V]

Description: Sets the offset voltage in the alpha direction; this compensates the offset voltages of the drive converter/inverter at low speeds. The value is valid for the rated (nominal) pulse frequency of the power unit.

Note: The value is pre-set during the rotating measurement.

p1775[0...n]	Motor model offset voltage compensation beta / MotMod offs comp B		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-5.000 [V]	5.000 [V]	0.000 [V]

Description: Sets the offset voltage in the beta direction; this compensates the offset voltages of the drive converter/inverter at low speeds. The value is valid for the rated (nominal) pulse frequency of the power unit.

Note: The value is pre-set during the rotating measurement.

r1776[0...6]	Motor model status signals / MotMod status sig		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the internal status signals of the motor model:

Index 0: Changeover ramp between current and voltage models

Index 1: Changeover ramp for model tracking (encoderless induction motors only)

Index 2: Changeover ramp for zero frequency range (encoderless induction motors only)

Index 3: Transition ramp actual speed from speed setpoint to model value (encoderless FEM)

Index 4: Speed controller enable (encoderless FEM)

Index 5: Transition ramp between current and voltage models (encoderless FEM)

Index 6: Transition ramp for EMF deviation at PLL input (encoderless PESM)

Index: [0] = Changeover ramp motor model
[1] = Changeover ramp model tracking
[2] = Changeover ramp zero frequency encoderless ASM
[3] = Changeover ramp actual speed encoderless FEM
[4] = Enable speed controller encoderless FEM
[5] = Changeover ramp motor model encoderless FEM
[6] = Changeover ramp motor model encoderless PESM

Note: Indices 3 through 5 are only relevant in the case of encoderless control of separately excited synchronous motors.

r1778 Motor model flux angle difference / MotMod ang diff

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** p2005	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°]	- [°]	- [°]

Description: Induction motor (ASM):
Displays the difference between the motor model flux angle and the transformation angle.
Permanent-magnet synchronous motor (PESM):
Displays the angular difference between motor model and encoder.

Dependency: A setting for smoothing the display can be made using p1754.

r1779 Motor model absolute flux / MotMod abs flux

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the absolute value of the flux of the motor model.

p1780[0...n] Motor model adaptation configuration / MotMod adapt conf

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0111 1100 bin

Description: Sets the configuration for the adaptation circuit of the motor model.
Induction motor (ASM): Rs, Rr (only for operation with encoder), Lh and offset compensation.
Permanent magnet synchronous motor (PEM): kT

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Select motor model ASM Rs adaptation	Yes	No	-
02	Select motor model ASM Lh adaptation	Yes	No	-
03	Select motor model PEM kT adaptation	Yes	No	-
04	Select motor model offset adaptation	Yes	No	-
05	Select ASM Rr adaptation (only with encoder)	Yes	No	-
06	Select pole position identification PEM encoderless	Yes	No	-
07	Select T(valve) with Rs adaptation	Yes	No	-
10	Filter time combination current like current ctrl integral time	Yes	No	-
11	Fast flying restart with voltage model for induction motor	Yes	No	-
12	Start PEM sensorless with last angle	Yes	No	-

13	Fast pulsed pole position identification	Yes	No	-
14	Delay of the precontrol speed to the motor model	Yes	No	-
15	RESM: Linear Q flux model	active	not active	-

Dependency: In U/f characteristic operating mode, only bit 7 and bit 11 are relevant.

For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.

When the power units are connected in parallel with separate, offset motor winding systems (p7003 = 2), then the compensation of the valve interlocking times should be implemented as Rs adaptation (bit 7 = 1).

Caution: Bit 11: The selection has not been enabled for output filters, with the exception of motor reactors (see p0230)

Notice: It is only permissible to change bit 11 if the drive is switched off.

When selecting bit 11, also for U/f characteristic operation, a standstill measurement must have been performed to set the necessary current controller for a fast flying restart.

Note: ASM: Induction motor

PEM: Permanent magnet synchronous motor

When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is deactivated and is instead taken into account in the motor model.

In order that the correction values of the Rs, Lh and kT adaptation (selected using Bit 0 ... Bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered into p0826 for each different motor.

Bit 11 has no influence on flying restart with speed encoder. Depending on the motor, the fast flying restart is suitable for speeds of maximum 1.5x to 4x the rated motor speed.

Re bit 12 (only for synchronous motors and bit 6 = 1):

The pole position identification is only carried out after power on and after the motor has coasted down. The switch-off speed p1226 should be as low as possible. If the power unit is switched off when the motor is stationary, then the next time that the power unit is switched on, the old angle is used. The precondition applies that while the power unit is switched off the motor does not rotate.

The duration of the pole position identification is shortened using bit 13. As a consequence, the pole wheel angle error can be slightly greater.

p1784[0...n] Motor model feedback scaling / MotMod fdbk scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	1000.0 [%]	0.0 [%]

Description: Sets the scaling for model fault feedback.

Note: Feeding back the measured model fault to the model states increases the control stability and makes the motor model rugged against parameter errors.

When feedback is selected (p1784 > 0), Lh adaptation is not effective.

p1785[0...n] Motor model Lh adaptation Kp / MotMod Lh Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	10.000	0.100

Description: Sets the proportional gain for the Lh adaptation of the motor model for an induction motor (ASM).

p1786[0...n]	**Motor model Lh adaptation integral time / MotMod Lh Tn**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10 [ms]	10000 [ms]	100 [ms]

Description: Sets the integral time for the Lh adaptation of the motor model for an induction motor (ASM).

r1787[0...n]	**Motor model Lh adaptation corrective value / MotMod Lh corr**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the corrective value for the Lh adaptation of the motor model for an induction motor (ASM).

Dependency: Refer to: p0826, p1780

Note: The adaptation result is reset if the magnetizing inductance of the induction motor is changed (p0360, r0382). This also happens when changing over the data set if a different motor is not being used (p0826).

The display of the inactive data sets is only updated when changing over the data set.

r1791	**Motor model Lh adaptation power-on frequency / MotMod Lh f_on**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the power-on stator frequency/ primary section frequency for the Lh adaptation for the induction motor (ASM).

r1792	**Motor model Lh adaptation power-on slip / MotMod Lh fslip**		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the power-on slip frequency for the Lh adaptation for the induction motor (ASM).

p1795[0...n]	**Motor model kT adaptation integral time / MotMod kT Tn**		
VECTOR_G (n/M)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6731
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10 [ms]	10000 [ms]	100 [ms]

Description: Sets the integral time of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).

r1797[0...n] Motor model kT adaptation corrective value / MotMod kT corr

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6731
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm/A]	- [Nm/A]	- [Nm/A]

Description: Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor (PEM).

Dependency: Refer to: p0826, p1780

Note: The display of the inactive data sets is only updated when changing over the data set.

p1798[0...n] Motor model pulse technique speed adaptation Kp / MotMod PulsTech Kp

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	1000.000	1.000

Description: Sets the proportional gain Kp for speed adaptation with active pulse technique for the estimation of the continuous rotor position.

p1800[0...n] Pulse frequency setpoint / Pulse freq setp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8014
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.000 [kHz]	16.000 [kHz]	4.000 [kHz]

Description: Sets the pulse frequency for the converter.

This parameter is pre-set to the rated converter value when the drive is first commissioned.

Dependency: The pulse frequency can, depending on the current controller sampling time (p0115[0]) assume the following values:

p1800 = 1000 / (p0115[0] * 2)

or

p1800 = n * 1000 / p0115[0] with n = 1, 2, 3, ...

Example:

p0115[0] = 250 µs --> p1800 = 2, 4, 8, 12, 16 kHz

Possible setting values can be taken from r0114 (if p0009 = p0010 = 0).

If p0092 = 1 the sampling times p0115 and the pulse frequency p1800 are checked every time the parameters are downloaded, and reset to the initial values if necessary. This check can be de-activated by setting p0092 = 0 (making this setting does not affect isochronous PROFIBUS operation).

If the pulse frequency is set asynchronously to the current controller clock cycle (p1810.12),

then the following limit applies:

p1800 <= 1000 * 2 / p0115[0]

If wobbulation is selected (p1810.2), the pulse frequency can only be changed as part of pulse enabling to values with the following ratio:

a) p1800 <= 1000 / p0115[0] for p1811 > 0 %

b) p1800 <= 1000 * 2 / p0115[0] for p 1811 = 0 %

Under pulse inhibit

p1800 > 1000 / p0115[0] -> p1811 = 0

p1800 > 1000 * 2 / p0115[0] -> 1810.2 = 0 and p1811 = 0

(applicable for all indices)

Refer to: r0110, r0111, p0112, p0113, r0114, p0115, p0230, p1817

Notice: The pulse frequency p1800 can also be asynchronously set to the current controller clock cycle (0.05 kHz increment). To do this, p1810.12 must be set to 1 (secondary condition, see p1810).

Effects:

- switching over the gating unit (p1810.2).
- activating the current actual value correction (p1840.0).
- minimum pulse frequency 1000 * 0.5 / p0115[0].
- maximum pulse frequency 1000 * 2 / p0115[0].
- fluctuating deadtimes and dynamic performance in the current control loop.
- increased level of current ripple in the current display.

Note: The maximum possible pulse frequency is also determined by the power unit being used.

When the pulse frequency is increased, depending on the particular power unit, the maximum output current can be reduced (derating, refer to r0067).

The maximum pulse frequency for operation with output reactors (see p0230) is 4 kHz for booksize and blocksize power units, for chassis power units it is twice the rated pulse frequency (2.5 kHz or 4 kHz).

If a sine-wave filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be set below the minimum value required for the filter. If an external sine-wave filter is parameterized, (p0230 = 4), then the minimum pulse frequency is calculated as follows:

f_puls_min = 1.6 / (2 * Pi * root(p0233 * p0234 * p0235)), with p0233 in H and p0234 in F

In this case, the pulse frequency must be a multiple of the inverse value of the current controller sampling time (p0115[0]).

If a sine-wave filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be changed below the minimum value required for the filter.

If p1800 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1800 have been changed by a parameter that was set when the drive was commissioned (e.g. p1082).

r1801[0...1] CO: Pulse frequency / Pulse frequency

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [kHz]	- [kHz]	- [kHz]

Description: Display and connector output for the actual converter switching frequency.

Index:
[0] = Actual
[1] = Modulator minimum value

Note: The selected pulse frequency (p1800) may be reduced if the drive converter has an overload condition (p0290).

The following applies for vector drives (p0107):

The pulse frequency can also be reduced when changing over the modulator to an optimized pulse pattern. This is used to avoid overcontrol.

In the case of chassis power units, two-thirds of the setpoint pulse frequency is displayed in the FLB modulation range.

p1802[0...n] Modulator mode / Modulator mode

VECTOR_G			
	Can be changed: T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	19	0

Description: Sets the modulator mode.

Value:
0: Automatic changeover SVM/FLB
1: Flat top modulation (FLB)
2: Space vector modulation (SVM)
3: SVM without overcontrol
4: SVM/FLB without overcontrol

5: SVM with pulse frequency reduction
6: SVM/FLB with pulse frequency reduction
7: No edge modulation up to 100 Hz
8: No edge modulation up to 60 Hz
9: Edge modulation
19: Optimized pulse pattern

Dependency: If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), or if the power unit firmware is not able to calculate edge modulation (r0192.0 = 0), then only space vector modulation without overcontrol can be set as modulation type (p1802 = 3).

For permanent-magnet synchronous motors and chassis power units, the following applies:

Edge modulation or optimized pulse pattern can only be used, if p1810 bit 2 = 1 is set.

Refer to: r0192, p0230, p7003

Notice: If the pulse patterns are enabled with overmodulation option (p1802 < 3) or edge modulation (p1802 > 6), then the current actual value correction is automatically activated (p1840.0 = 0).

Note: When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 1, 2, 5, 6), the modulation depth must be limited using p1803 (default p1803 < 100 %). The higher the overmodulation, the greater the current ripple and torque ripple.

When changing p1802[x], the values for all of the other existing indices are also changed.

p1802 = 7, 8 should be used if the drive is operated below 100 Hz or 60 Hz, and it is necessary to avoid changing over to edge modulation. Above these output frequencies, the modulation depth remains limited so that there the full output voltage of the edge modulation is not reached.

The setting p1802 = 19 is only released for chassis power units and SIMOTICS FD motors.

p1803[0...n] Maximum modulation depth / Modulat depth max

VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 6723
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	20.0 [%]	150.0 [%]	100.0 [%]

Description: Defines the maximum modulation depth.

Note: p1803 = 100% is the overcontrol limit for space vector modulation (for an ideal drive converter without any switching delay).

If an optimized pulse pattern is enabled (edge modulation), then the modulation depth is limited to below the output frequency of 28 Hz as there is no optimized pulse pattern in this range.

p1804[0...n] Filter time constant smoothed modulation index / T_filt mod_idxSmth

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	10000.0 [ms]	10.0 [ms]

Description: Filter time constant for the smoothed modulation index to change over the modulator mode.

p1806[0...n] Filter time constant Vdc correction / T_filt Vdc_corr

VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_REG	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	10000.0 [ms]	0.0 [ms]

Description: Sets the filter time constant of the DC link voltage used to calculate the modulation depth.

r1807	Actual DC link voltage to calculate the modulation depth / VdcActValMod_depth		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: DC link voltage that is used to convert the setpoint voltage into an equivalent modulation depth.

r1808	DC link voltage actual value for U_max calculation / Vdc act val U_max		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: DC link voltage used to determine the maximum possible output voltage.

r1809	CO: Modulator mode actual / Modulator mode act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	9	-

Description: Displays the effective modulator mode.

Value:
1: Flat top modulation (FLB)
2: Space vector modulation (SVM)
3: Edge modulation from 28 Hz; 23:3
4: Edge modulation from 28 Hz; 19:1
5: Edge modulation from 60 Hz; 17:3
6: Edge modulation from 60 Hz; 17:1
7: Edge modulation from 100 Hz; 9:2
8: Edge modulation from 100 Hz; 9:1
9: Optimized pulse pattern

p1810	Modulator configuration / Modulator config		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 0000 0010 bin

Description: Sets the configuration for the modulator.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Avg value filter for U_lim (only for Vdc_comp. in modulator)	Yes	No	-
01	DC link voltage compensation in the current control	Yes	No	-
02	Wobbulation activated	Yes	No	-
03	Current measurement oversampling selected	Yes	No	-
08	Pulse frequency reduction (speed dependent) stage 1	Yes	No	-

09	Pulse frequency reduction (speed dependent) stage 2	Yes	No	-
10	Activate pulse-locking/pulse-dropping function	Pulse-Dropping	Pulse-Locking	-
12	Pulse freq. can be asynchronously set to curr. ctrl clock cycle	Yes	No	-
13	Pulse freq. reduction before optimized pulse patterns for 500 µs	Yes	No	-
14	Deactivate maximum angular difference adaptation	Yes	No	-
15	Increase overmodulation range	Yes	No	-

Dependency: If bit 2 is set from 1 to 0, p1811 = 0 is set.

Notice: Bit 1 = 0 can only be set under a pulse inhibit and for r0192.14 = 1.

Bit 2 can only be set to 1 subject to the following prerequisites:

- Pulse inhibit
- r0192.16 = 1
- p1800 < 2 x 1000/p0115[0]

Bit 12 can only be changed subject to the following prerequisites:

- preconditions, the same as bit 2 = 1
- p1810.3 = 0

For fast current changes, bit 15 = 1 together with p1802 = 0, 2 and p1803 > 106 % result in a significant increase in the torque ripple. As a consequence, increasing the modulation limit must be checked on an application for application basis.

Note: Re bit 00 = 0:

Voltage limitation from the minimum of the DC link voltage (lower ripple in the output current, reduced output voltage).

Re bit 00 = 1:

Voltage limitation from averaged DC link voltage (higher output voltage with increased ripple in the output current).

The selection is only valid if the DC link compensation is not performed in the Control Unit (bit 1 = 0).

Re bit 01 = 0:

DC link voltage compensation in the modulator.

Re bit 01 = 1:

DC link voltage compensation in the current control.

Re bit 02 = 0:

A gating unit that does not permit wobbulation is used.

Edge modulation is not possible for a parallel connection with a single-winding system (p7003 = 0).

Bit 02 cannot be set to 0 if bit 12 = 1.

Re bit 02 = 1:

A gating unit that permits wobbulation is used.

For a wobbulation amplitude p1811 = 0, the maximum possible pulse frequency in p1800 = 2 x 1000 / p0115[0].

For a wobbulation amplitude p1811 > 0, the maximum possible pulse frequency in p1800 = 1000 / p0115[0].

If optimized pulse patterns has been activated (p1802 > 6), then a parameter save is required and switch-off and switch-on again. This is displayed using a fault message (F01040).

Re bit 03 = 1:

The actual current value sensing and the determination of the valve ON times takes place with a double current controller clock cycle and phase offset.

The activation is only possible with r0192.23 = 1 and p1810.12 = 0 - and takes effect the next time the system is powered up.

Re bit 08 = 1:

Above the frequency threshold r1836[0], the pulse frequency is switched to the value in p1800. Below r1836[0] (minus the hysteresis), the pulse frequency is reduced to the next possible pulse frequency (see r0114).

Re bit 09 = 1:

Above the frequency threshold r1836[1], the pulse frequency is increased to the next possible value. Below r1836[1] (minus the hysteresis), the pulse frequency is reduced to the next possible pulse frequency.

If bit 8 is set to 0, bit 9 is automatically reset.

Re bit 10 = 0:

Pulse-locking function activated.

Re bit 10 = 1:

Pulse-dropping function activated.

Re bit 12 = 0:

The pulse frequency p1800 can also be synchronously set to the current controller clock cycle (see r0114).

Bit 12 can only be set from 1 to 0 if the pulse frequency p1800 is set synchronously to the current controller clock cycle. In this case, the gating unit is not switched over.

Re bit 12 = 1:

The pulse frequency p1800 can also be asynchronously set to the current controller clock cycle. In this case, the effects should be observed (see p1800).

If bit 12 is set to 1, then the gating unit is automatically switched over (p1810.2 = 1). If this is not possible (see above), then bit 12 cannot be set to 1.

Bit 12 cannot be set to 1, if p1810.3 = 1 is set.

Re bit 15 = 1

For p1802 = 0, 2 and p1803 > 106 %, dynamically, a modulation depth of more than 106 % is permitted. When p1803 is increased, the dynamic modulation depth reserve p1574 should be increased so that the maximum output voltage r0071 approximately remains the same.

p1811[0...n] Pulse frequency wobbulation amplitude / Puls wobb ampl

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [%]	20 [%]	0 [%]

Description: Sets the amplitude of the statistical wobbulation signal.

This signal is used to vary the pulse frequency to create a more pleasant sound.

Note: p1811 > 0 is possible, if the following applies:

- configuration: p1810.2 = 1 (wobbulation activated)
- pulse frequency: p1800 <= 1000 / p115[0]
- output filter, filter type: p0230 < 3 (no sine-wave filter)

p1812 BI: Offset calibration output current measurement / Off_calibr I_outp

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source to activate/de-activate offset calibration for output current measurement.

Caution: The absence of offset calibration can have a negative effect on control properties. Offset calibration must be performed before switching on the power unit for the first time after POWER ON.

Note: Offset calibration is only performed with pulses suppressed and can take up to one second.

p1815 Phase for PWM generation subgroup / Ph for PWM subgr

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0001 bin

Description: Sets bit 0 for recording the power unit in the subgroup for the "offset clocking".

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Recording in subgroup for offset clocking	Yes	No	-

Dependency: Refer to: p1818, p1819

Note: A change only becomes effective after booting.

If one of the following secondary conditions is not fulfilled, then none of the power units from the subgroup are clocked with an offset.

Secondary conditions for clocking with an offset:

- the PWM frequency (p1800[D]) of all power units in the subgroup must be the same.
- the PWM frequency (p1800[D]) must be the same in all drive data sets in the subgroup.
- the following must apply for the ratio between the PWM cycle (1/p1800[D]) and the current controller cycle (p0115[0]):

The ratio (1/p1800[D]) / (p0115[0]) must be an even integer number (2, 4, 6, ...) for all power units in the subgroup.

or

The ratio (p0115[0]) / (1/p1800[D]) must be an integer number (1, 2, 3, ...) for all power units in the subgroup.

p1816 Set phase for PWM generation manually / Set Ph for PWM

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	16	-1

Description: Sets manual setting and overwriting of automatically determined phase shift for "offset clocking".

For p1816 = -1, the following applies:

Automatic mode. The phase shift value is automatically determined.

For p1816 = 0 ... 16, the following applies:

Manual mode. The user should define the phase shift value as follows:

1. PWM cycle (1/p1800) > current controller clock cycle (p0115[0])

The power unit executes a phase shift from Tshift = current controller cycle (p0115[0]) * p1816.

2. PWM cycle (1/p1800) <= current controller clock cycle (p0115[0])

For p1816 >= 1, the power unit executes a phase shift from Tshift = PWM cycle/2.

Dependency: Refer to: r0116, p1800, p1819

p1817 Minimum ratio, pulse frequency to the output frequency / Min f_puls / f_max

VECTOR_G

Can be changed: C2(2)	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
8.3	15.0	12.0

Description: Sets the minimum ratio between the pulse frequency and the output frequency.

Notice: If the ratio between the pulse frequency and the output frequency is reduced, then oscillations can occur in the output current that can result in significant levels of current ripple with the appropriate negative effects.

Note: When the maximum speed is changed, the pulse frequency p1800 is automatically limited to this minimum ratio. It is not permissible to reduce the pulse frequency if this would result in this ratio being undershot.

p1818 Phase for PWM generation configuration / Ph for PWM config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: Sets the phase shift for offset clocking.

For the first active power unit, it is specified whether clocking is to start at 0° (value = 0) or 180° (value = 1). All other active power units are clocked alternately according to the setting made here.

Dependency: Refer to: p1819

Note: A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.

p1819 Phase for PWM generation / Ph for PWM

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1	16	-1

Description: Display for "offset clocking".

Depending on the particular case, the value is interpreted differently:

Case 1:

The PWM clock cycle (1/p1800[D]) is greater than the current controller clock cycle (p115[0]) and the ratio between the PWM clock cycle and the current controller clock cycle and is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 4 kHz, 2 kHz, 1 kHz).

The value displayed refers to:

- the phase shift in the current-controller cycles to be applied by the power unit.

Case 2:

The PWM clock cycle (1/p1800[D]) is less than or equal to the current controller clock cycle (p0115[0]) and the ratio between the current controller clock cycle and the PWM clock cycle is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 8 kHz, 16 kHz).

The value 1 displayed means that:

- the power unit is to apply a phase shift of 180 ° (from the PWM cycle).

A value of 0 displayed on all power units of the drive line-up means the following:

- the general conditions of the "offset clocking" (see p1815) are not fulfilled, i.e. no power unit is clocked with an offset.

Dependency: Refer to: p0108, r0108, p0115, p1800, p1815, p1816, p1818

Note: For reasons of compatibility, the parameter is an adjustable parameter. However, it functions solely as a display parameter. This means that factory setting -1 no longer has any significance and is only available for reasons of compatibility.

p1820[0...n] Reverse the output phase sequence / Outp_ph_seq rev

VECTOR_G	**Can be changed:** C2(3)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 6732
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the phase sequence reversal for the motor.

If the motor does not rotate in the required direction, then the output phase sequence can be reversed using this parameter. This means that with the same setpoint, the motor direction is reversed without reversing the encoder actual value.

When a speed encoder is being used, it may be necessary to also invert the encoder actual value (p0410).

Value:
0: OFF
1: ON

Dependency: Refer to: p1821

Caution: For 12-pulse converters with 30° offset angle for system 2, for a direction of rotation reversal, the phase offset changes by 60° as the sign of the angle offset changes. This can be adapted in p1810.15.

Changing the direction using p1820 or p1821 is not recognized by the "Safe Direction without encoder". As a consequence, the limit provided by SDI (Safe Direction) from r9733 no longer functions.

Note: This setting can only be changed when the pulses are inhibited.

p1821 can be used to reverse the phase sequence and encoder actual value.

p1821[0...n] Dir of rot / Dir of rot

VECTOR_G

Can be changed: C2(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 4704, 4710, 4711, 4715, 5730, 6730, 6731, 6732
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to change the direction of rotation.

If the parameter is changed, it reverses the direction of rotation of the motor and the encoder actual value without changing the setpoint.

Value:
0: CW
1: CCW

Danger: When using external speed actual values for the speed controller (see p1440), for a direction of rotation change (p1821 = 1), then its polarity must also be changed (e.g. for drive object ENCODER via p0410). Otherwise, a positive coupling can occur in the speed control loop and the drive would then be accelerated up to the speed limit.

Caution: For 12-pulse converters with 30° offset angle for system 2, for a direction of rotation reversal, the phase offset changes by 60° as the sign of the angle offset changes. This can be adapted in p1810.15.

Changing the direction using p1820 or p1821 is not recognized by the "Safe Direction without encoder". As a consequence, the limit provided by SDI (Safe Direction) from r9733 no longer functions.

Notice: An appropriate fault is output for a drive data set changeover where the direction of rotation changes and the pulses are enabled.

Note: For operation with the phase sequence U/V/W, the direction of rotation is defined when viewing the face side of the motor output shaft.

When changing the direction of rotation, the rotating field direction of the current controller is reversed. The speed actual value (e.g. r0063) is also reversed so that the control sense is kept and internally causing the direction of rotation to be reversed with the same setpoint. Further, the position actual values of the actual encoder are reversed (e.g. r0482[0...2]).

p1820 can be used to reverse the direction of the motor without reversing the encoder actual value.

p1822 Power unit line phases monitoring tolerance time / PU ph monit t_tol

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
500 [ms]	540000 [ms]	1000 [ms]

Description: Sets the tolerance time for line phase monitoring for blocksize power units.

If a line phase fault is present for longer than this tolerance time, then a corresponding fault is output.

Notice: When operating with a failed line phase, depending on the active power, values higher than the default value can either immediately damage the power unit or damage it over the long term.

Note: For the setting p1822 = maximum value, line phase monitoring is deactivated.

p1825 Converter valve threshold voltage / Threshold voltage

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [Vrms]	100.0 [Vrms]	0.6 [Vrms]

Description: Sets the threshold voltage drop of the valves (power semiconductor devices) to be compensated.

Note: The value is automatically calculated in the motor data identification routine.

p1828	**Compensation valve lockout time phase U / Comp t_lock ph U**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase U.

Notice: The deadtime compensation is deactivated with p7003 = 2.

Note: The value is automatically calculated in the motor data identification routine.

For type PM340 power units, the value is limited to 3.98 µs.

p1829	**Compensation valve lockout time phase V / Comp t_lock ph V**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase V.

Notice: The deadtime compensation is deactivated with p7003 = 2.

Note: For type PM340 power units, the value is limited to 3.98 µs.

p1830	**Compensation valve lockout time phase W / Comp t_lock ph W**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase W.

Notice: The deadtime compensation is deactivated with p7003 = 2.

Note: For type PM340 power units, the value is limited to 3.98 µs.

p1832	**Dead time compensation current level / t_dead_comp I_lev**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [Arms]	10000.0 [Arms]	0.0 [Arms]

Description: Sets the current level for the dead time compensation.

Above the current level, the dead time - resulting from the converter switching delays - is compensated by a previously calculated constant value. If the relevant phase current setpoint falls below the absolute value defined by p1832, the corrective value for this phase is continuously reduced.

Dependency: The factory setting of p1832 is automatically set to 0.02 * rated drive converter current (r0207).

p1835[0...1] Pulse frequency reduction switchover frequency shift / f_puls_red f_sw

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Hz]	800.00 [Hz]	0.00 [Hz]

Description: Frequency to shift the switchover frequency r1836 for pulse frequency reduction.

The parameter value reduces the switchover frequency threshold with the same parameter index.

Index: [0] = Frequency limit 1
[1] = Frequency limit 2

Dependency: Refer to: r1836

r1836[0...1] Pulse frequency reduction, switchover frequency / f_puls_red f_sw

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the frequency limits, under which the pulse frequency is automatically reduced.

Starting from the parameterized pulse frequency p1800, the pulse frequency is reduced to the next possible one, if the frequency limits and an additional hysteresis are fallen below.

Index: [0] = Frequency limit 1
[1] = Frequency limit 2

Dependency: Refer to: p1810, p1835

Note: The pulse frequency reduction is not active for U/f control.

A minimum clearance of 10 Hz is kept between the frequency thresholds, which cannot be fallen below when changing p1835.

Re index 0:

Frequency limit for the first pulse frequence reduction (active for p1810.8 = 1).

Re index 1:

Frequency limit for the second pulse frequence reduction (active for p1810.9 = 1).

r1837 Gating unit configuration / Gating unit config

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display for the configuration of the gating unit driver.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Modulation depth for a flying restart	Limited	Not limited	-
01	Modulation depth for Vdc closed-loop control	Limited	Not limited	-
02	Vdc_min controller	Active	Not active	-
03	Motor data identification routine	Active	Not active	-
04	Current offset calculation	Active	Not active	-
05	Simulation mode	Active	Not active	-
06	Reverse the output phase sequence	Active	Not active	-
07	CCW dir of rot	Active	Not active	-
08	Synchronization (bypass)	Active	Not active	-
09	F07801 monitor by application	Active	Not active	-
10	Chassis Drive active	Yes	No	-

11	Short-circuit test active	No	Yes	-
12	FL modulation prohibited	Yes	No	-
13	F3E present	Yes	No	-
14	Angle prerotation (advance) active in SW	Yes	No	-
15	Power unit with PS interface	Yes	No	-
16	Current measurement oversampling active	Yes	No	-
17	Actual value averaging temporarily suppressed	Yes	No	-
18	Modulation depth limiting	Yes	No	-
19	Reduced DC link capacitance (without F3E)	Yes	No	-
20	The setpoint is not reset	Yes	No	-
21	Voltage calibration active	Yes	No	-

p1840[0...n] Actual value correction configuration / ActVal_corr conf

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration of the actual value correction.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value correction de-activated	Yes	No	-
01	Compares the integrals from modulator and setpoint	Yes	No	-

Dependency: Refer to: p1802

Note: During operation (pulses enabled) the configuration cannot be changed by changing over drive data sets.

r1841 Actual value correction status word / ActVal_corr status

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of actual value correction.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware for the actual value correction detected	Yes	No	-
01	Automatic shutdown (too many switching instants)	Yes	No	-
02	Integral scaled to half the gating unit clock cycle freq.	Yes	No	-
03	Actual value correction temporarily suppressed	Yes	No	-
14	Reserved	Yes	No	-
15	Actual value correction active	Yes	No	-

p1845[0...n] Actual value correction evaluation factor Lsig / ActVal_cor ev Lsig

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	10.00	1.00

Description: Sets the weighting factor for the leakage inductance of the L-R element of the actual value correction.

Dependency: Refer to: p0391, p0392, p0393

Note: The load-dependent adaptation of the leakage inductance of the current actual value correction is defined using p0391 ... p0393.

p1846[0...n] Actual value correction damping factor / ActV_corr D_factor

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	10.00	1.00

Description: Sets the damping factor for the actual value correction.
The factor multiplies the T0/Tsig ratio in the feedback branch of the LR element.

r1848[0...5] Actual value correction phase currents / ActVal_corr I_ph

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays phase correction currents as well as the drive converter phase currents

Index:
[0] = Harmonics phase U
[1] = Harmonics phase V
[2] = Harmonics phase W
[3] = Measured value phase U
[4] = Measured value phase V
[5] = Measured value phase W

r1849[0...5] Actual value correction phase voltages / ActVal_corr U_ph

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the phase correction voltages and and the drive converter phase voltages

Index:
[0] = Harmonics phase U
[1] = Harmonics phase V
[2] = Harmonics phase W
[3] = Measured value phase U
[4] = Measured value phase V
[5] = Measured value phase W

p1900 Motor data identification and rotating measurement / MotID and rot meas

VECTOR_G

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	2

Description: Sets the motor data identification and speed controller optimization.
p1900 = 0:
Function inhibited.

p1900 = 2:

Induction motors --> set p1910 = 1 and p1960 = 0

Permanent-magnet or separately-excited synchronous motors --> set p1910 = 1, p1990 = 1 and p1960 = 0

When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.

For permanent-magnet or separately-excited synchronous motors, the encoder is adjusted with the next power-on command. The motor must be free to rotate and rotates through 1.5 revolutions of the motor encoder.

Value: 0: Inhibited
2: Identifying motor data (at standstill)

Dependency: In the simulation mode, the parameter cannot be written into.

When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1272, p1300, p1910

Notice: If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

It is not permissible to activate write protection during the motor identification (p7761).

During the rotating measurement it is not possible to save the parameters (p0971, p0977).

Note: The motor and control parameters of the vector control are only optimally set when both measurements are carried out (initially at standstill, and then with the motor rotating). The measurement with rotating motor is not performed for p1300 < 20 (U/f controls).

An appropriate alarm is output when the parameter is set.

The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it.

The duration of the measurements can lie between 0.3 s and several minutes. This time is, for example, influenced by the motor size and the mechanical conditions.

p1900 is automatically set to 0 after the motor data identification routine has been completed.

p1900 Motor data identification and rotating measurement / MotID and rot meas

VECTOR_G (n/M)			
	Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	3	2

Description: Sets the motor data identification and speed controller optimization.

The motor identification should first be performed with the motor stationary (p1900 = 1, 2; also refer to p1910). Based on this, additional motor and control parameters can be determined using the motor data identification with the motor rotating (p1900 = 1, 3; also refer to p1960); not for p1300 < 20.

p1900 = 0:

Function inhibited.

p1900 = 1:

Induction motors --> set p1910 = 1 and p1960 = 0, 1, 2 depending on p1300

Permanent-magnet or separately-excited synchronous motors --> set p1910 = 1, p1990 = 1 and p1960 = 0, 1, 2 depending on p1300

When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.

For permanent-magnet or separately-excited synchronous motors, the encoder is adjusted with the next power-on command. The motor must be free to rotate and rotates through 1.5 revolutions of the motor encoder.

With the following power-on command, a rotating motor data identification routine is carried out - and in addition, a speed controller optimization by making measurements at different motor speeds.

p1900 = 2:

Induction motors --> set p1910 = 1 and p1960 = 0

Permanent-magnet or separately-excited synchronous motors --> set p1910 = 1, p1990 = 1 and p1960 = 0

When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.

For permanent-magnet or separately-excited synchronous motors, the encoder is adjusted with the next power-on command. The motor must be free to rotate and rotates through 1.5 revolutions of the motor encoder.

p1900 = 3:

Sets p1960 = 0, 1, 2 depending on p1300

This setting should only be selected if the motor data identification was already carried out at standstill.

When the drive enable signals are present, with the next power-on command, a rotating motor data identification routine is carried out - and in addition, speed controller optimization by taking measurements at different motor speeds.

Value:
0: Inhibited
1: Identifying motor data and optimizing speed control
2: Identifying motor data (at standstill)
3: Optimizing speed control (in the rotating mode)

Dependency: In the simulation mode, the parameter cannot be written into.

When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1272, p1300, p1910, p1960, p1990

Notice: If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

It is not permissible to activate write protection during the motor identification (p7761).

During the rotating measurement it is not possible to save the parameters (p0971, p0977).

p1900 = 3:

This setting should only be selected if the motor data identification was already carried out at standstill.

Note: The motor and control parameters of the vector control are only optimally set when both measurements are carried out (initially at standstill, and then with the motor rotating). The measurement with rotating motor is not performed for p1300 < 20 (U/f controls).

An appropriate alarm is output when the parameter is set.

The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it.

The duration of the measurements can lie between 0.3 s and several minutes. This time is, for example, influenced by the motor size and the mechanical conditions.

p1900 is automatically set to 0 after the motor data identification routine has been completed.

p1901 Test pulse evaluation configuration / Test puls config

VECTOR_G	**Can be changed:** T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 bin

Description: Sets the configuration for the test pulse evaluation.

Bit 00: Check for conductor-to-conductor short circuit once/always when the pulses are enabled.

Bit 01: Check for ground fault once/always when the pulses are enabled.

Bit 02: Activation of the tests selected using bit 00 and/or bit 01 each time the pulses are enabled

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Phase short-circuit test pulse active	Yes	No	-
01	Ground fault detection test pulse active	Yes	No	-
02	Test pulse at each pulse enable	Yes	No	-

Dependency: Refer to: p0287

Note: If a conductor-to-conductor short-circuit is detected during the test, this is displayed in r1902.1.

If a ground fault is detected during the test, this is displayed in r1902.2.

Re bit 02 = 0:

If the test was successful once after POWER ON (see r1902.0), it is not repeated.

Re bit 02 = 1:

The test is not only performed after POWER ON, but also each time the pulses are enabled.

r1902 — Test pulse evaluation status / Test puls ev stat

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the test pulse evaluation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Short-circuit test successfully performed	Yes	No	-
01	Phase short-circuit detected	Yes	No	-
02	Ground fault test successfully performed	Yes	No	-
03	Ground fault detected	Yes	No	-
04	Identification pulse width greater than the minimum pulse width	Yes	No	-

Note: If the ground fault test was selected, but not successfully performed, then sufficient current will not be able to be established during the test pulses.

Re bit 04:

A test pulse longer than one sampling time has occurred

p1905 — Parameter tuning selection / Par tuning select

VECTOR_G (n/M)

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	90	0

Description: The fine encoder calibration should be started during the first commissioning or after the encoder is replaced.

The fine calibration starts when the pulses are enabled and performs a rotating measurement (approximately 1 minute). In this case, a setpoint speed of at least 40 % of the motor rated speed must be entered, and the torque must be less than half of the motor rated torque.

The phases of the fine calibration of displayed using alarm A07976.

The fine calibration ends with the calculation of p0431 for the following pulse inhibit.

p1905 is automatically set to 0 at the end of the fine calibration.

Value:
0: Inactive
90: Fine encoder calibration

Dependency: If the motor encoder adjustment has not been performed (p3925.4 = 0) or the encoder calibration is activated (p1990 != 0), then encoder fine calibration is prevented.

Refer to: p1272, p1910, p1960, p1990

Notice: During encoder fine calibration, the motor must be operated without a load - and if a motor holding brake is being used, this must be opened.

Note: For p1905 = 90 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled.

When selecting the encoder fine calibration, the changeover of the motor data sets is suppressed.

p1909[0...n] — Motor data identification control word / MotID STW

VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the configuration for the motor data identification.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Stator inductance estimate no measurement	Yes	No	-
01	Cl.-loop current control w/ dead-beat controller	Yes	No	-
02	Rotor time constant estimate no measurement	Yes	No	-
03	Leakage inductance estimate no measurement	Yes	No	-
04	Activates the identification dynamic leakage inductance	Yes	No	-
05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
06	Activate vibration damping	Yes	No	-
07	De-activate vibration detection	Yes	No	-
11	De-activate pulse measurement Lq Ld	Yes	No	-
12	De-activate rotor resistance Rr measurement	Yes	No	-
14	De-activate valve interlocking time measurement	Yes	No	-
15	Determine only stator resistance, valve voltage fault, dead time	Yes	No	-
16	Short motor identification (lower quality)	Yes	No	-
17	Measurement without control parameter calculation	Yes	No	-
20	Estimate cable resistance	Yes	No	-

Note: The following applies to permanent-magnet synchronous motors:

Without de-selection in bit 11, in the closed-loop control mode, the direct inductance LD and the quadrature inductance Lq are measured at a low current.

When de-selecting with bit 11 or in the U/f mode, the stator inductance is measured at half the rated motor current.

If the stator is inductance is not measured but is to be estimated, then bit 0 should be set and bit 11 should be de-selected.

p1910 Motor data identification selection / MotID selection

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	28	1

Description: Sets the motor data identification routine.

The motor data identification routine is carried out after the next power-on command.

p1910 = 1:

All motor data and the drive converter characteristics are identified and then transferred to the following parameters:

p0350, p0354, p0356, p0357, p0358, p0360, p1825, p1828, p1829, p1830

After this, the control parameter p0340 = 3 is automatically calculated.

Value:

0: Inhibited
1: Complete identification (ID) and acceptance of motor data
2: Complete identification (ID) of motor data without acceptance
3: ID of the saturation characteristic and acceptance
4: ID of the saturation characteristic without acceptance
5: ID of dynamic leakage inductance Lsig (r1920) without acceptance
6: ID of lockout time (r1926) without acceptance
7: ID of stator resistance Rs (r1912) without acceptance
8: ID of stator inductance Ls (r1915) Rr (r1927) without acceptance
9: ID of rotor time constant Tr (r1913) without acceptance
10: ID of static leakage inductance Lsig (r1914) without acceptance
20: Voltage vector input
21: Voltage vector input without filter
22: Rectangular voltage vector input without filter
23: Triangular voltage vector input without filter

24: Rectangular voltage vector input with filter
25: Triangular voltage vector input with filter
26: Enter voltage vector with DTC correction
27: Enter voltage vector with AVC
28: Enter voltage vector with DTC + AVC correction

Dependency: "Quick commissioning" must be carried out (p0010 = 1) before executing the motor data identification routine!

In the simulation mode, the parameter cannot be written into. When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1272, p1900

Notice: After the motor data identification (p1910 > 0) has been selected, alarm A07991 is output and a motor data identification routine is carried out as follows at the next power-on command:

- current flows through the motor and a voltage is present at the drive converter output terminals.

- during the identification routine, the motor shaft can rotate through a maximum of half a revolution.

- however, no torque torque is generated.

Note: If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

When setting p1910, the following should be observed:

1. "With acceptance" means:

The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.

2. "Without acceptance" means:

The identified parameters are only displayed in the range r1912 ... r1926. The controller settings remain unchanged.

3. p1910 = 3, 4, 5 can only be selected for induction motors.

4. For settings 27 and 28, the AVC configuration set using p1840 is active.

The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it. The duration of the measurements can lie between 0.3 s and several minutes. This time is mainly influenced by the motor size. At the end of the motor data identification, p1910 is automatically set to 0, if only the stationary measurement is selected, then p1900 is also reset to 0, otherwise, the rotating measurement is activated.

p1911 Phases to be identified number / Ph to ident qty

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	3	1

Description: Sets the number of phases to be identified.

Value:
1: 1 phase U
2: 2 phases U, V
3: 3 phases U, V, W

Note: When identifying with several phases, the accuracy increases and also the time it takes to make the measurement.

r1912[0...2] Identified stator resistance / R_stator ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the identified stator resistance.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1913[0...2] Identified rotor time constant / T_rotor ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the identified rotor time constant.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1914[0...2] Identified total leakage inductance / L_total_leak ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the identified total leakage inductance.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1915[0...2] Identified nominal stator inductance / L_stator ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the nominal stator inductance identified.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1916[0...2] Identified stator inductance 1 / L_stator 1 ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the nominal stator inductance identified for the 1st point of the saturation characteristic.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1917[0...2] Identified stator inductance 2 / L_stator 2 ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the nominal stator inductance identified for the 2nd point of the saturation characteristic.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1918[0...2] Identified stator inductance 3 / L_stator 3 ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the nominal stator inductance identified for the 3rd point of the saturation characteristic.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1919[0...2] Identified stator inductance 4 / L_stator 4 ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the nominal stator inductance identified for the 4th point of the saturation characteristic.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1920[0...2] Identified dynamic leakage inductance / L_leak dyn ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mH]	- [mH]	- [mH]

Description: Displays the identified dynamic total leakage inductance.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1921[0...2]	**Identified dynamic leakage inductance 1 / L_leak 1 dyn id**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the identified dynamic leakage inductance 1.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1922[0...2]	**Identified dynamic leakage inductance 2 / L_leak 2 dyn id**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the identified dynamic leakage inductance 2.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1923[0...2]	**Identified dynamic leakage inductance 3 / L_leak 3 dyn id**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the identified dynamic leakage inductance 3.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1924[0...2]	**Identified dynamic leakage inductance 4 / L_leak 4 dyn id**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the identified dynamic leakage inductance 4.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1925[0...2] Identified threshold voltage / U_threshold ident

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the identified IGBT threshold voltage.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1926[0...2] Identified effective valve lockout time / t_lock_valve id

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [µs]	- [µs]	- [µs]

Description: Displays the identified effective valve lockout time.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1927[0...2] Identified rotor resistance / R_rotor ident

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ohm]	- [ohm]	- [ohm]

Description: Displays identified rotor resistance (on separately excited synchronous motors: damping resistance).

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1929[0...2] Identified cable resistance / R_cable ident

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ohm]	- [ohm]	- [ohm]

Description: Displays the identified cable resistance.

Index:
[0] = Phase U
[1] = Phase V
[2] = Phase W

r1934[0...9] q inductance identified / Lq ident

VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [mH]	- [mH]	- [mH]

Description: Displays the identified (differential) q-inductance.

Dependency: Refer to: r1935, p1959, p1960

Note: The Lq characteristic consists of the value pairs from p1934 and p1935 with the same index.

This value corresponds to the value of the total leakage inductance (r0377).

r1935[0...9] q inductance identification current / Lq I_ident

VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the identification current to identify the q inductance ([0...9]).

Dependency: Refer to: r1934, p1959, p1960

Note: The Lq characteristic consists of the value pairs from r1934 and r1935 with the same index.

p1959[0...n] Rotating measurement configuration / Rot meas config

VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 0001 1111 bin

Description: Sets the configuration of the rotating measurement.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder test active	Yes	No	-
01	Saturation characteristic identification	Yes	No	-
02	Moment of inertia identification	Yes	No	-
03	Re-calculates the speed controller parameters	Yes	No	-
04	Speed controller optimization (vibration test)	Yes	No	-
05	q leakage inductance ident. (for current controller adaptation)	Yes	No	-
11	Do not change the controller parameters during the measurement	Yes	No	-
12	Measurement shortened	Yes	No	-
13	After measurement direct transition into operation	Yes	No	-

Note: The encoder is only tested if the rotating measurement with encoder is selected (p1960 = 2).

The following parameters are influenced for the individual optimization steps:

Bit 00: None

Bit 01: p0320, p0360, p0362 ... p0369

Bit 02: p0341, p0342

Bit 03: p1400.0, p1458, p1459, p1460, p1462, p1463, p1470, p1472, p1496

Bit 04: Dependent on p1960

Bit 05: p0391, p0392, p0393, p1402.2 only for induction motors

p1960 = 1, 3: p1458, p1459, p1470, p1472, p1496, p1400.0

p1960 = 2, 4: p1458, p1459, p1460, p1462, p1496, p1461, p1463

The identification of the q leakage inductance can only be carried out for unloaded motors or motors with a low load (load approx. 30% below the rated motor torque). Only then is a current controller adaptation (p0391 ... p0393) parameterized if the q-leakage inductance under no-load conditions is at least 30 % higher than the total leakage inductance (p0356, p0358).

Re bit 11 = 1:

Bits 02, 03, 04 no longer have any effect. It makes sense to set bit 11 if the speed controller and it's adaptation were already set before the measurement.

Re bit 12 = 1:

The selection only has an effect on the measurement p1960 = 1, 2. For the shortened measurement, the magnetizing current and moment of inertia are determined with a somewhat lower accuracy, the oscillation test is completely eliminated.

Re bit 13 = 1:

After the measurement has been completed, the system immediately goes into closed-loop speed controlled operation.

p1960 Rotating measurement selection / Rot meas sel

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4	0

Description: Sets the rotating measurement.

The rotating measurement is carried out after the next power-on command.

The setting possibilities of the parameter depend on the open-loop/closed-loop control mode (p1300).

p1300 < 20 (U/f open-loop control):

It is not possible to select rotating measurement or speed controller optimization.

p1300 = 20, 22 (encoderless operation):

Only rotating measurement or speed controller optimization can be selected in the encoderless mode.

p1300 = 21, 23 (operation with encoder):

Both versions (encoderless and with encoder) of the rotating measurement and speed controller optimization can be selected.

Value:

0: Inhibited
1: Rotating measurement in encoderless operation
2: Rotating measurement with encoder
3: Speed controller optimization in encoderless operation
4: Speed controller optimization with encoder

Dependency: Before the rotating measurement is carried out, the motor data identification routine (p1900, p1910, r3925) should have already been done.

In the simulation mode, a value of 1 cannot be written into the parameter.

When selecting the rotating measurement, the drive data set changeover is suppressed.

When selecting rotating measurement (with the exception for p1959.13 = 1) the following BICO parameters are set to standard values, and after the measurement has been completed, are reset back to the original parameter assignments:

p1020 ... p1023, p1070, p1075, p1138, p1139, p1140 ... p1143, p1155, p1160, p1437, p1476, p1477

Refer to: p1272, p1300, p1900, p1959, p1967, r1968

Danger: For drives with a mechanical system that limits the distance moved, it must be ensured that this is not reached during the rotating measurement. If this is not the case, then it is not permissible that the measurement is carried out.

Notice: If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

During the rotating measurement it is not possible to save the parameters (p0971, p0977).

Note: When the rotating measurement is activated, it is not possible to save the parameters (p0971, p0977).

Parameter changes are automatically made for the rotating measurement (e.g. p1120); this is the reason that up to the end of the measurement, and if no faults are present, no manual changes should be made.

The ramp-up and ramp-down times (p1120, p1121) are limited, for the rotating measurement, to 900 s.

For speed controller optimization with encoder (p1960 = 2, 4), the speed controller for encoderless operation is also pre-assigned (p1470, p1472).

Depending on whether the speed controller optimization is carried out with or without encoder, different Kp/Tn adaptations of the speed controller are set (p1464, p1465). If the drive should be controlled with as well as without speed encoder, then we recommend the use of two drive data sets (p0180). These can then be executed with different speed controller adaptations.

p1961 Saturation characteristic speed to determine / Sat_char n determ

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
26 [%]	75 [%]	40 [%]

Description: Sets the speed to determine the saturation characteristic and the encoder test.

The percentage value is referred to p0310 (rated motor frequency).

Dependency: Refer to: p0310, p1959

Note: The saturation characteristics should be determined at an operating point with the lowest possible load.

r1962[0...4] Saturation characteristic magnetizing current / Sat_char I_mag

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the magnetizing currents of the identified saturation characteristic.

The values are referred to r0331.

After they have been determined, the values are transferred to p0366 ... p0369.

Index:
[0] = Value 1
[1] = Value 2
[2] = Value 3
[3] = Value 4
[4] = Value 5

Dependency: Refer to: r0331

r1963[0...4] Saturation characteristic magnetizing inductance / Sat_char L_main

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the magnetizing inductances of the identified saturation characteristic.

The values are referred to r0382.

Index:
[0] = Value 1
[1] = Value 2
[2] = Value 3
[3] = Value 4
[4] = Value 5

Dependency: Refer to: r0382

r1964[0...4] Saturation characteristic rotor flux / Sat_char rot flux

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the rotor flux values of the identified saturation characteristic.

After they have been determined, the values are transferred to p0362 ... p0365.

Index:
[0] = Value 1
[1] = Value 2
[2] = Value 3
[3] = Value 4
[4] = Value 5

p1965 Speed_ctrl_opt speed / n_opt speed

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10 [%]	75 [%]	40 [%]

Description: Sets the speed for the identification of the moment of inertia and the vibration test.

Induction motor:

The percentage value is referred to p0310 (rated motor frequency).

Synchronous motor:

The percentage value is referred to the minimum from p0310 (rated motor frequency) and p1082 (maximum speed).

Dependency: Refer to: p0310, p1959

Note: In order to calculate the inertia, sudden speed changes are carried out - the specified value corresponds to the lower speed setpoint. This value is increased by 20 % for the upper speed value.

The q leakage inductance (refer to p1959.5) is determined at zero speed and at 50 % of p1965 - however, with a maximum output frequency of 15 Hz and at a minimum of 10% of the rated motor speed.

p1967 Speed_ctrl_opt dynamic factor / n_opt dyn_factor

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1 [%]	400 [%]	100 [%]

Description: Sets the dynamic response factor for speed controller optimization.

After optimization, the dynamic response achieved is displayed in r1968.

Dependency: Refer to: p1959, r1968

Note: For a rotating measurement, this parameter can be used to optimize the speed controller.

p1967 = 100 % --> speed controller optimization according to a symmetric optimum.

p1967 > 100 % --> optimization with a higher dynamic response (Kp higher, Tn lower).

If the actual dynamic response (see r1968) is significantly reduced with respect to the required dynamic response (p1967), then this can be as a result of mechanical load oscillations. If, in spite of this load behavior, a higher dynamic response is required, then the oscillation test (p1959.4 = 0) should be deactivated and the measurement repeated.

r1968 Speed_ctrl_opt dynamic factor actual / n_opt dyn_fact act

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the dynamic factor which is actually achieved for the vibration test

Dependency: Refer to: p1959, p1967

Note: This dynamic factor only refers to the control mode of the speed controller set in p1960.

r1969 Speed_ctrl_opt moment of inertia determined / n_opt M_inert det

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** 25_1	**Unit selection:** p0100
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kgm²]	- [kgm²]	- [kgm²]

Description: Displays the determined moment of inertia of the drive.
After it has been determined, the value is transferred to p0341, p0342.

Dependency: IEC drives (p0100 = 0): unit kg m^2
NEMA drives (p0100 = 1): unit lb ft^2
Refer to: p0341, p0342, p1959

r1970[0...1] Speed_ctrl_opt vibration test vibration frequency determined / n_opt f_vib det

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the vibration frequencies determined by the vibration test.

Index: [0] = Frequency low
[1] = Frequency high

Dependency: Refer to: p1959

r1971[0...1] Speed_ctrl_opt vibration test standard deviation determined / n_opt std_dev det

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the standard deviations of the vibration frequencies determined by the vibration test

Index: [0] = Standard deviation of low frequency
[1] = Standard deviation of high frequency

Dependency: Refer to: p1959

r1972[0...1] Speed_ctrl_opt vibration test number of periods determined / n_opt per_qty det

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the period number determined by the vibration test.

Index: [0] = No. of periods of the low frequency
[1] = No. of periods of the high frequency

Dependency: Refer to: p1959

r1973 Rotating measurement encoder test pulse number determined / n_opt puls no. det

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of pulses determined during the vibration test.

Note: A negative signal indicates an incorrect polarity of the encoder signal.

p1974 Speed_ctrl_opt saturation characteristic rotor flux maximum / n_opt rot_fl max

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
104 [%]	120 [%]	120 [%]

Description: Sets the maximum flux setpoint to measure the saturation characteristic.

r1979.0...12 BO: Speed_ctrl_opt status / n_opt status

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status to check and monitor the states of speed controller optimization.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Speed controller optimization activated	Yes	No	-
01	Speed controller optimization completed	Yes	No	-
02	Speed controller optimization interrupted	Yes	No	-
04	Encoder test active	Yes	No	-
05	Saturation char. identification active	Yes	No	-
06	Moment of inertia identification active	Yes	No	-
07	Recalc. speed controller parameters active	Yes	No	-
08	Speed controller vibration test active	Yes	No	-
09	Magnetizing inductance adapt. active	Yes	No	-
10	Operation with encoder after encoderless operation	Yes	No	-
11	q-leakage inductance identification	Yes	No	-
12	Moment of inertia estimator inhibited	Yes	no	-

p1980[0...n] PolID technique / PolID technique

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: ASM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	12	4

Description: Sets the pole position identification technique.

p1980 = 1, 8: The current magnitude is set using p0329.

p1980 = 4, 6: The current magnitude of the first measurement section is set using p0325, the second using p0329.

p1980 = 10: The rated motor current is impressed to align.

The current magnitudes are limited to the rated power unit values.

p1980 = 12: The induced stator voltage is sensed using a VSM and evaluated. This rotor position identification technique can only be used for separately-excited synchronous motors with incremental encoder.

Value:
1: Voltage pulsing 1st harmonics
4: Voltage pulsing 2-stage
6: Voltage pulsing 2-stage inverse
8: Voltage pulsing 2nd harmonic, inverse
10: DC current injection
12: Rotor position sensing with VSM for FEM with incremental encoder

Dependency: When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.

In the simulation mode, the parameter cannot be written into.

Refer to: p0325, p0329, p1272, p1780

Note: Voltage pulse technique (p1980 = 1, 4, 6, 8) cannot be applied to separately-excited synchronous motors (p0300 = 5) and for for operation with sine-wave output filters (p0230).

The rotor position identification technique (p1980 = 12) cannot be used for permanent-magnet synchronous motors.

p1982[0...n] PolID selection / PolID selection

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.

Value:
0: Pole position identification off
1: Pole position identification for commutation
2: Pole position identification for plausibility check

Recommend.: Re p1982 = 1:

This is used for synchronous motors with motor encoder without absolute data.

The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine.

Re p1982 = 2:

This is used for synchronous motor with motor encoder with absolute data to check this data.

For VECTOR, the following applies:

With p1982 = 2, each time the pulses are enabled it is checked whether the absolute position supplied from the encoder does not exceed a deviation of 45 degrees to the identified pole wheel position.

With separately-excited synchronous motors (p0300 = 5), pole position identification cannot be selected if an encoder with position data is used (e.g. SSI encoder).

Dependency: Refer to: p0325, p0329, p1980, r1984, r1985, r1987, p1990

Note: For encoderless operation, the pole position identification routine is selected with p1780.6

r1984	PolID angular difference / PolID ang diff		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°]	- [°]	- [°]

Description: Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.

Dependency: Refer to: p0325, p0329, p1980, p1982, r1985, r1987, p1990

Note: PolID: Pole position identification

When the pole position identification routine is executed several times using p1983, the spread of the measured values can be determined using this value. At the same position, the spread should be less than 2 degrees electrical.

r1985	PolID saturation curve / PolID sat_char		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the saturation characteristic of the pole position identification routine (saturation technique).

Displays the current characteristic of the pole position identification routine (elasticity technique).

Dependency: Refer to: p0325, p0329, p1980, p1982, r1984, r1987, p1990

Note: PolID: Pole position identification

Regarding the saturation technique:

The values for the characteristic of the last saturation-based pole position identification routine are output every 1 ms in order to record signals (e.g. trace).

r1987	PolID trigger characteristic / PolID trig_char		
VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Motor identification	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the trigger characteristic of the pole position identification routine.

The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace).

The values for trigger characteristic and saturation characteristic are always output in synchronism from a time perspective.

Dependency: Refer to: p0325, p0329, p1980, p1982, r1984, r1985, p1990

Note: PolID: Pole position identification

The following information and data can be taken from the trigger characteristic.

- the value -100% marks the angle at the start of the measurement.

- the value +100 % marks the commutation angle determined from the pole position identification routine.

p1990 Encoder adjustment determine angular commutation offset / Enc_adj det ang

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: ASM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: This function is only required for synchronous motors and can be started when commissioning for the first time or after replacing an encoder. The function acts on the active motor data set.

Alarm A07971 is output while the angular commutation offset is being determined. p1990 is automatically set to 0 after the angular commutation offset has been determined.

For p1990 = 1 (encoder adjustment with transfer), the following applies:

The angular commutation offset is determined and transferred into p0431.

For p1990 = 2 (encoder adjustment for checking), the following applies:

The angular commutation offset is determined and is not transferred into p0431. For a deviation of more than 6 ° electrical, fault F07413 is output.

For p1990 = 3 (encoder adjustment in operation), the following applies:

PolID procedure runs before the zero mark detection. The angular commutation offset is determined and transferred into p0431. A fine adjustment (p1905) is then optionally possible.

Value:
0: Deactivated
1: Activated with transfer
2: Activated for checking
3: Activates encoder adjustment in operation

Dependency: In the simulation mode, the parameter cannot be written into.

When selecting the encoder adjustment, the changeover of the drive data sets is suppressed.

Encoder adjustment is only carried out if the function module for "speed/torque control" is activated (r0108.2 = 1).

Refer to: p0325, p0329, p0431, p1272, p1900

Caution: When the encoder is being adjusted, the motor must be operated without a load - and if a motor holding brake is being used, this must be opened.

p1991[0...n] Motor changeover angular commutation correction / Ang_com corr

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-180 [°]	180 [°]	0 [°]

Description: Sets the angle that is added to the commutating angle.

Caution: If the angular correction is not correctly set, when changing over and with closed-loop torque control, the motor can accelerate to high speeds in spite of the fact that a setpoint of zero has been entered.

p1999[0...n] Ang. commutation offset calibr. and PolID scaling / Com_ang_offs scal

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10 [%]	5000 [%]	100 [%]

Description: Sets the scaling for the runtime of the automatic encoder calibration and of the pole position identification technique in which the current is injected.

Dependency: Refer to: p0341, p0342

Caution: For p1999 > 100 % (setting large moments of inertia) the following applies:
There is no locked rotor monitoring (F07970 fault value 2).
The plausibility check of the encoder signal (F07970 fault value 4) only checks the sign.

Note: For high moments of inertia, it is practical to scale the runtime of the calibration higher.

p2000 Reference frequency / f_ref

B_INF

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.10 [Hz]	1000.00 [Hz]	50.00 [Hz]

Description: Sets the reference quantity for the frequency.
All frequencies specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
The following applies: Reference frequency (in Hz)

p2000 Reference speed reference frequency / n_ref f_ref

ENC

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
6.00 [rpm]	210000.00 [rpm]	3000.00 [rpm]

Description: Sets the reference quantity for speed and frequency.
All speeds or frequencies specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2000 Reference velocity reference frequency / v_ref f_ref

ENC (Lin_enc)

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.60 [m/min]	600.00 [m/min]	120.00 [m/min]

Description: Sets the reference quantity for velocity and frequency.
All velocities or frequencies specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
The following applies: Reference frequency (in Hz) = reference velocity (in (m/min) / 60)

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2000 Reference speed reference frequency / n_ref f_ref

VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
6.00 [rpm]	210000.00 [rpm]	3000.00 [rpm]

Description: Sets the reference quantity for speed and frequency.
All speeds or frequencies specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The following applies: Reference frequency (in Hz) = reference speed (in ((rpm) / 60) x pole pair number)

Dependency: Refer to: p2001, p2002, p2003, r2004

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:

The signal of an analog input (e.g. r4055[0]) is connected to a speed setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).

Example 2:

The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The actual input value is cyclically converted into a percentage value via the pre-specified scaling 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).

p2001 Reference voltage / Reference voltage

B_INF, VECTOR_G			
	Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10 [Vrms]	100000 [Vrms]	1000 [Vrms]

Description: Sets the reference quantity for voltages.

All voltages specified as relative value are referred to this reference quantity. This also applies for direct voltage values (= rms value) like the DC-link voltage.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note:

This reference quantity also applies to direct voltage values. It is not interpreted as rms value, but as DC voltage value.

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity.

Example:

The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.

p2002 Reference current / I_ref

B_INF, VECTOR_G			
	Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.10 [Arms]	100000.00 [Arms]	100.00 [Arms]

Description: Sets the reference quantity for currents.

All currents specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Notice: If various DDS are used with different motor data, then the reference quantities remain the same as these are not changed over with the DDS. The resulting conversion factor should be taken into account (e.g. for trace records).

Example:

p2002 = 100 A

Reference quantity 100 A corresponds to 100 %

p0305[0] = 100 A

Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current p0305[1] = 50 A

Rated motor current 50 A for MDS1 in DDS1 --> 100 % corresponds to 200 % of the rated motor current

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

SERVO:

Preassigned value for p0338 > 0.001 is p0338, otherwise 2 * p0305.

VECTOR:

Preassigned value is p0640.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the rated line current, which is obtained from the rated power and parameterized rated line supply voltage (p2002 = r0206 / p0210 / 1.73) is pre-assigned as the reference quantity.

Example:

The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.

p2003 Reference torque / M_ref

VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** 7_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01 [Nm]	20000000.00 [Nm]	1.00 [Nm]

Description: Sets the reference quantity for torque.

All torques specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

SERVO:

Preassigned value for p0338 and p0334 > 0.001 is p0338 * p0334, otherwise 2 * p0333.

VECTOR:

Preassigned value is 2 * p0333.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example:

The actual value of the total torque (r0079) is connected to a test socket (e.g. p0771[0]). The actual torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.

r2004 Reference power / P_ref

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** 14_10	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the reference quantity for power.

All power ratings specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Dependency: This value is calculated as follows:

Infeed: Calculated from voltage times current.

Closed-loop control: Calculated from torque times speed.

Refer to: p2000, p2001, p2002, p2003

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference power is calculated as follows:

- 2 * Pi * reference speed / 60 * reference torque (motor)

- reference voltage * reference current * root(3) (infeed)

p2005 Reference angle / Reference angle

VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
90.00 [°]	180.00 [°]	90.00 [°]

Description: Sets the reference quantity for angle.

All angles specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2006 Reference temp / Ref temp

B_INF, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
50.00 [°C]	300.00 [°C]	100.00 [°C]

Description: Sets the reference quantity for temperature.

All temperatures specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

p2007 Reference acceleration / a_ref

VECTOR_G

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01 [rev/s²]	500000.00 [rev/s²]	0.01 [rev/s²]

Description: Sets the reference quantity for acceleration rates.

All acceleration rates specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference acceleration is calculated as follows:

Reference speed (p2000) converted from 1/min to 1/s divided by 1 s

--> p2007 = p2000 [rpm] / (60 [s/min] * 1 [s])

r2019[0...7] Comm IF error statistics / Comm err

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the receive errors at the commissioning interface (RS232).

Index:
[0] = Number of error-free telegrams
[1] = Number of rejected telegrams
[2] = Number of framing errors
[3] = Number of overrun errors
[4] = Number of parity errors
[5] = Number of starting character errors
[6] = Number of checksum errors
[7] = Number of length errors

p2020 Field bus interface baud rate / Field bus baud

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
4	13	8

Description: Sets the baud rate for the fieldbus interface USS.

Value:
4: 2400 baud
5: 4800 baud
6: 9600 baud
7: 19200 baud
8: 38400 baud
9: 57600 baud
10: 76800 baud
11: 93750 baud
12: 115200 baud
13: 187500 baud

Note: Fieldbus IF: Fieldbus interface

Changes only become effective after POWER ON.

The parameter is not influenced by setting the factory setting.

The parameter is set to the factory setting when the protocol is reselected.

p2021 Field bus interface address / Field bus address

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	31	0

Description: Displays or sets the address for the fieldbus interface USS.

The address can be set as follows:

1) Using the address switch on the Control Unit.

--> p2021 displays the address setting.

--> A change only becomes effective after a POWER ON.

2) Using p2021
--> Only if an address of 0 or an address that is invalid for the fieldbus selected in p2030 has been set using the address switch.
--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Dependency: Refer to: p2030

Note: Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.
The parameter is set to the factory setting when the protocol is reselected.

p2022 Field bus int USS PZD no. / Field bus USS PZD

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	2

Description: Sets the number of 16-bit words in the PZD part of the USS telegram for the field bus interface.

Dependency: Refer to: p2030

Note: The parameter is not influenced by setting the factory setting.

p2023 Field bus int USS PKW no. / Field bus USS PKW

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	127	127

Description: Sets the number of 16-bit words in the PKW part of the USS telegram for the field bus interface.

Value:
0: PKW 0 words
3: PKW 3 words
4: PKW 4 words
127: PKW variable

Dependency: Refer to: p2030

Note: The parameter is not influenced by setting the factory setting.

r2029[0...7] Field bus int error statistics / Field bus error

CU_G130_DP, CU_G150_DP

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the receive errors on the field bus interface (USS).

Index:
[0] = Number of error-free telegrams
[1] = Number of rejected telegrams
[2] = Number of framing errors
[3] = Number of overrun errors
[4] = Number of parity errors
[5] = Number of starting character errors
[6] = Number of checksum errors
[7] = Number of length errors

p2030 Field bus int protocol selection / Field bus protocol

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
3	6	3

Description: Sets the communication protocol for the field bus interface.

Value:
3: PROFIBUS
6: USS(RS232)

Note: Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

r2032 Master control control word effective / PcCtrl STW eff

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective control word 1 (STW1) of the drive for the master control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
03	Operation enable	Yes	No	-
07	Acknowledge fault	Yes	No	-
10	Master ctrl by PLC	Yes	No	-

Notice: The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.

Note: OC: Operating condition

r2032 Master control control word effective / PcCtrl STW eff

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the effective control word 1 (STW1) of the drive for the master control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
02	OC / OFF3	Yes	No	-
03	Operation enable	Yes	No	-
04	Ramp-function generator enable	Yes	No	-
05	Start ramp-function generator	Yes	No	-
06	Speed setpoint enable	Yes	No	-
07	Acknowledge fault	Yes	No	-
08	Jog bit 0	Yes	No	3030
09	Jog bit 1	Yes	No	3030
10	Master ctrl by PLC	Yes	No	-

Notice: The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.

Note: OC: Operating condition

p2035 Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no

CU_G130_DP, CU_G150_DP

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	62	2

Description: Sets the drive object number for communication via the field bus interface (USS).

Dependency: Refer to: p0978

Note: p2035 defines the destination for USS parameter requests (PIV).

p0978[0] defines the destination for USS process data (PZD).

The parameter is available globally on all drive objects.

The parameter is not influenced by setting the factory setting.

p2037 IF1 PROFIdrive STW1.10 = 0 mode / IF1 PD STW1.10=0

B_INF, ENC, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the processing mode for PROFIdrive STW1.10 "master control by PLC".

Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.

Value:
0: Freeze setpoints and continue to process sign-of-life
1: Freeze setpoints and sign-of-life
2: Do not freeze setpoints

Recommend.: Do not change the setting p2037 = 0.

Note: If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.

p2038 IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the interface mode of the PROFIdrive control words and status words.

When selecting a telegram via p0922 (p2079), this parameter influences the device-specific assignment of the bits in the control and status words.

Value:
0: SINAMICS
1: SIMODRIVE 611 universal
2: VIK-NAMUR

Dependency: Refer to: p0922, p2079

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For p0922 (p2079) = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.

p2039 Select debug monitor interface / Debug monit select

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the serial interface for the debug monitor.

The serial interface for the debug monitor is COM1 (X140) or COM2 (internal).

Value = 0: COM2 (internal)

Value = 1: COM1 (X140), commissioning protocol is de-activated

Value = 2: COM2 (internal)

Value = 3: Reserved

p2040 Fieldbus interface monitoring time / Fieldbus t_monit

CU_G130_DP, CU_G150_DP

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9310
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1999999 [ms]	100 [ms]

Description: Sets the monitoring time to monitor the process data received via the fieldbus interface.

If no process data is received within this time, then an appropriate message is output.

Note: p2040 = 0:

Monitoring is de-activated.

p2042 PROFIBUS Ident Number / PB Ident No.

CU_G130_DP, CU_G150_DP

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the PROFIBUS Ident Number (PNO-ID).

SINAMICS can be operated with various identities on PROFIBUS. This allows the use of a PROFIBUS GSD that is independent of the device (e.g. PROFIdrive VIK-NAMUR with Ident Number 3AA0 hex).

Value:
0: SINAMICS
1: VIK-NAMUR

Note: Every change only becomes effective after a POWER ON.

r2043.0...2 BO: IF1 PROFIdrive PZD state / IF1 PD PZD state

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIdrive PZD state.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint failure	Yes	No	-
01	Clock cycle synchronous operation active	Yes	No	-
02	Fieldbus oper	Yes	No	-

Dependency: Refer to: p2044

Note: When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p2044 IF1 PROFIdrive fault delay / IF1 PD fault delay

B_INF, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [s]	100 [s]	0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.

The time until the fault is initiated can be used by the application. This means that is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

Dependency: Refer to: r2043

p2045 CI: PB/PN clock synchronous controller sign-of-life signal source / PB/PN ctrSoL S_src

ENC, VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Connector input for the sign-of-life of the clock synchronous PROFIBUS/PROFINET controller.

The sign-of-life is expected at bits 12 to 15. Bits 0 to 11 are not evaluated.

The sign-of-life signal is normally received in PZD4 (control word 2) from the controller.

Dependency: Refer to: p0925, r2065

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2047 PROFIBUS additional monitoring time / PB suppl t_monit

CU_G130_DP, CU_G150_DP

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	20000 [ms]	0 [ms]

Description: Sets the additional monitoring time to monitor the process data received via PROFIBUS.

Enables short bus faults to be compensated.

If no process data is received within this time, then an appropriate message is output.

Recommend.: In the isochronous mode, the additional monitoring time should not be set.

Note: For controller STOP, the additional monitoring time is not effective.

p2048 IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the cyclic interface 1 (IF1).

Note: The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.

For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r2050[0...9] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF1: Interface 1

r2050[0...19] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note: IF1: Interface 1

r2050[0...3]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2440, 2468
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Dependency: Refer to: r2060

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note: IF1: Interface 1

r2050[0...4]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
TB30, TM150, TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

r2050[0...31]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2440, 2468
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15

[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: Refer to: r2060

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note: IF1: Interface 1

p2051[0...9] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

B_INF

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...24] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7

[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...11] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2470
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Dependency: Refer to: p2061

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...4] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

TB30, TM150, TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...31] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2470
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: Refer to: p2061

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2053[0...9] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6

[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2053[0...24] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-

05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2053[0...11] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2450, 2470
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p2051, p2061

Note: IF1: Interface 1

r2053[0...4] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2053[0...31] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2450, 2470
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19

[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p2051, p2061

Note: IF1: Interface 1

r2054 PROFIBUS status / PB status

CU_G130_DP, CU_G150_DP

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4	-

Description: Status display for the PROFIBUS interface.

Value:
0: OFF
1: No connection (search for baud rate)
2: Connection OK (baud rate found)
3: Cyclic connection with master (data exchange)
4: Cyclic data OK

Note: Re r2054 = 3:

In state 3 (the LED flashes green), a cyclic connection has been established to the PROFIBUS master; however, one of the following prerequisites is missing for cyclic operation:

- No setpoints are being received as the PROFIBUS master is in the STOP condition.

Only for clock-cycle synchronous operation, the following applies:

- The drive is not in synchronism as the global control (GC) has an error.

Re r2054 = 4:

In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received. The clock cycle synchronization is OK, the global control (GC) is error-free.

This state does not provide any statement regarding the quality of the clock cycle synchronous sign-of-life characters on the drive objects.

r2055[0...2]	PROFIBUS diagnostics standard / PB diag standard		
CU_G130_DP, CU_G150_DP	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Diagnostics display for the PROFIBUS interface.

Index:
[0] = Master bus address
[1] = Master input total length bytes
[2] = Master output total length bytes

r2057	PROFIBUS address switch diagnostics / PB addr_sw diag		
CU_G130_DP, CU_G150_DP	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the setting of the PROFIBUS address switch "DP ADDRESS" on the Control Unit.

Dependency: Refer to: p0918

Notice: The display is updated after switching on, and not cyclically.

r2060[0...2]	CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2440, 2468
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4

Dependency: Refer to: r2050

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note: IF1: Interface 1

r2060[0...30]	CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2440, 2468
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7

[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Dependency: Refer to: r2050

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

p2061[0...10] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW

ENC			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2470
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12

Dependency: Refer to: p2051

Notice: A BICO interconnection for a single PZD can only take place either on p2051 or p2061.

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2061[0...30]	CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2470
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Dependency: Refer to: p2051

Notice: A BICO interconnection for a single PZD can only take place either on p2051 or p2061.
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2063[0...10]	IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2450, 2470
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the PZD (actual values) with double word format sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8

[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

r2063[0...30] IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2450, 2470
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD (actual values) with double word format sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15

[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

r2064[0...7] PB/PN diagnostics clock cycle synchronism / PB/PN diag clock

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the last parameter received from the PROFIBUS/PROFINET controller for clock synchronism.

The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the controller to the device.

Index:
[0] = Clock synchronous mode activated
[1] = Bus cycle time (Tdp) [µs]
[2] = Master cycle time (Tmapc) [µs]
[3] = Instant of actual value acquisition (Ti) [µs]
[4] = Instant of setpoint acquisition (To) [µs]
[5] = Data exchange interval (Tdx) [µs]
[6] = PLL window (Tpll-w) [1/12 µs]
[7] = PLL delay time (Tpll-d) [1/12 µs]

r2065 PB/PN controller sign of life diagnostics / PB/PN ctr SoL diag

ENC, VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET controller last failed.
An appropriate fault is output when the tolerance, specified in p0925, is exceeded.

r2067[0...1] IF1 PZD maximum interconnected / IF1 PZDmaxIntercon

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display for the maximum interconnected PZD in the receive/send direction
Index 0: receive (r2050, r2060)
Index 1: send (p2051, p2061)

p2070 IF1 PROFIdrive SIC/SCC start receive / SIC/SCC start recv

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2423
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	29	0

Description: Sets the start for the SIC/SCC telegram (p60122) in the receive words (r2050, r2060).
Dependency: Refer to: p0922, p2071, p2079, p60122
Note: For setting p0922/p2079, the value is preset to the end of the PZD telegram.
For p0922 equal to 999 and p2079 not equal to 999, the preset value can be increased.
The value must be set again after changing p0922/p2079.

p2071 IF1 PROFIdrive SIC/SCC start send / SIC/SCC start send

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2423
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	30	0

Description: Sets the start for the SIC/SCC telegram (p60122) in the send words (p2051, p2061).
Dependency: Refer to: p0922, p2079, p60122

Note: For setting p0922/p2079, the value is preset to the end of the PZD telegram.
For p0922 equal to 999 and p2079 not equal to 999, the preset value can be increased.
The value must be set again after changing p0922/p2079.

p2072 Response receive value after PZD failure / Resp aft PZD fail

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the response for the receive value (r2090) after PZD failure.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Unconditionally open holding brake (p0855)	Freeze value	Zero the value	-

r2074[0...9] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF1: Interface 1
Value range:
0 - 125: Bus address of the sender
65535: Not assigned

r2074[0...19] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11

[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note: IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2074[0...3] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Note: IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2074[0...4] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2074[0...31] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2075[0...9] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6

[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2075[0...19] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2075[0...3] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2075[0...4]	IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv		
TB30, TM150, TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2075[0...31]	IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2076[0...9] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2076[0...24] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23

[23] = PZD 24
[24] = PZD 25

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2076[0...11] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2076[0...4] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2076[0...31] **IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2077[0...15] **PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
B_INF	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	370	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
370: SIEMENS telegram 370, PZD-1/1
371: SIEMENS telegram 371, PZD-5/8
999: Free telegram configuration with BICO

Dependency: Refer to: p0922

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	390	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
390: SIEMENS telegram 390, PZD-2/2
391: SIEMENS telegram 391, PZD-3/7
392: SIEMENS telegram 392, PZD-3/15
393: SIEMENS telegram 393, PZD-4/21
394: SIEMENS telegram 394, PZD-3/3
395: SIEMENS telegram 395, PZD-4/25
396: SIEMENS telegram 396, PZD-20/21
999: Free telegram configuration with BICO

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
ENC	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	81	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
81: SIEMENS telegram 81, PZD-2/6
82: SIEMENS telegram 82, PZD-2/7
83: SIEMENS telegram 83, PZD-2/8
999: Free telegram configuration with BICO

Dependency: Refer to: p0922

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079 IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
1: Standard telegram 1, PZD-2/2
2: Standard telegram 2, PZD-4/4
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Dependency: Refer to: p0922

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079 IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
1: Standard telegram 1, PZD-2/2
2: Standard telegram 2, PZD-4/4
3: Standard telegram 3, PZD-5/9
4: Standard telegram 4, PZD-6/14
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Dependency: Refer to: p0922

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form status word 1.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form status word 2.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13

[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For clock synchronous operation, bit 12 to 15 to transfer the sign-of-life are reserved in status word 2 - and may not be freely interconnected.

p2082[0...15] BI: Binector-connector converter status word 3 / Bin/con ZSW3

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form free status word 3.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2083[0...15] BI: Binector-connector converter status word 4 / Bin/con ZSW4

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form free status word 4.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13

[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

p2084[0...15] BI: Binector-connector converter status word 5 / Bin/con ZSW5

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form free status word 5.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p2088, r2089

p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-

14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: p2080, p2081, p2082, p2083, r2089

r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2472
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p2051, p2080, p2081, p2082, p2083

Note: r2089 together with p2080 to p2084 forms five binector-connector converters.

r2090.0...15 BO: IF1 PROFIBUS PZD1 receive bit-serial / IF1 PZD1 recv bitw

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-

12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2091.0...15 BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2092.0...15 BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2093.0...15 BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller.

The PZD is selected via p2099[0].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p2099

r2095.0...15 BO: Connector-binector converter binector output / Con/bin outp

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller.
The PZD is selected via p2099[1].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p2099

p2098[0...1] Inverter connector-binector converter binector output / Con/bin outp inv

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2468
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: r2094, r2095, p2099

p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2468
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the connector-binector converter.

A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r2094, r2095

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.

p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters:

Connector input p2099[0] to binector output in r2094.0...15

Connector input p2099[1] to binector output in r2095.0...15

p2100[0...19] Change fault response fault number / Chng resp F_no

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Selects the faults for which the fault response should be changed

Dependency: The fault is selected and the required response is set under the same index.

Refer to: p2101

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] Change fault response response / Chng resp resp

B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	2	0

Description: Sets the fault response for the selected fault.

Value:
0: NONE
1: OFF1
2: OFF2

Dependency: The fault is selected and the required response is set under the same index.

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] Change fault response response / Chng resp resp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	0	0

Description: Sets the fault response for the selected fault.

Value: 0: NONE

Dependency: The fault is selected and the required response is set under the same index.

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] Change fault response response / Chng resp resp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	7	0

Description: Sets the fault response for the selected fault.

Value:
0: NONE
1: OFF1
2: OFF2
3: OFF3
5: STOP2
6: Internal armature short-circuit / DC braking
7: ENCODER (p0491)

Dependency: The fault is selected and the required response is set under the same index.

Refer to: p2100

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The fault response can only be changed for faults with the appropriate identification (see the List Manual, chapter "Faults and alarms").

Example:

F12345 and fault response = OFF3 (OFF1, OFF2, NONE)

--> The default fault response OFF3 can be changed to OFF1, OFF2 or NONE.

Re value = 1 (OFF1):

Braking along the ramp-function generator down ramp followed by a pulse inhibit.

Re value = 2 (OFF2):

Internal/external pulse inhibit.

Re value = 3 (OFF3):

Braking along the OFF3 down ramp followed by a pulse inhibit.

Re value = 5 (STOP2):

n_set = 0

Re value = 6 (armature short-circuit, internal/DC braking):
The value can only be set for all motor data sets when p1231 = 3, 4.
a) For synchronous motors (p0300 = 2xx, 4xx), an internal armature short-circuit is executed.
b) For induction motors (p0300 = 1xx), a DC braking is initiated.
Re value = 7 (ENCODER (p0491)):
The fault response set in p0491 is executed if applicable.
Note:
IASC: Internal Armature Short Circuit
DCBRK: DC braking

p2102 BI: Acknowledge all faults / Ackn all faults

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2546, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to acknowledge all faults at all drive objects of the drive system.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2103[0...n] BI: 1. Acknowledge faults / 1. Acknowledge

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2441, 2442, 2443, 2447, 2475, 2546, 9220, 9677, 9678
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the first signal source to acknowledge faults.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2103 BI: 1. Acknowledge faults / 1. Acknowledge

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the first signal source to acknowledge faults.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2104[0...n] BI: 2. Acknowledge faults / 2. Acknowledge

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the second signal source to acknowledge faults.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2104	BI: 2. Acknowledge faults / 2. Acknowledge		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the second signal source to acknowledge faults.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546, 8060
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the third signal source to acknowledge faults.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2105	BI: 3. Acknowledge faults / 3. Acknowledge		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the third signal source to acknowledge faults.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2106[0...n]	BI: External fault 1 / External fault 1		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 1.

Note: An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2106	BI: External fault 1 / External fault 1		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 1.

Note: An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107[0...n]	BI: External fault 2 / External fault 2		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 2.

Note: An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107	BI: External fault 2 / External fault 2		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 2.

Note: An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108[0...n]	BI: External fault 3 / External fault 3		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p3110, p3111, p3112

Note: An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108	BI: External fault 3 / External fault 3		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p3110, p3111, p3112

Note: An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

r2109[0...63] Fault time removed in milliseconds / t_flt resolved ms

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.
Dependency: Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122
Notice: The time comprises r2136 (days) and r2109 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2110[0...63] Alarm number / Alarm number

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: This parameter is identical to r2122.

p2111 Alarm counter / Alarm counter

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Number of alarms that have occurred after the last reset.
Dependency: When p2111 is set to 0, the following is initiated:
- all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
- the alarm buffer [0...7] is deleted.
Refer to: r2110, r2122, r2123, r2124, r2125
Note: The parameter is reset to 0 at POWER ON.

p2112[0...n] BI: External alarm 1 / External alarm 1

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 1.
Note: An external alarm is triggered with a 1/0 signal.

p2112 — BI: External alarm 1 / External alarm 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 1.

Note: An external alarm is triggered with a 1/0 signal.

r2114[0...1] — System runtime total / Sys runtime tot

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the total system runtime for the drive unit.
The time comprises r2114[0] (milliseconds) and r2114[1] (days).
After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.

Index: [0] = Milliseconds
[1] = Days

Dependency: Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146

Note: The time in r2114 is used to display the times for faults and alarms.
When the electronic power supply is switched out, the counter values are saved.
After the drive unit is powered up, the counter continues to run with the last value that was saved.

p2116[0...n] — BI: External alarm 2 / External alarm 2

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 2.

Note: An external alarm is triggered with a 1/0 signal.

p2116 — BI: External alarm 2 / External alarm 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 2.

Note: An external alarm is triggered with a 1/0 signal.

p2117[0...n]	**BI: External alarm 3 / External alarm 3**		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external alarm 3.

Note: An external alarm is triggered with a 1/0 signal.

p2117	**BI: External alarm 3 / External alarm 3**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for external alarm 3.

Note: An external alarm is triggered with a 1/0 signal.

p2118[0...19]	**Change message type message number / Chng type msg_no**		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Selects faults or alarms for which the message type should be changed.

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2119

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

p2119[0...19]	**Change message type type / Change type type**		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	3	1

Description: Sets the message type for the selected fault or alarm.

Value:
1: Fault (F)
2: Alarm (A)
3: No message (N)

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2118

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

The message type can only be changed for messages with the appropriate identification (exception, value = 0).

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

r2120 CO: Sum of fault and alarm buffer changes / Sum buffer changed

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sum of all of the fault and alarm buffer changes in the drive unit.

Dependency: Refer to: r0944, r2121

r2121 CO: Counter alarm buffer changes / Alrm buff changed

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: This counter is incremented every time the alarm buffer changes.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125

r2122[0...63] Alarm code / Alarm code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of alarms that have occurred.

Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The properties of the alarm buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

. . .

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

. . .

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63] Alarm time received in milliseconds / t_alarm recv ms

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8050, 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm occurred.

Dependency: Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The time comprises r2145 (days) and r2123 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63]	Alarm value / Alarm value		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 8050, 8065
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays additional information about the active alarm (as integer number).

Dependency: Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2125[0...63]	Alarm time removed in milliseconds / t_alarm res ms		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8050, 8065
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm was cleared.

Dependency: Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123

Notice: The time comprises r2146 (days) and r2125 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

p2126[0...19]	Change acknowledge mode fault number / Chng ackn F_no		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Selects the faults for which the acknowledge mode is to be changed

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
Refer to: p2127

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2127[0...19]	Change acknowledge mode mode / Chng ackn mode		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8050, 8075
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	3	1

Description: Sets the acknowledge mode for selected fault.

Value:
1: Acknowledgment only using POWER ON
2: Ack IMMEDIATELY after the fault cause has been removed
3: Acknowledgement only for PULSE INHIBIT

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
Refer to: p2126

Notice: It is not possible to re-parameterize the acknowledge mode for a fault in the following cases:
- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Acknowledge mode is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = IMMEDIATELY (POWER ON)

--> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

p2128[0...15] Faults/alarms trigger selection / F/A trigger sel

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8050, 8070
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15.

Dependency: If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.

Refer to: r2129

r2129.0...15 CO/BO: Faults/alarms trigger signal / F/A trigger signal

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8070
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the trigger signals of the faults/alarms set in p2128[0...15].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Trigger signal p2128[0]	ON	OFF	-
01	Trigger signal p2128[1]	ON	OFF	-
02	Trigger signal p2128[2]	ON	OFF	-
03	Trigger signal p2128[3]	ON	OFF	-
04	Trigger signal p2128[4]	ON	OFF	-
05	Trigger signal p2128[5]	ON	OFF	-
06	Trigger signal p2128[6]	ON	OFF	-
07	Trigger signal p2128[7]	ON	OFF	-
08	Trigger signal p2128[8]	ON	OFF	-
09	Trigger signal p2128[9]	ON	OFF	-
10	Trigger signal p2128[10]	ON	OFF	-
11	Trigger signal p2128[11]	ON	OFF	-
12	Trigger signal p2128[12]	ON	OFF	-
13	Trigger signal p2128[13]	ON	OFF	-
14	Trigger signal p2128[14]	ON	OFF	-
15	Trigger signal p2128[15]	ON	OFF	-

Dependency: If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.

Refer to: p2128

Note: CO: r2129 = 0 --> None of the selected messages has occurred.

CO: r2129 > 0 --> At least one of the selected messages has occurred.

r2130[0...63] Fault time received in days / t_fault recv days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the system runtime in days when the fault occurred.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2130 (days) and r0948 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2131 CO: Actual fault code / Act fault code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the code of the oldest active fault.

Dependency: Refer to: r3131, r3132

Note: 0: No fault present.

r2132 CO: Actual alarm code / Actual alarm code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the code of the last alarm that occurred.

Note: 0: No alarm present.

r2133[0...63] Fault value for float values / Fault val float

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays additional information about the fault that occurred for float values.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2134[0...63] Alarm value for float values / Alarm value float

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8065
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays additional information about the active alarm for float values.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146, r3121, r3123

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2135.0...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2548
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and BICO output for the second status word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
12	Fault motor overtemperature	Yes	No	8016
13	Fault power unit thermal overload	Yes	No	8014
14	Alarm motor overtemperature	Yes	No	8016
15	Alarm power unit thermal overload	Yes	No	8014

r2136[0...63] Fault time removed in days / t_flt resolv days

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8060
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the system runtime in days when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2546
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and BICO output for the control word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
07	Acknowledge fault	Yes	No	8060
10	External alarm 1 (A07850) effective	Yes	No	8065
11	External alarm 2 (A07851) effective	Yes	No	8065
12	External alarm 3 (A07852) effective	Yes	No	8065

13	External fault 1 (F07860) effective	Yes	No	8060
14	External fault 2 (F07861) effective	Yes	No	8060
15	External fault 3 (F07862) effective	Yes	No	8060

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...15 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2548
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for status word 1 of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Being acknowledged	Yes	No	-
01	Acknowledgment required	Yes	No	-
03	Fault present	Yes	No	8060
05	Safety message present	Yes	No	-
06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	8065
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note: Re bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present" or "alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

Re bit 06, 08:

These status bits are used for internal diagnostic purposes only.

Re bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

p2140[0...n] Hysteresis speed 2 / n_hysteresis 2

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	300.00 [rpm]	90.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the following signals:

"|n_act| < = speed threshold value 2" (BO: r2197.1)

"|n_act| > speed threshold value 2" (BO: r2197.2)

Dependency: Refer to: p2155, r2197

p2141[0...n] Speed threshold 1 / n_thresh val 1

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	5.00 [rpm]

Description: Sets the speed threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).

Dependency: Refer to: p2142, r2199

p2142[0...n] Hysteresis speed 1 / n_hysteresis 1

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	300.00 [rpm]	2.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).

Dependency: Refer to: p2141, r2199

p2144[0...n] BI: Motor stall monitoring enable (negated) / Mot stall enab neg

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8012
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the negated enable (0 = enable) of the motor stall monitoring.

Dependency: Refer to: p2163, p2164, p2166, r2197, r2198

Note: When interconnecting the enable signal with r2197.7 then the stall signal is suppressed if there is no speed setpoint - actual value deviation.

r2145[0...63] Alarm time received in days / t_alarm recv days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the system runtime in days when the alarm occurred.

Dependency: Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146, r3121, r3123

Notice: The time comprises r2145 (days) and r2123 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2146[0...63]	Alarm time removed in days / t_alarm res days		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8065
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the system runtime in days when the alarm was cleared.

Dependency: Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145, r3121, r3123

Notice: The time comprises r2146 (days) and r2125 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

p2147	Delete fault buffer of all drive objects / Del fault buffer		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8060
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Setting to delete the fault buffer of all existing drive objects.

Value:
0: Inactive
1: Start to delete the fault buffer of all drive objects

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

Note: p2147 is automatically set to 0 after execution.

p2148[0...n]	BI: RFG active / RFG active		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 8011
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the signal "ramp-function generator active" for the following signals/messages:
"Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4)
"Ramp-up/ramp-down completed" (BO: r2199.5)

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The binector input is automatically pre-assigned to r1199.2.
The following applies for SERVO:
The pre-assignment using the automatic calculation of the motor/control parameters in the drive (p0340 = 1, 3, 5) is only realized if, at the instant of the calculation, the "setpoint channel" function module is active (r0108.8 = 1). If the calculation in p0340 is not selected when downloading parameters, then the parameter is not preassigned.

p2149[0...n]	Monitoring configuration / Monit config		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 0000 0001 bin

Description: Sets the configuration for messages and monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable alarm A07903	Yes	No	8011
01	Load monitoring only in the 1st quadrant	Yes	No	8013
03	Reserved			-
15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	-

Dependency: Refer to: r2197

Note: Re bit 00:

Alarm A07903 is output when the bit is set with r2197.7 = 0 (n_set <> n_act).

Re bit 01:

When the bit is set, load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190).

Re bit 03:

When the bit is set, r2197.1 and r2197.2 are determined using separate hysteresis functions.

Re bit 15:

The bit indicates whether the automatic parameterization (p0340 = 1, p3900 > 0) for the parameters of the extended monitoring functions was carried out.

If the bit is not set (e.g. when the configuration is activated (p0108.15)), the parameterization is automatically carried out during booting even if r3925.0 is already 1.

p2150[0...n] Hysteresis speed 3 / n_hysteresis 3

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010, 8011
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	300.00 [rpm]	2.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the following signals:

"|n_act| < speed threshold value 3" (BO: r2199.0)

"n_set >= 0" (BO: r2198.5)

"n_act >= 0" (BO: r2197.3)

Dependency: Refer to: p2161, r2197, r2199

p2151[0...n] CI: Speed setpoint for messages/signals / n_set for msg

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 8011
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1170[0]

Description: Sets the signal source for the speed setpoint for the following messages:

"Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7)

"Ramp-up/ramp-down completed" (BO: r2199.5)

"|n_set| < p2161" (BO: r2198.4)

"n_set > 0" (BO: r2198.5)

Dependency: Refer to: r2197, r2198, r2199

p2153[0...n] Speed actual value filter time constant / n_act_filt T

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000000 [ms]	0 [ms]

Description: Sets the time constant of the PT1 element to smooth the speed / velocity actual value.

The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.

Dependency: Refer to: r2169

p2154[0...n] CI: Speed setpoint 2 / n_set 2

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 8010
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for speed setpoint 2.

The sum of p2151 and p2154 is used for the following messages/signals:

"Speed setpoint - actual value deviation within tolerance t_off" (r2197.7)

"Speed setpoint - actual value deviation within tolerance t_on" (r2199.4)

"Ramp-up/ramp-down completed" (r2199.5)

Dependency: Refer to: p2151, r2197, r2199

p2155[0...n] Speed threshold 2 / n_thresh val 2

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	900.00 [rpm]

Description: Sets the speed threshold value for the following messages:

"|n_act| < = speed threshold value 2" (BO: r2197.1)

"|n_act| > speed threshold value 2" (BO: r2197.2)

Dependency: Refer to: p2140, r2197

p2156[0...n] On delay comparison value reached / t_on cmpr val rchd

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	10000.0 [ms]	0.0 [ms]

Description: Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).

Dependency: Refer to: p2141, p2142, r2199

p2161[0...n]	Speed threshold 3 / n_thresh val 3		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010, 8011
	P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	5.00 [rpm]

Description: Sets the speed threshold value for the signal "|n_act| < speed threshold value 3" (BO: r2199.0).

Dependency: Refer to: p2150, r2199

p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8010
	P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	60000.00 [rpm]	0.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the signal "n_act > n_max" (BO: r2197.6).

Dependency: Refer to: r1084, r1087, r2197

Notice: For p0322 = 0, the following applies: p2162 <= 0.1 * p0311

For p0322 > 0, the following applies: p2162 <= 1.02 * p0322 - p1082

If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.

Note: For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value.

If significant overshoot occurs in the maximum speed range (e.g. due to load shedding), you are advised to increase the dynamic response of the speed controller (if possible). If this is insufficient, the hysteresis p2162 can only be increased by more than 10% of the rated speed when the maximum speed (p0322) of the motor is sufficiently greater than the speed limit p1082.

p2163[0...n]	Speed threshold 4 / n_thresh val 4		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8011
	P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	90.00 [rpm]

Description: Sets the speed threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: Refer to: p2164, p2166, r2197

p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4		
VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8011
	P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	200.00 [rpm]	2.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: Refer to: p2163, p2166, r2197

p2166[0...n] Off delay n_act = n_set / t_del_off n_i=n_so

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8011
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	10000.0 [ms]	200.0 [ms]

Description: Sets the switch-off delay time for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: Refer to: p2163, p2164, r2197

p2167[0...n] Switch-on delay n_act = n_set / t_on n_act=n_set

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8011
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	10000.0 [ms]	200.0 [ms]

Description: Sets the switch-on delay for the "speed setpoint - actual value deviation in tolerance t_on" signal/message (BO: r2199.4).

r2169 CO: Actual speed smoothed signals / n_act smth message

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8010
	P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output of the smoothed speed actual value for messages.

Dependency: Refer to: p2153

p2174[0...n] Torque threshold value 1 / M_thresh val 1

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
	P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Nm]	20000000.00 [Nm]	5.13 [Nm]

Description: Sets the torque threshold value for the messages:

"Torque setpoint < torque threshold value 1 and n_set reached" (BO: r2198.9)

"Torque setpoint < torque threshold value 1" (BO: r2198.10)

"Torque setpoint > torque threshold value 1" (BO: r2198.13)

Dependency: Refer to: p2195, r2198

p2175[0...n] Motor blocked speed threshold / Mot lock n_thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	120.00 [rpm]

Description: Sets the speed threshold for the message "Motor blocked" (BO: r2198.6).

Dependency: Refer to: p0500, p2177, r2198

Note: The following applies for encoderless vector control for induction motors:

At low speeds in open-loop speed controlled operation (see p1755, p1756), a blocked motor cannot be detected.

The following applies for encoderless vector control for permanent magnet synchronous motors:

At low speeds in open-loop speed controlled operation (see p1755, p1756), a blocked motor can only be detected if p2175 = p1755, and p1750.6 is set to 1.

p2177[0...n] Motor blocked delay time / Mot lock t_del

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	65.000 [s]	1.000 [s]

Description: Sets the delay time for the message "Motor blocked" (BO: r2198.6).

Dependency: Refer to: p0500, p2175, r2198

Note: The following applies for sensorless vector control:

At low speeds a locked motor can only be detected if no change is made to open-loop speed controlled operation. If this is the case, the value in p2177 must be reduced accordingly (p2177 < p1758) before time p2177 has elapsed in order to detect the locked state reliably.

As countermeasure, it is generally also possible to set p1750.6. This is only not permitted if the drive is slowly reversed by the load at the torque limit (speed below p1755 for longer than p1758).

p2178[0...n] Motor stalled delay time / Mot stall t_del

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	10.000 [s]	0.010 [s]

Description: Sets the delay time for the message "Motor stalled" (BO: r2198.7).

Dependency: Refer to: r2198

p2181[0...n] Load monitoring response / Load monit resp

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	0

Description: Sets the response when evaluating the load monitoring.

Value:
0: Load monitoring disabled
1: A07920 for torque/speed too low
2: A07921 for torque/speed too high
3: A07922 for torque/speed out of tolerance
4: F07923 for torque/speed too low
5: F07924 for torque/speed too high
6: F07925 for torque/speed out of tolerance

Dependency: Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, p2192, r2198

Note: The response to the faults F07923 ... F07925 can be set.
This parameter setting has no effect on the production of fault F07936.

p2182[0...n] Load monitoring speed threshold value 1 / n_thresh 1

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	150.00 [rpm]

Description: Sets the speed/torque envelope curve for load monitoring.
The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds:
p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower)
p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower)
p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)

Dependency: The following applies: p2182 < p2183 < p2184
Refer to: p2183, p2184, p2185, p2186

Note: In order that the load monitoring can reliably respond, the speed threshold p2182 should always be set lower than the minimum motor speed to be monitored.

p2183[0...n] Load monitoring speed threshold value 2 / n_thresh 2

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	900.00 [rpm]

Description: Sets the speed/torque envelope curve for load monitoring.
The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds:
p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower)
p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower)
p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)

Dependency: The following applies: p2182 < p2183 < p2184
Refer to: p2182, p2184, p2187, p2188

p2184[0...n] Load monitoring speed threshold value 3 / n_thresh 3

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	1500.00 [rpm]

Description: Sets the speed/torque envelope curve for load monitoring.
The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds:
p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower)
p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower)
p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)

Dependency: The following applies: p2182 < p2183 < p2184

Refer to: p2182, p2183, p2189, p2190

Note: In order that the load monitoring can reliably respond, the speed threshold p2184 should always be set higher than the maximum motor speed to be monitored.

p2185[0...n] Load monitoring torque threshold 1 upper / M_thresh 1 upper

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2185 > p2186

Refer to: p2182, p2186

Note: The upper envelope curve is defined by p2185, p2187 and p2189.

p2186[0...n] Load monitoring torque threshold 1 lower / M_thresh 1 lower

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2186 < p2185

Refer to: p2182, p2185

Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2187[0...n] Load monitoring torque threshold 2 upper / M_thresh 2 upper

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2187 > p2188

Refer to: p2183, p2188

Note: The upper envelope curve is defined by p2185, p2187 and p2189.

p2188[0...n] Load monitoring torque threshold 2 lower / M_thresh 2 lower

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2188 < p2187

Refer to: p2183, p2187

Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2189[0...n] Load monitoring torque threshold 3 upper / M_thresh 3 upper

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2189 > p2190

Refer to: p2184, p2190

Note: The upper envelope curve is defined by p2185, p2187 and p2189.

p2190[0...n] Load monitoring torque threshold 3 lower / M_thresh 3 lower

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque / velocity/force envelope curve for the load monitoring.

Dependency: The following applies: p2190 < p2189

Refer to: p2184, p2189

Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2192[0...n] Load monitoring delay time / Load monit t_del

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [s]	65.00 [s]	10.00 [s]

Description: Sets the delay time to evaluate the load monitoring.

p2194[0...n] Torque threshold value 2 / M_thresh val 2

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	100.00 [%]	90.00 [%]

Description: Sets the torque threshold value for the message "Torque utilization < torque threshold value 2" (BO: r2199.11).

The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.

Dependency: Refer to: r0033, p2195, r2199

p2195[0...n] Torque utilization switch-off delay / M_util t_off

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	1000.0 [ms]	800.0 [ms]

Description: Sets the switch-off delay time for the negated signal "run-up completed".

The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.

Dependency: Refer to: p2174, p2194

p2196[0...n] Torque utilization scaling / M_util scal

VECTOR_G

Can be changed: C2(1, 3), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling factor for torque utilization (r0033).

r2197.1...13 CO/BO: Status word monitoring 1 / ZSW monitor 1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2534
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the first status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	|n_act| <= speed threshold value 2 p2155	Yes	No	8010
02	|n_act| > speed threshold value 2 p2155	Yes	No	8010
03	n_act >= 0	Yes	No	8011
06	|n_act| > n_max	Yes	No	8010
07	Speed setp - act val deviation in tolerance t_off	Yes	No	8011
13	|n_act| > n_max (F07901)	Yes	No	-

Note: Re bit 01, 02:

The threshold value is set in p2155 and the hysteresis in p2140.

Re bit 03:

The hysteresis is set in p2150.

Re bit 06:

The hysteresis is set in p2162.

Re bit 07:

The threshold value is set in p2163 and the hysteresis is set in p2164.

Re bit 13:

Only for internal Siemens use.

r2198.4...12 CO/BO: Status word monitoring 2 / ZSW monitor 2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2536
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the second status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	|n_set| < p2161	Yes	No	8011
05	n_set > 0	Yes	No	8011
06	Motor blocked	Yes	No	8012
07	Motor stalled	Yes	No	8012
10	|M_set| < torque threshold value 1	Yes	No	8012
11	Load monitoring signals an alarm	Yes	No	8013
12	Load monitoring signals a fault condition	Yes	No	8013

Note: Re bit 10:

The torque threshold value 1 is set in p2174.

Re bit 12:

This bit is reset after the fault cause disappears, even if the fault itself is still present.

r2199.0...12 CO/BO: Status word monitoring 3 / ZSW monitor 3

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2537
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the third status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	|n_act| < speed threshold value 3	Yes	No	8010
01	f or n comparison value reached or exceeded	Yes	No	8010
04	Speed setp - act val deviation in tolerance t_on	Yes	No	8011
05	Ramp-up/ramp-down completed	Yes	No	8011
06	Current below the zero current threshold	Yes	No	8018
07	Speed deviation model/external in tolerance	Yes	No	8012
11	Torque utilization < torque threshold value 2	Yes	No	8012
12	Excitation current outside the tolerance range	Yes	No	8018

Note: Re bit 00:

The speed threshold value 3 is set in p2161.

Re bit 01:

The comparison value is set in p2141. We recommend setting the hysteresis (p2142) for canceling the bit to a value lower than that in p2141. Otherwise, the bit is not reset.

Re bit 11:

The torque threshold value 2 is set in p2194.

p2200[0...n] BI: Technology controller enable / Tec_ctrl enable

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to switch in/switch out the technology controller.
The technology controller is switched in with a 1 signal.

p2201[0...n] CO: Technology controller fixed value 1 / Tec_ctrl fix val1

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	10.00 [%]

Description: Sets the value for fixed value 1 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2202[0...n] CO: Technology controller fixed value 2 / Tec_ctr fix val 2

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	20.00 [%]

Description: Sets the value for fixed value 2 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2203[0...n] CO: Technology controller fixed value 3 / Tec_ctr fix val 3

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	30.00 [%]

Description: Sets the value for fixed value 3 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2204[0...n] CO: Technology controller fixed value 4 / Tec_ctr fix val 4

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	40.00 [%]

Description: Sets the value for fixed value 4 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2205[0...n] CO: Technology controller fixed value 5 / Tec_ctr fix val 5

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	50.00 [%]

Description: Sets the value for fixed value 5 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2206[0...n] CO: Technology controller fixed value 6 / Tec_ctr fix val 6

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	60.00 [%]

Description: Sets the value for fixed value 6 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2207[0...n] CO: Technology controller fixed value 7 / Tec_ctr fix val 7

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	70.00 [%]

Description: Sets the value for fixed value 7 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2208[0...n] CO: Technology controller fixed value 8 / Tec_ctr fix val 8

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	80.00 [%]

Description: Sets the value for fixed value 8 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2209[0...n] CO: Technology controller fixed value 9 / Tec_ctr fix val 9

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	90.00 [%]

Description: Sets the value for fixed value 9 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2210[0...n] CO: Technology controller fixed value 10 / Tec_ctr fix val 10

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	100.00 [%]

Description: Sets the value for fixed value 10 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2211[0...n] CO: Technology controller fixed value 11 / Tec_ctr fix val 11

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	110.00 [%]

Description: Sets the value for fixed value 11 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2212[0...n] CO: Technology controller fixed value 12 / Tec_ctr fix val 12

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	120.00 [%]

Description: Sets the value for fixed value 12 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2213[0...n] CO: Technology controller fixed value 13 / Tec_ctr fix val 13

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	130.00 [%]

Description: Sets the value for fixed value 13 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2214[0...n] CO: Technology controller fixed value 14 / Tec_ctr fix val 14

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	140.00 [%]

Description: Sets the value for fixed value 14 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2215[0...n] CO: Technology controller fixed value 15 / Tec_ctr fix val 15

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	150.00 [%]

Description: Sets the value for fixed value 15 of the technology controller.

Dependency: Refer to: p2220, p2221, p2222, p2223, r2224, r2229

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p2216[0...n] Technology controller fixed value selection method / Tec_ctr FixVal sel

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	2

Description: Sets the method to select the fixed setpoints.

Value:
1: Direct selection
2: Binary selection

p2220[0...n] BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7950, 7951
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select a fixed value of the technology controller.

Dependency: Refer to: p2221, p2222, p2223

p2221[0...n] BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7950, 7951
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select a fixed value of the technology controller.

Dependency: Refer to: p2220, p2222, p2223

p2222[0...n] BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7950, 7951
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select a fixed value of the technology controller.

Dependency: Refer to: p2220, p2221, p2223

p2223[0...n] BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7950, 7951
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select a fixed value of the technology controller.

Dependency: Refer to: p2220, p2221, p2222

r2224 CO: Technology controller fixed value effective / Tec_ctr FixVal eff

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7950, 7951
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the selected and active fixed value of the technology controller.

Dependency: Refer to: r2229

r2225.0 CO/BO: Technology controller fixed value selection status word / Tec_ctr FixVal ZSW

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the fixed value selection of the technology controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Technology controller fixed value selected	Yes	No	7950, 7951

r2229 Technology controller number actual / Tec_ctrl No. act

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 7950
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of the selected fixed setpoint of the technology controller.

Dependency: Refer to: r2224

p2230[0...n] Technology controller motorized potentiometer configuration / Tec_ctr mop config

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0100 bin

Description: Sets the configuration for the motorized potentiometer of the technology controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data save active	Yes	No	-
02	Initial rounding-off active	Yes	No	-
03	Non-volatile data save active for p2230.0 = 1	Yes	No	-
04	Ramp-function generator always active	Yes	No	-

Dependency: Refer to: r2231, p2240

Notice: The following prerequisites must be fulfilled in order to be able to save the setpoint in a non-volatile fashion:

- Firmware with V2.3 or higher.

- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).

Note: Re bit 00:

0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240.

1: The setpoint for the motorized potentiometer is saved and after ON is entered using r2231. In order to save in a non-volatile fashion, bit 03 should be set to 1.

Re bit 02:

0: Without initial rounding-off

1: With initial rounding-off.

The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed). The jerk for initial rounding is independent of the ramp-up time and only depends on the selected maximum value (p2237).

It is calculated as follows:

r = 0.0001 x max(p2237, |p2238|) [%] / 0.13^2 [s^2]

The jerk is effective until the maximum acceleration is reached (a_max = p2237 [%] / p2247 [s] or a_max = p2238 [%] / p2248 [s]), after which the drive continues to run linearly with constant acceleration.

The higher the maximum acceleration (the lower that p2247 is), the longer the ramp-up time increases with respect to the set ramp-up time.

Re bit 03:

0: Non-volatile data save de-activated.

1. The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for p2230.0 = 1).

Re bit 04:

When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r2250.

r2231 Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the setpoint memory for the motorized potentiometer of the technology controller.

For p2230.0 = 1, the last setpoint that was saved is entered after ON.

Dependency: Refer to: p2230

p2235[0...n] BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7954
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to continually increase the setpoint for the motorized potentiometer of the technology controller.

The setpoint change (CO: r2250) depends on the set ramp-up time (p2247) and the duration of the signal that is present (BI: p2235).

Dependency: Refer to: p2236

p2236[0...n] BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7954
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to continually reduce the setpoint for the motorized potentiometer of the technology controller.

The setpoint change (CO: r2250) depends on the set ramp-down time (p2248) and the duration of the signal that is present (BI: p2236).

Dependency: Refer to: p2235

p2237[0...n] Technology controller motorized potentiometer maximum value / Tec_ctrl mop max

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	100.00 [%]

Description: Sets the maximum value for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2238

p2238[0...n] **Technology controller motorized potentiometer minimum value / Tec_ctrl mop min**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	-100.00 [%]

Description: Sets the minimum value for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2237

p2240[0...n] **Technology controller motorized potentiometer starting value / Tec_ctrl mop start**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the starting value for the motorized potentiometer of the technology controller.

For p2230.0 = 0, this setpoint is entered after ON.

Dependency: Refer to: p2230

r2245 **CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctr mop befRFG**

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.

Dependency: Refer to: r2250

p2247[0...n] **Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	1000.0 [s]	10.0 [s]

Description: Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2248

Note: The time is referred to 100 %.

When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.

p2248[0...n] Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7954
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	1000.0 [s]	10.0 [s]

Description: Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2247

Note: The time is referred to 100 %.

When the initial rounding-off is activated (p2230.2 = 1) the ramp-down is correspondingly extended.

r2250 CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7954
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.

Dependency: Refer to: r2245

p2252 Technology controller configuration / Tec_ctrl config

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0111 bin

Description: Sets the configuration of the technology controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ramp-up/down time independent of setpoint sign	Yes	No	-
01	Integrator independent of Kp	Yes	No	-
02	Output signal without ramp active	Yes	No	-
03	Actual value limiting	Yes	No	-

Dependency: Refer to: p2257, p2258, p2267, p2268, p2280, p2285

Note: Re bit 00 = 0:

The ramp-down time (p2258) switches to the ramp-up time (p2257) when the sign for the output signal r2260 changes. When the sign changes, the output signal is kept at zero for one arithmetic cycle.

Re bit 00 = 1:

When r2260 exhibits a positive gradient, the ramp-up time (p2257) is active; when it exhibits a negative gradient, the ramp-down time (p2258) is active. The sign for r2260 does not have any effect on the ramp time.

Re bit 01 = 0:

The integration time of the PID controller is evaluated with the gain factor Kp (p2280) (p2285 = integral time).

Re bit 01 = 1:

The integration time of the PID controller is independent of the gain factor (p2285 = integration time) if p2280 > 0.

Re bit 02 = 0:

When the PID controller is de-activated via p2200, the output signal r2294 is reduced to zero via the ramp-down time p2293.

Re bit 02 = 1:
When the PID controller is de-activated via p2200, the output signal r2294 is set directly to zero.
Re bit 03 = 0:
The actual values are not limited by p2267 and p2268.
Re bit 03 = 1:
The actual values are limited by p2267 and p2268.

p2253[0...n] CI: Technology controller setpoint 1 / Tec_ctrl setp 1

VECTOR_G (Tech_ctrl)

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Func. diagram:** 7958
P-Group: Technology | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the setpoint 1 of the technology controller.
Dependency: Refer to: p2254, p2255

p2254[0...n] CI: Technology controller setpoint 2 / Tec_ctrl setp 2

VECTOR_G (Tech_ctrl)

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Func. diagram:** 7958
P-Group: Technology | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the setpoint 2 of the technology controller.
Dependency: Refer to: p2253, p2256

p2255 Technology controller setpoint 1 scaling / Tec_ctrl set1 scal

VECTOR_G (Tech_ctrl)

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Func. diagram:** 7958
P-Group: Technology | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the setpoint 1 of the technology controller.
Dependency: Refer to: p2253

p2256 Technology controller setpoint 2 scaling / Tec_ctrl set2 scal

VECTOR_G (Tech_ctrl)

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Func. diagram:** 7958
P-Group: Technology | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the setpoint 2 of the technology controller.
Dependency: Refer to: p2254

p2257	**Technology controller ramp-up time / Tec_ctrl t_ramp-up**		
VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [s]	650.00 [s]	1.00 [s]

Description: Sets the ramp-up time of the technology controller.

Dependency: Refer to: p2252, p2258

Note: The ramp-up time is referred to 100 %.

p2258	**Technology controller ramp-down time / Tec_ctrl t_ramp-dn**		
VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [s]	650.00 [s]	1.00 [s]

Description: Sets the ramp-down time of the technology controller.

Dependency: Refer to: p2252, p2257

Note: The ramp-down time is referred to 100 %.

r2260	**CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG**		
VECTOR_G (Tech_ctrl)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Sets the setpoint after the ramp-function generator of the technology controller.

p2261	**Technology controller setpoint filter time constant / Tec_ctrl set T**		
VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the setpoint filter (PT1) of the technology controller.

r2262	**CO: Technology controller setpoint after filter / Tec_ctr set aftFlt**		
VECTOR_G (Tech_ctrl)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Display and connector output for the smoothed setpoint after the setpoint filter (PT1) of the technology controller.

p2263 **Technology controller type / Tec_ctrl type**

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the type of technology controller.

Value:
0: D component in the actual value signal
1: D component in the fault signal

p2264[0...n] **CI: Technology controller actual value / Tec_ctrl act val**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the actual value of the technology controller.

p2265 **Technology controller actual value filter time constant / Tec_ctrl act T**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the actual value filter (PT1) of the technology controller.

r2266 **CO: Technology controller actual value after filter / Tec_ctr act aftFlt**

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the smoothed actual value after the filter (PT1) of the technology controller.

p2267 **Technology controller upper limit actual value / Tec_ctrl u_lim act**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-10000.00 [%]	10000.00 [%]	200.00 [%]

Description: Sets the upper limit for the actual value signal of the technology controller.

Dependency: Refer to: p2252, p2264, p2265, p2271

Notice: If the actual value exceeds this upper limit, this results in fault F07426.

Note: Limiting only active for p2252.3 = 1.

p2268 Technology controller lower limit actual value / Tec_ctrl l_lim act

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-10000.00 [%]	10000.00 [%]	-200.00 [%]

Description: Sets the lower limit for the actual value signal of the technology controller.

Dependency: Refer to: p2252, p2264, p2265, p2271

Notice: If the actual value falls below this lower limit, this results in fault F07426.

Note: Limiting only active for p2252.3 = 1.

p2269 Technology controller gain actual value / Tech_ctrl gain act

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	500.00 [%]	100.00 [%]

Description: Sets the scaling factor for the actual value of the technology controller.

Dependency: Refer to: p2264, p2265, p2267, p2268, p2271

Note: For 100%, the actual value is not changed.

p2270 Technology controller actual value function / Tec_ctr ActVal fct

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Setting to use an arithmetic function for the actual value signal of the technology controller.

Value:
0: No function
1: Root function (root from x)
2: Square function (x * x)
3: Cube function (x * x * x)

Dependency: Refer to: p2264, p2265, p2267, p2268, p2269, p2271

p2271 Technology controller actual value inversion (sensor type) / Tech_ctrl act inv

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to invert the actual value signal of the technology controller.
The inversion depends on the sensor type for the actual value signal.

Value:
0: No inversion
1: Inversion actual value signal

Caution: ⚠ If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!

Note: The correct setting can be determined as follows:
- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal of the technology controller.
--> If the actual value increases as the motor speed increases, then p2271 should be set to 0 (no inversion).
--> If the actual value decreases as the motor speed increases, then p2271 should be set to 1 (the actual value signal is inverted).

r2272 CO: Technology controller actual value scaled / Tech_ctrl act scal

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the scaled actual value signal of the technology controller.

Dependency: Refer to: p2264, p2265, r2266, p2267, p2268, p2269, p2270, p2271

r2273 CO: Technology controller error / Tec_ctrl error

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the error (system deviation) between the setpoint and actual value of the technology controller.

Dependency: Refer to: p2263

p2274 Technology controller differentiation time constant / Tec_ctrl D comp T

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the differentiation (D component) of the technology controller.

Note: p2274 = 0: Differentiation is disabled.

p2280 Technology controller proportional gain / Tec_ctrl Kp

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000	1000.000	1.000

Description: Sets the proportional gain (P component) of the technology controller.

Dependency: Refer to: p2252

Note: p2280 = 0: The proportional gain is disabled.

p2285 Technology controller integral time / Tec_ctrl Tn

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the integral time (I component, integrating time constant) of the technology controller.

Dependency: Refer to: p2252

Note: p2285 = 0: The integral time is disabled.

p2286[0...n] BI: Hold technology controller integrator / Tec_ctr integ hold

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to hold the integrator for the technology controller.

p2289[0...n] CI: Technology controller pre-control signal / Tec_ctr prectr_sig

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the pre-control signal of the technology controller.

p2291 CO: Technology controller maximum limiting / Tec_ctrl max_lim

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	100.00 [%]

Description: Sets the maximum limit of the technology controller.

Dependency: Refer to: p2292

Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).

p2292 CO: Technology controller minimum limiting / Tec_ctrl min_lim

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the minimum limit of the technology controller.

Dependency: Refer to: p2291

Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).

p2293 Technology controller ramp-up/ramp-down time / Tec_ctr t_RU/RD

VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [s]	100.00 [s]	1.00 [s]

Description: Sets the ramping time for the output signal of the technology controller.

Dependency: Refer to: p2291, p2292

Note: The time refers to the set maximum and minimum limits (p2291, p2292).

r2294 CO: Technology controller output signal / Tec_ctrl outp_sig

VECTOR_G (Tech_ctrl)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Display and connector output for the output signal of the technology controller.

Dependency: Refer to: p2295

p2295 CO: Technology controller output scaling / Tec_ctrl outp scal

VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-100.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the output signal of the technology controller.

p2296[0...n] CI: Technology controller output scaling / Tec_ctrl outp scal

VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	2295[0]

Description: Sets the signal source for the scaling value of the technology controller.

Dependency: Refer to: p2295

p2297[0...n] CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src

VECTOR_G (Tech_ctrl)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
	P-Group: Technology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	2291[0]

Description: Sets the signal source for the maximum limiting of the technology controller.

Dependency: Refer to: p2291

p2298[0...n] CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	2292[0]

Description: Sets the signal source for the minimum limiting of the technology controller.

Dependency: Refer to: p2292

p2299[0...n] CI: Technology controller limit offset / Tech_ctrl lim offs

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the offset of the output limiting of the technology controller.

p2306 Technology controller fault signal inversion / Tec_ctrl fault inv

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to invert the fault signal of the technology controller.
The setting depends on the type of control loop.

Value:
0: No inversion
1: Inversion

Caution: If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!

Note: The correct setting can be determined as follows:
- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal (of the technology controller).
- if the actual value increases with increasing motor speed, then the inversion should be switched out.
- if the actual value decreases with increasing motor speed, then the inversion should be set.

If value = 0:
The drive reduces the output speed when the actual value rises (e.g. for heating fans, intake pump, compressor).
If value = 1:
The drive increases the output speed when the actual value increases (e.g. for cooling fans, discharge pumps).

r2349.0...11 CO/BO: Technology controller status word / Tec_ctrl status

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 7958
P-Group: Technology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the technology controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Technology controller de-activated	Yes	No	-
01	Technology controller limited	Yes	No	-
02	Technology controller motorized potentiometer limited max	Yes	No	-
03	Technology controller motorized potentiometer limited min	Yes	No	-
08	Technology controller actual value at the minimum	Yes	No	-
09	Technology controller actual value at the maximum	Yes	No	-
10	Technology controller output at the minimum	Yes	No	-
11	Technology controller output at the maximum	Yes	No	-

p2369 BI: Closed-loop cascade control, control word / Csc_ctrl STW

VECTOR_G (Tech_ctrl)

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Func. diagram:** -
P-Group: - | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the selection of the "Switch-in motor" function.

When the function is selected, monitoring of the switches is de-activated with the "bypass" function. This means that the power unit can be connected to other motors via an external control without switch monitoring responding.

p2600 EPOS search for reference reference point offset / Ref_pt offset

B_INF

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Integer32 | **Dyn. index:** - | **Func. diagram:** 3612
P-Group: Basic positioner | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
-2147482648 [LU]	2147482647 [LU]	0 [LU]

Description: Sets the reference point offset for search for reference.

r2700 CO: Reference frequency / f_ref

B_INF

Can be changed: - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Func. diagram:** -
P-Group: - | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Display and connector output of the actual reference quantity for the frequency (p2000).

All frequencies specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

This parameter has the unit Hz.

Dependency: Refer to: p2000

Note: This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2700	CO: Reference speed/reference frequency / n_ref/f_ref		
ENC, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and connector output for the reference quantity for speed and frequency (p2000).

All speeds or frequencies specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The following applies: Reference frequency (in Hz) = reference speed (in rpm) / 60

This parameter has the unit rpm.

Dependency: Refer to: p2000

Note: This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2700	CO: Reference velocity/reference frequency actual / v_ref/f_ref act		
ENC (Lin_enc)	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and connector output for the actual reference quantity for velocity and frequency.

All velocities or frequencies specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The following applies: Reference frequency (in Hz) = reference velocity (in m/min) / 60

Dependency: Refer to: p2000

Note: This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2701	CO: Reference voltage / Reference voltage		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Connector output of the reference quantity for voltages p2001.

All voltages specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

This parameter has the unit Vrms.

Dependency: Refer to: p2001

Note: This BICO parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2702 CO: Reference current / Reference current

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity for currents p2002.

All currents specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

This parameter has the unit Arms.

Dependency: Refer to: p2002

Note: This BICO parameter provides the numerical value of the reference quantity p2002 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2703 CO: Reference torque / Reference torque

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1).

All torques specified as relative values (r0108.12 = 0) or forces (r0108.12 = 1) are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The unit of this parameter is the same as the unit selected for p2003.

Dependency: p0505, r0108.12

Refer to: p2003

Note: This BICO parameter provides the numerical value of the reference quantity p2003 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2704 CO: Reference power / Reference power

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity for powers p2004.

All power ratings specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The unit of this parameter is the same as the unit selected for p2004.

Dependency: This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.

Refer to: r2004

Note: This BICO parameter provides the numerical value of the reference quantity p2004 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

The reference power is calculated as follows:

- 2 * Pi * reference speed / 60 * reference torque (motor)

- reference voltage * reference current * root(3) (infeed)

r2705 CO: Reference angle / Reference angle

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity for angles p2005.

All angles specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

This parameter has the unit degree.

Dependency: Refer to: p2005

Note: This BICO parameter provides the numerical value of the reference quantity p2005 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2706 CO: Reference temp / Reference temp

B_INF, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity for temperatures.

All temperatures specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

This parameter has the unit degree Celsius.

Note: This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2707 CO: Reference acceleration / Ref accel

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output of the reference quantity for accelerations p2007.

All acceleration rates specified as relative value are referred to this reference quantity.

The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

The unit of this parameter is the same as the unit selected for p2007.

Dependency: r0108.12, p0505

Refer to: p2007

Note: This BICO parameter provides the numerical value of the reference quantity p2007 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value in the currently selected unit can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

p2720[0...n] Load gear configuration / Load gear config

VECTOR_G			
	Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 bin

Description: Sets the configuration for position tracking of a load gear.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Load gear activate position tracking	Yes	No	-
01	Axis type	Linear axis	Rotary axis	-
02	Load gear reset position	Yes	No	-

Note: For the following events, the non-volatile, saved position values are automatically reset:

- when an encoder replacement has been identified.
- when changing the configuration of the Encoder Data Set (EDS).
- when adjusting the absolute encoder again

p2721[0...n] Load gear rotary absolute encoder revolutions virtual / Abs rot rev

VECTOR_G			
	Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4194303	0

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1).

Note: The resolution that is set must be able to be represented using r2723.

For rotary axes/modulo axes, the following applies:

This parameter is pre-set with p0421 when activating position tracking and can be changed.

For linear axes, the following applies:

This parameter is pre-assigned with p0421 when activating position tracking, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.

p2722[0...n] Load gear position tracking tolerance window / Pos track tol

VECTOR_G			
	Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00	4294967300.00	0.00

Description: Sets a tolerance window for position tracking.

After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Caution: Rotation, e.g. through a complete encoder range is not detected.

Note: The value is entered in integer (complete) encoder pulses.

For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range.

Example:

Quarter of the encoder range = (p0408 * p0421) / 4

It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

r2723[0...n] **CO: Load gear absolute value / Load gear abs_val**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** 4010, 4704
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the absolute value after the load gear.

Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note: The increments are displayed in the format the same as r0483.

r2724[0...n] **CO: Load gear position difference / Load gear pos diff**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the position difference before the load gear between powering down and powering up.

Note: The increments are displayed in the same format as for r0483/r2723.

If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments.

If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor.

p2810[0...1] **BI: AND logic operation inputs / AND inputs**

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2634
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal sources for the inputs of the AND logic operation.

Dependency: Refer to: r2811

Note: [0]: AND logic operation, input 1 --> the result is displayed in r2811.0.

[1]: AND logic operation, input 2 --> the result is displayed in r2811.0.

r2811.0 **CO/BO: AND logic operation result / AND result**

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2634
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the result of the AND logic operation

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00				-

Dependency: Refer to: p2810

p2816[0...1] BI: OR logic operation inputs / OR inputs

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2634
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal sources for the inputs of the OR logic operation.

Dependency: Refer to: r2817

Note: [0]: OR logic operation, input 1 --> the result is displayed in r2817.0.
[1]: OR logic operation, input 2 --> the result is displayed in r2817.0.

r2817.0 CO/BO: OR logic operation result / OR result

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2634
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the result of the OR logic operation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OR logic operation result	Yes	No	-

Dependency: Refer to: p2816

p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 1021
P-Group: Free function blocks	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Setting and connector output for a fixed percentage value.

Dependency: Refer to: p2901, r2902, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)

p2901[0...n] CO: Fixed value 2 [%] / Fixed value 2 [%]

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 1021
P-Group: Free function blocks	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Setting and connector output for a fixed percentage value.

Dependency: Refer to: p2900, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)

r2902[0...14] CO: Fixed values [%] / Fixed values [%]

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 1021
	P-Group: Free function blocks	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Display and connector output for frequently used percentage values.

Index:
[0] = Fixed value +0 %
[1] = Fixed value +5 %
[2] = Fixed value +10 %
[3] = Fixed value +20 %
[4] = Fixed value +50 %
[5] = Fixed value +100 %
[6] = Fixed value +150 %
[7] = Fixed value +200 %
[8] = Fixed value -5 %
[9] = Fixed value -10 %
[10] = Fixed value -20 %
[11] = Fixed value -50 %
[12] = Fixed value -100 %
[13] = Fixed value -150 %
[14] = Fixed value -200 %

Dependency: Refer to: p2900, p2901, p2930

Note: The signal sources can, for example, be used to interconnect scalings.

p2930[0...n] CO: Fixed value M [Nm] / Fixed value M [Nm]

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 1021
	P-Group: Free function blocks	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-100000.00 [Nm]	100000.00 [Nm]	0.00 [Nm]

Description: Setting and connector output for a fixed torque value.

Dependency: Refer to: p2900, p2901, r2902

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can, for example, be used to interconnect a supplementary torque.

r2969[0...6] Direct axis flux model display / Mot Psid trace

VECTOR_G (n/M)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: ASM, PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display of the direct axis flux model of the closed-loop controlled reluctance motor for diagnostic purposes:

Display of the entered direct axis current id:
idx0: current in Arms
Display of the saturation curves of the direct axis flux psid(id, iq):
idx1: flux in Vsrms with respect to the direct axis current for iq = 0
idx2: flux in Vsrms with respect to the direct axis current for iq = 0.5 * p2950
idx3: flux in Vsrms with respect to the direct axis current for iq = p2950

Displays the relative error of the current inversion(id(psid, iq) - id) / p2950:

idx4: error with respect to direct axis current for iq = 0

idx5: error with respect to direct axis current for iq = 0.5 * p2950

idx6: error with respect to direct axis current for iq = p2950

Index: [0] = d-current
[1] = d-flux iq0
[2] = d-flux iq1
[3] = d-flux iq2
[4] = d-current error iq0
[5] = d-current error iq1
[6] = d-current error q2

Note: The display is only generated when the pulses are inhibited.

p3100 RTC time stamp mode / RTC t_stamp mode

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	2

Description: Sets the mode for the time stamp

p3100 = 0: Time stamp, operating hours

p3100 = 1: Time stamp, UTC format

p3100 = 2: Time stamp, operating hours + 01.01.2000

Notice: The realtime format (p3100 = 1), once selected, remains until the next time that the system is switched off. Switching back to operating hours (p3100 = 0) or operating hours + 01.01.2000 (p3100=2) is prevented.

Note: RTC: Real-time clock

UTC: Universal Time Coordinates

The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds.

p3101[0...1] RTC set UTC time / RTC set UTC

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Setting the UTC time.

This means that the drive system is synchronized to the time specified by the time master.

To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted.

p3101[0]: Milliseconds

p3101[1]: Days

r3102[0...1] RTC read UTC time / RTC read UTC

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual UTC time in the drive system.

p3102[0]: Milliseconds

p3102[1]: Days

p3103 RTC synchronization source / RTC sync_source

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the synchronization source/technique.

Value:
0: PROFIBUS
1: PROFINET
2: PPI
3: PROFINET PTP

p3104 BI: RTC real time synchronization PING / RTC PING

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the PING event to set the UTC time.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r3107[0...3] RTC synchronizing time / RTC t_sync

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the last synchronizing event in the drive system.

3107[0, 1]: synchronizing event after synchronization

r3107[0]: milliseconds

r3107[1]: days

3107[2, 3]: synchronizing event before synchronization

r3107[2]: milliseconds

r3107[3]: days

r3108[0...1] RTC last synchronization deviation / RTC sync_dev

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the absolute value of the last synchronization deviation that was determined.

r3108[0]: Milliseconds

r3108[1]: Days

p3109	**RTC real time synchronization tolerance window / RTC sync tol**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	100 [ms]

Description: Sets the tolerance window for time synchronization.
When this tolerance window is exceeded, an appropriate alarm is output.

p3110	**External fault 3 power-up delay / Ext fault 3 t_on**		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	1000 [ms]	0 [ms]

Description: Sets the delay time for external fault 3.

Dependency: Refer to: p2108, p3111, p3112

p3111[0...n]	**BI: External fault 3 enable / Ext fault 3 enab**		
B_INF, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p2108, p3110, p3112

p3111	**BI: External fault 3 enable / Ext fault 3 enab**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2546
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for the enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p2108, p3110, p3112

p3112[0...n] BI: External fault 3 enable negated / Ext flt 3 enab neg

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the negated enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p2108, p3110, p3111

p3112 BI: External fault 3 enable negated / Ext flt 3 enab neg

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2546
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the negated enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p2108, p3110, p3111

r3113.0...15 CO/BO: NAMUR message bit bar / NAMUR bit bar

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status of the NAMUR message bit bar.
The faults and alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault converter information electronics/software error	Yes	No	-
01	Network fault	Yes	No	-
02	DC link overvoltage	Yes	No	-
03	Fault drive converter power electronics	Yes	No	-
04	Drive converter overtemperature	Yes	No	-
05	Ground fault	Yes	No	-
06	Motor overload	Yes	No	-
07	Bus error	Yes	No	-
08	External safety-relevant shutdown	Yes	No	-
09	Mot encoder fault	Yes	No	-
10	Error communication internal	Yes	No	-
11	Fault infeed	Yes	No	-
15	Other faults	Yes	No	-

Note: Re bit 00:

Hardware or software malfunction was identified. Carry out a POWER ON of the component involved. If it occurs again, contact the hotline.

Re bit 01:

A line supply fault has occurred (phase failure, voltage level, ...). Check the line supply / fuses. Check the supply voltage. Check the wiring.

Re bit 02:

The DC link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.

Re bit 03:

An inadmissible operating state of the power electronics was identified (overcurrent, overtemperature, IGBT failure, ...). Check that the permissible load cycles are maintained. Check the ambient temperatures (fan).

Re bit 04:

The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet cooling.

Re bit 05:

A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cable (connection). Check the motor.

Re bit 06:

The motor was operated outside the permissible limits (temperature, current, torque, ...). Check the load cycles and limits that have been set. Check the ambient temperature / motor cooling.

Re bit 07:

The communication to the higher-level control system (internal coupling, PROFIBUS, PROFINET, ...) is faulted or interrupted. Check the state of the higher-level control system. Check the communication connection/wiring. Check the bus configuration / clock cycles.

Re bit 08:

A safety operation monitoring function (Safety) has detected an error.

Re bit 09:

When evaluating the encoder signals (track signals, zero marks, absolute values, ...) an illegal signal state was detected. Check the encoder / state of the encoder signals. Observe the maximum frequencies.

Re bit 10:

The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant design. Observe the maximum permissible quantity structure / clock cycles.

Re bit 11:

The infeed is faulted or has failed. Check the infeed and the surroundings (line supply, filter, reactors, fuses, ...). Check the closed-loop infeed control.

Re bit 15:

Group fault. Determine the precise cause of the fault using the commissioning tool.

r3114.9...11 CO/BO: Messages status word global / Msg ZSW global

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the global status word for messages.

The appropriate bit is set if at least one message is present at the drive objects.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
09	Group alarm present	Yes	No	8065
10	Group fault present	Yes	No	8060
11	Safety group message present	Yes	No	-

Note: The status bits are displayed with delay.

r3115[0...63] Fault drive object initiating / F DO initiating

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 8050, 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the drive object number of the initiating drive object for this fault as integer number.

Value = 63:

The fault was initiated by the drive object itself.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

p3116 BI: Acknowledgement automatically suppressed / Ackn suppress

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the automatic acknowledgement on the device drive object.

BI: p3116 = 0 signal

Faults present are automatically acknowledged on the device drive object. Local device faults are forwarded to the first active drive object.

BI: p3116 = 1 signal

Faults present are not automatically acknowledged on the device drive object. Local device faults are not forwarded.

Dependency: Refer to: p2102, p2103, p2104, p2105, p3981

Note: When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established.

p3117 Change safety message type / Ch. SI mess type

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the re-parameterization of all safety messages for faults and alarms.

The relevant message type during changeover is selected by the firmware.

0: Safety messages are not re-parameterized

1: Safety messages are re-parameterized

Note: A change only becomes effective after a POWER ON.

r3120[0...63] Component fault / Comp fault

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the component of the fault which has occurred.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3122

Note: Value = 0: Assignment to a component not possible.

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

r3121[0...63] Component alarm / Comp alarm

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the component of the alarm which has occurred.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3123

Note: Value = 0: Assignment to a component not possible.

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r3122[0...63] Diagnostic attribute fault / Diag_attr fault

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the diagnostic attribute of the fault which has occurred.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFIdrive fault class bit 0	High	Low	-
17	PROFIdrive fault class bit 1	High	Low	-
18	PROFIdrive fault class bit 2	High	Low	-
19	PROFIdrive fault class bit 3	High	Low	-
20	PROFIdrive fault class bit 4	High	Low	-

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

Re bits 20 ... 16:

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault

r3123[0...63] Diagnostic attribute alarm / Diag_attr alarm

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8065
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the diagnostic attribute of the alarm which has occurred.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFIdrive fault class bit 0	High	Low	-
17	PROFIdrive fault class bit 1	High	Low	-
18	PROFIdrive fault class bit 2	High	Low	-
19	PROFIdrive fault class bit 3	High	Low	-
20	PROFIdrive fault class bit 4	High	Low	-

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3121

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

Re bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

Re bits 20 ... 16:

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault

r3131 CO: Actual fault value / Act fault val

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the fault value of the oldest active fault.

Dependency: Refer to: r2131, r3132

r3132 CO: Actual component number / Comp_no act

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the component number of the oldest fault that is still active.

Dependency: Refer to: r2131, r3131

p3135 Suppress active fault / Supp act flt

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the suppression of r2139.3 "Fault present" for certain fault responses.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	Suppression of fault response ENCODER	ON	OFF	-
10	Suppression of fault response NONE	ON	OFF	-

Dependency: Refer to: p0491, r2139

Note: Depending on the suppression of a fault reaction in this parameter, r2139.1 "Acknowledgement required" is set when at least one fault occurs.

Re bit 08:

The suppression is only effective if p0491 = 1.

p3201[0...n] Excitation current outside the tolerance threshold value / I_exc n Tol thresh

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [%]	100.0 [%]	10.0 [%]

Description: Sets the threshold value for the "excitation current outside tolerance" message for the excitation current monitoring.

If the absolute value of the difference between the excitation current setpoint and actual value (r1641 - r1626) exceeds the threshold value and the hysteresis is longer than the selected delay time, then fault F07913 is output.

This fault is withdrawn when the threshold voltage is undershot.

Dependency: Refer to: r1626, r1641, p3202, p3203

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

p3202[0...n] Excitation current outside the tolerance hysteresis / I_exc n Tol hyst

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [%]	100.0 [%]	10.0 [%]

Description: Sets the hysteresis for the "excitation current outside tolerance" message for the excitation current monitoring.

Dependency: Refer to: p3201, p3203

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

p3203[0...n] Excitation current outside the tolerance delay time / I_exc n Tol t_del

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	10.0 [s]	1.0 [s]

Description: Sets the delay time for the "excitation current outside tolerance" message for the excitation current monitoring.

Dependency: Refer to: p3201, p3202

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

p3204[0...n] Flux outside the tolerance threshold value / Flux n tol thresh

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [%]	100.0 [%]	10.0 [%]

Description: Sets the threshold value for the "flux outside the tolerance" message for the flux monitoring.

If the absolute value of the difference between the flux setpoint and actual value (r0083 - r0084) falls below the threshold value with hysteresis longer than the selected delay time, then fault F07914 is output.

This fault is withdrawn when the threshold voltage is undershot.

Dependency: Refer to: r0083, r0084, p3205, p3206

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

The flux monitoring is only active after magnetizing (r0056.4 = 1).

p3205[0...n] Flux outside the tolerance hysteresis / Flux n tol hyst

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1 [%]	50.0 [%]	10.0 [%]

Description: Sets the hysteresis for the "flux outside tolerance" message for the flux monitoring.

Dependency: Refer to: p3204, p3206

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).

The flux monitoring is only active after magnetizing (r0056.4 = 1).

p3206[0...n] Flux outside tolerance delay time / Flux n tol t_del

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	10.0 [s]	5.0 [s]

Description: Sets the delay time for the "flux outside tolerance" message for the flux monitoring.

Dependency: Refer to: p3204, p3205

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The flux monitoring is only active after magnetizing (r0056.4 = 1).

p3207[0...n] Zero current signal threshold value / I_0_sig thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01 [Arms]	10000.00 [Arms]	1.00 [Arms]

Description: Sets the threshold value for the zero current signal for the zero current monitoring.
If the absolute current falls below the threshold value then r2199.6 is set to 1 after the delay time has expired. The bit is reset if the threshold value and the hysteresis are exceeded again.

Dependency: Refer to: r2199, p3208, p3209

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The monitoring is only carried out for speeds less than the speed threshold value in p2161 (r2199.0 = 1).

p3208[0...n] Zero current signal hysteresis / I_0_sig hyst

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01 [Arms]	10000.00 [Arms]	1.00 [Arms]

Description: Sets the hysteresis for the zero current signal for the zero current monitoring.

Dependency: Refer to: p3207, p3209

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The monitoring is only carried out for speeds less than the speed threshold value in p2161 (r2199.0 = 1).

p3209[0...n] Zero current signal delay time / I_0_sig t_del

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [s]	10.00 [s]	0.02 [s]

Description: Sets the delay time for the zero current signal for the zero current monitoring.

Dependency: Refer to: p3207, p3208

Note: The monitoring function is only carried out for separately-excited synchronized motors (p0300 = 5).
The monitoring is only carried out for speeds less than the speed threshold in p2161 (r2199.0 = 1).

p3233[0...n] Torque actual value filter time constant / M_act_filt T

VECTOR_G (Ext msg)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8013
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000000 [ms]	0 [ms]

Description: Sets the time constant for the PT1 element to smooth the torque actual value.

The smoothed torque actual value is compared with the threshold values and is only used for messages and signals.

p3235 Phase failure signal motor monitoring time / Ph_fail t_monit

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	2000 [ms]	320 [ms]

Description: Sets the monitoring time for phase failure detection of the motor.

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: Monitoring is only effective for blocksize and booksize power units.

For p3235 = 0 the function is deactivated.

For VECTOR, the following applies:

The monitoring is automatically de-activated during the flying restart operation for a motor that is still rotating.

p3236[0...n] Speed threshold 7 / n_thresh val 7

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	3000.00 [rpm]	100.00 [rpm]

Description: Sets the speed threshold value for the signal "speed deviation model/external" (BO: r2199.7).

Dependency: Refer to: r1443, r2169, r2199, p3237

p3237[0...n] Hysteresis speed 7 / n_hysteresis 7

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	200.00 [rpm]	2.00 [rpm]

Description: Sets the hysteresis speed for the signal "speed deviation model/external" (BO: r2199.7).

Dependency: Refer to: r2199, p3236

p3238[0...n] OFF delay n_act_motor model = n_act external / t_del n_a = n_ext

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 8012
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	100.0 [s]	3.0 [s]

Description: Sets the OFF delay for the signal "speed deviation model/external in tolerance" (BO: r2199.7).

The smoothed actual speed of the motor model r2169 is compared with the speed measured externally r1443 (threshold value p3236).

Dependency: Refer to: p3236, p3237

p3320[0...n] Fluid flow machine power point 1 / Fluid_mach P1

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	25.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the power (P) of point 1 as a [%].

The characteristic comprises the following value pairs:

Power (P) / speed (n)

p3320 / p3321 --> point 1 (P1 / n1)

p3322 / p3323 --> point 2 (P2 / n2)

p3324 / p3325 --> point 3 (P3 / n3)

p3326 / p3327 --> point 4 (P4 / n4)

p3328 / p3329 --> point 5 (P5 / n5)

Dependency: Refer to: r0041, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

p3321[0...n] Fluid flow machine speed point 1 / Fluid_mach n1

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	0.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the speed (n) of point 1 as a [%].

The characteristic comprises the following value pairs:

Power (P) / speed (n)

p3320 / p3321 --> point 1 (P1 / n1)

p3322 / p3323 --> point 2 (P2 / n2)

p3324 / p3325 --> point 3 (P3 / n3)

p3326 / p3327 --> point 4 (P4 / n4)

p3328 / p3329 --> point 5 (P5 / n5)

Dependency: Refer to: r0041, p3320, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

p3322[0...n] Fluid flow machine power point 2 / Fluid_mach P2

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	50.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the power (P) of point 2 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3323, p3324, p3325, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

p3323[0...n] Fluid flow machine speed point 2 / Fluid_mach n2

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	25.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the speed (n) of point 2 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3324, p3325, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

p3324[0...n] Fluid flow machine power point 3 / Fluid_mach P3

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	77.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the power (P) of point 3 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3325, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

p3325[0...n] Fluid flow machine speed point 3 / Fluid_mach n3

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	50.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the speed (n) of point 3 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3326, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.
The energy saved is displayed in r0041.

p3326[0...n] Fluid flow machine power point 4 / Fluid_mach P4

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	92.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.
This parameter specifies the power (P) of point 4 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3327, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.
The energy saved is displayed in r0041.

p3327[0...n] Fluid flow machine speed point 4 / Fluid_mach n4

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	75.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.
This parameter specifies the speed (n) of point 4 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3328, p3329

Note: The reference value for power and speed is the rated power/rated speed.
The energy saved is displayed in r0041.

p3328[0...n] Fluid flow machine power point 5 / Fluid_mach P5

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	100.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.
This parameter specifies the power (P) of point 5 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3329

Note: The reference value for power and speed is the rated power/rated speed.
The energy saved is displayed in r0041.

p3329[0...n] Fluid flow machine speed point 5 / Fluid_mach n5

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00	100.00	100.00

Description: For the energy-saving display of a fluid-flow machine, a typical flow characteristic P = f(n) with 5 points along the characteristic is required.

This parameter specifies the speed (n) of point 5 as a [%].

Dependency: Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328

Note: The reference value for power and speed is the rated power/rated speed.

The energy saved is displayed in r0041.

r3402 Infeed status internal BIC / INF state int

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8932
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	-

Description: Displays the internal status of the infeed module.

Value:
0: Initialization
1: Fault
2: No ON command
3: Offset measurement running
4: ON delay active
5: Precharg. running
6: Operation

r3405.7 CO/BO: Infeed status word / Inf ZSW

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the status word of the infeed.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
07	DC link undervoltage alarm threshold undershot	Yes	No	-

r3405.1...8 CO/BO: Status word DC link control / ZSW Vdc_ctrl

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the status word of the DC link voltage control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Vdc-ctrl active	Yes	No	-
08	Vdc controller selected	Yes	No	-

Note: Re bit 01:

DC-link voltage control is disabled and enabled with p3513.

Re bit 08 = 1:

DC-link voltage control is selected using p3513.

p3422 DC link capacitance total / C_DC tot

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.20 [mF]	2000.00 [mF]	2.00 [mF]

Description: Sets the total DC link capacitance for closed-loop voltage control.

The capacitance of one power unit is pre-assigned to this value. The value should be adapted according to the number of power units.

Note: The controller setting for the DC-link voltage controller is derived from this value.

p3490 Infeed delay time OFF1 command / INF t_del OFF1

B_INF

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8732, 8832, 8932
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	1000000.0 [ms]	0.0 [ms]

Description: Sets the delay time for the ON/OFF1 command of the infeed.

After ON/OFF1 = 0 the infeed remains in operation for the specified time

Dependency: Refer to: p0840

Notice: The ON/OFF1 command of the infeed can be interrupted.

Note: This parameter is only relevant if a Motor Module and the infeed are controlled by the same OFF command. In this case, the delay time and the stop ramp time of the motor can be coordinated with one another.

p3510 DC link voltage setpoint / Vdc setp

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** 5_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
100.00 [V]	1600.00 [V]	600.00 [V]

Description: Sets the setpoint for the DC-link voltage on the motor side.

p3511 CI: DC link voltage supplementary setpoint / Vdc Z_set

VECTOR_G (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the supplementary setpoint for the DC-link voltage on the motor side.

Dependency: Refer to: p3510

p3513 — BI: Voltage-controlled operation inhibit / U_ctrl op inhib

VECTOR_G
(Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for disabling DC-link voltage control on the motor side.

r3517 — CO: DC link controller active current setpoint / Vdc I_act set

VECTOR_G
(Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 6220, 7960
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the unlimited setpoint of the active current controller of the DC link voltage control on the motor side.

p3519[0...3] — CI: DC link pre-control power (scaled) / Vdc prectrl P scal

VECTOR_G
(Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for power pre-control.

Dependency: Refer to: p3521

Note: Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other components.

A scaled quantity is expected so that the various power reference values (r2004) of the drive objects must be taken into account. The scaling factors are used to adapt the scaling (p3521).

p3520[0...3] — CI: DC link pre-control power (not scaled) / Vdc pre-ctrl P

VECTOR_G
(Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for power pre-control.

Dependency: Refer to: p3521

Note: Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other modules.

A non-scaled quantity is expected so that the various power reference values (r2004) of the drive objects do not have to be taken into account. The scaling factors are used to adapt the scaling (p3521).

p3521[0...3] **DC link pre-control power scaling / Vdc prectrl P scal**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-100000.00000 [%]	100000.00000 [%]	100.00000 [%]

Description: Sets the scaling factor for the power pre-control.

Dependency: Refer to: p3520

Note: The scaling factor acts on the sum of the associated indices of p3519 and p3520. As one BICO input is scaled (p3519) and the other is not scaled (p3520), for each index, only one of the two inputs should be assigned.

r3522[0...4] **CO: DC link voltage control pre-control display / DC_ctr prectr disp**

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the resulting smoothed linearized torque-generating pre-control current.

Dependency: Refer to: p3520, p3521, p3523

Note: These displays are used to set the correct scaling for the pre-control.

[0]:(p3519[0] + p3520[0]) * p3521[0] / r0070

[1]:(p3519[1] + p3520[1]) * p3521[1] / r0070

[2]:(p3519[2] + p3520[2]) * p3521[2] / r0070

[3]:(p3519[3] + p3520[3]) * p3521[3] / r0070

[4]: Total [0] ... [3]

p3523[0...3] **DC link pre-control power smoothing / Vdc pre-ctrl P sm**

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the filter time for power pre-control.

Dependency: Refer to: p3520

r3554[0...1] **Vdc controller output / INF Vdc_ctrl outp**

VECTOR_G (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Display of the DC link voltage controller output (Vdc controller).

Index: [0] = I output
[1] = PI output

p3560 Vdc controller proportional gain / Vdc_ctrl Kp

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.01 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaled proportional gain for the DC link voltage controller (Vdc controller).

Note: A value of 100% corresponds to the basic setting derived from the loop control parameter (p3422).

p3562 Vdc controller integral time / Vdc_ctrl Tn

VECTOR_G (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7960
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.10 [%]	100000.00 [%]	100.00 [%]

Description: Sets the scaled integral time for the DC link voltage controller (Vdc).

Note: A value of 100% corresponds to the basic setting derived from the loop control parameter (p3422).

p3660[0...n] VSM input line supply voltage voltage scaler / VSM inp U_scaler

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	100000.00 [%]	0.00 [%]

Description: Sets the voltage scaler for the Voltage Sensing Module (VSM).

Note: When the 690 V input is used (X522) without voltage scaler, 0 % should be entered.

When the 100 V input (X521) is used with voltage scaler to measure medium voltages, the dividing (scaling) factor multiplied by 100% should be entered.

Example:

1000 V line supply voltage, voltage scaling, 10:1

--> voltage at the VSM input is 100 V

--> p3660 = 10 * 100 % = 1000 %

r3661[0...n] CO: VSM input line supply voltage u1 - u2 / VSM inp u1-u2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 5_3	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the input voltage between phases L1 and L2 for the Voltage Sensing Module (VSM).

Dependency: Refer to: p3660

Note: X521.1 or X522.1: Connection of L1

X521.2 or X522.2: Connection of L2

X521.3 or X522.3: Connection of L3

r3662[0...n] CO: VSM input line supply voltage u2 - u3 / VSM inp u2-u3

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** 5_3	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the input voltage between phases L2 and L3 for the Voltage Sensing Module (VSM).

Dependency: Refer to: p3660

Note: X521.1 or X522.1: Connection of L1

X521.2 or X522.2: Connection of L2

X521.3 or X522.3: Connection of L3

r3664[0...n] CO: VSM temperature evaluation status / VSM temp status

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the temperature evaluation of the Voltage Sensing Module (VSM).

This displays whether the temperature actual value has exceeded the fault/alarm threshold.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Alarm is present	Yes	No	-
01	Fault is present	Yes	No	-

Dependency: Refer to: p3665, r3666, p3667, p3668

p3665[0...n] VSM temperature evaluation sensor type / VSM TempSensorType

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Setting of the temperature sensor for the Voltage Sensing Module (VSM).

The temperature sensor is connected to terminals X520.5 and X520.6 of the VSM.

Value:
0: No sensor
1: PTC
2: KTY84

Note: The pre-assignment of the parameter depends on the device type.

For chassis power units, the temperature monitoring of the line filter is active (p3665 = 2).

r3666[0...n] CO: VSM temperature KTY / VSM temp KTY

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: Closed-loop control	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value of a KTY84 temperature sensor connected to the Voltage Sensing Module (VSM).

Prerequisite:

A KTY84 sensor is connected and p3665 is set to 2.

Dependency: Refer to: p3665

Note: For sensor type PTC (p3665 = 1), the following applies:
- below the nominal response temperature, r3666 = -50°C.
- above the nominal response temperature, r3666 = 199.9 °C.

p3667[0...n] VSM line filter overtemperature alarm threshold / VSMfilt_T A_thresh

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: -	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
-100.00 [°C]	301.00 [°C]	150.00 [°C]

Description: Sets the alarm threshold for the KTY temperature sensor of the Voltage Sensing Module (VSM) to monitor the line filter temperature.

Prerequisite:

A KTY84 sensor is connected and p3665 is set to 2.

Dependency: Refer to: p3665

p3668[0...n] VSM line filter overtemperature shutdown threshold / VSM filt_T F_thres

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: -	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
-100.00 [°C]	301.00 [°C]	180.00 [°C]

Description: Sets the shutdown threshold for the KTY temperature sensor of the VSM to monitor the line filter temperature.

Dependency: Refer to: p3667

p3669[0...n] VSM line filter overtemperature hysteresis / VSM filt_T hyst

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9886
P-Group: -	**Units group:** 21_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [K]	50.00 [K]	3.00 [K]

Description: Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.

Dependency: Refer to: p3667

p3670[0...n] VSM 10 V input CT gain / VSM CT_gain

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [A]	1000.000 [A]	1.000 [A]

Description: Sets CT gain of the CT connected at the 10 V input of the Voltage Sensing Module (VSM).

The parameter specifies the current magnitude in [A] referred to the input voltage at the VSM in [V].

Example:

CT with 1 V per 200 A.

--> p3670 = 200

Dependency: Refer to: r3671, r3672

Note: The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

r3671[0...n]	CO: VSM 10 V input CT 1 actual value / VSM CT 1 I_act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the current actual value from current transducer (CT) 1 at the 10 V input of the Voltage Sensing Module (VSM).

Dependency: Refer to: p3670

Note: The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

r3672[0...n]	CO: VSM 10 V input CT 2 actual value / VSM CT 2 I_act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the current actual value from current transducer (CT) 2 at the 10 V input of the Voltage Sensing Module (VSM).

Dependency: Refer to: p3670

Note: The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

r3673[0...n]	CO: VSM 10 V input 1 actual value / VSM inp 1 U_act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).

Dependency: Refer to: p3670

Note: 10 V input 1: Terminals X520.1 and X520.2

r3674[0...n]	CO: VSM 10 V input 2 actual value / VSM inp 2 U_act		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** 9880
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).

Dependency: Refer to: p3670

Note: 10 V input 2: Terminals X520.3 and X520.4

p3680 BI: Braking Module internal inhibit / BM int inhib

B_INF

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to inhibit the internal Braking Module.

BI: p3680 = 1 signal:

The Braking Module is inhibited.

BI: p3680 = 0 signal:

The Braking Module is enabled.

Caution: When the Braking Module is inhibited, no energy can be dissipated in the braking resistor.

p3681 BI: Activating Braking Module internal DC link fast discharge / BM intDCdischg act

B_INF

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to activate the DC link fast discharge for an internal braking module.

When the following conditions apply, the DC link fast discharge is started later with delay time (p3682):

- BI: p3681 = 1 signal.
- an external line contactor is opened via r0863.1 "energize contactor".

The DC link fast discharge is interrupted when the following conditions apply:

- BI: p3681 = 0 signal.
- ON command for the infeed.

Recommend.: The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F30027).

Dependency: Refer to: p3682

Notice: The parameter is only effective for Basic Line Modules with the internal Braking Module (this is valid for Basic Line Modules with a power rating of less than 100 kW).

p3682 Braking Module internal DC link fast discharge delay time / BM int DC dischg t

B_INF

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
500 [ms]	4294967295 [ms]	1000 [ms]

Description: Sets the delay time for switching in the DC link fast discharge for an internal Braking Module.

Dependency: Refer to: p3681

Notice: The parameter is only effective for Basic Line Modules with the internal Braking Module (this is valid for Basic Line Modules with a power rating of less than 100 kW).

p3683	Braking Module internal activation threshold brake chopper / BM int act thresh		
B_INF	**Can be changed:** C2(1)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	110.00 [V]	780.00 [V]	760.00 [V]

Description: Sets the activation threshold for the braking chopper.

Note: The activation threshold is only effective if the "Device supply voltage reduced" function (p0212.0 = 1) has been activated!

r3685	BO: Digital Braking Module: Pre-alarm I2t shutdown / Dig BM A I2t shutd		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: The binector output uses a 1 signal to indicate that 80 % of the highest permissible I2t value has been reached in the Braking Module.

r3686	BO: Digital Braking Module Fault / Dig BM Fault		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: The binector output uses a 1 signal to indicate an overcurrent fault or an I2t shutdown in the Braking Module.

r3687	BO: Digital Braking Module pre-alarm overtemperature / Dig BM A overtemp		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays a fault due to the excessively high temperature.
1 signal:
The connected temperature sensor (X21.1, X21.2) signals an overtemperature.

Recommend.: Measure the braking resistor temperature using the temperature sensor.

r3688	BO: Braking Module internal overtemperature shutdown / BM int temp shutd		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the shutdown due to the excessively high temperature.

1 signal:

The connected temperature sensor (X21.1, X21.2) signals an overtemperature. The highest permissible temperature at the connected temperature sensor has been exceeded and results in a shutdown.

r3689 BO: Digital Braking Module Uce fault / Dig BM Uce fault

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays an Uce fault in the internal Braking Module.

1 signal:

An Uce fault is present in the internal Braking Module.

p3800[0...n] Sync-line-drive activation / Sync act

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the activation for the line-drive synchronization.

Value:
0: Sync-line-drive de-activated
1: Sync-line-drive activated VSM-INT

Dependency: Refer to: p3801, p3802

Caution: If there is only one VSM being used, this can either be used for line synchronization or for a flying restart. If the VSM was connected to the line supply, then flying restart should be deselected in p1200. If the VSM was connected at the output (motor side), then line synchronization should be deactivated using p3800.

Line synchronization (first VSM connected with the line supply) and also flying restart (second VSM connected to the motor terminals) can only be used if two VSMs are assigned to the Motor Module.

Note: When the ground fault monitoring initiates a fault for overlapping synchronizing the threshold value p0287[1] for the Motor Module and the associated infeed must be appropriately increased (e.g. p0287[1] = 100 %).

For p3800 = 1, the following applies:

The INTERNAL voltage actual values are used for synchronization. The effects that a (sine-wave) filter - that is connected between the Motor Module and motor - has on the voltage actual values are taken into account (theoretically) by appropriately selecting p0230.

VSM: Voltage Sensing Module

p3801[0...n] Sync-line-drive drive object number / Sync DO_no

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	62	1

Description: Sets the drive object number of the VSM used for the line-drive synchronization.

Dependency: Refer to: p3800, p3802

Notice: The current controller sampling time p0115[0] of the drive object with the VSM used for synchronization must be identical to the current controller sampling time of the drive of the drive used to perform line synchronization.

Note: VSM: Voltage Sensing Module

The setting p3801 = 1 is always possible (no VSM selected).

If the VSM is assigned subsequently to a Motor Module, its drive object number must be entered in p3801.

The line voltage is always measured using the first VSM (p0151[0]).

p3802[0...n]	BI: Sync-line-drive enable / Sync enable		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to switch in/switch out for the line-drive synchronization.
BI: p3802 = 1 signal:
The line-drive synchronization is switched in.

Dependency: Refer to: p3800, p3801

r3803.0	CO/BO: Sync-line-drive control word / Sync STW		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the control word for the line-drive synchronization.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Sync-line-drive selected	Yes	No	-

Note: Re bit 00:
For a 1 signal, p3800 > 0 is set.

r3804	CO: Sync-line-drive target frequency / Sync f_target		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3030, 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the target frequency for the line-drive synchronization.

r3805	CO: Sync-line-drive frequency difference / Sync f_diff		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the frequency difference between the measured target frequency and output frequency of the gating unit of the closed-loop control for line-drive synchronization.

p3806[0...n] Sync-line-drive frequency difference threshold value / Sync f_diff thresh

VECTOR_G	**Can be changed:** U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	1.00 [Hz]	0.10 [Hz]

Description: Sets the threshold value of the frequency difference to activate the closed-loop phase control for line-drive synchronization.

The closed-loop phase control is activated (r3819.6 = 1), if the frequency difference is less that the threshold value.

r3808 CO: Sync-line-drive phase difference / Sync phase diff

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2005	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°]	- [°]	- [°]

Description: Displays the phase difference between the measured target phase and phase of the gating unit of the closed-loop control for line-drive synchronization.

p3809[0...n] Sync-line-drive phase setpoint / Sync phase setp

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-180.00 [°]	179.90 [°]	0.00 [°]

Description: Sets the phase setpoint for the line-drive synchronization.

p3811[0...n] Sync-line-drive frequency limiting / Sync f_lim

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [Hz]	1.00 [Hz]	0.20 [Hz]

Description: Sets the frequency limiting of the phase controller output for the line-drive synchronization.

r3812 CO: Sync-line-drive correction frequency / Sync f_corr

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 3080, 7020
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [Hz]	- [Hz]	- [Hz]

Description: Displays the correction frequency for the line-drive synchronization.

p3813[0...n] Sync-line-drive phase synchronism threshold value / Sync Ph_sync thrsh

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [°]	20.00 [°]	2.00 [°]

Description: Sets the threshold value of the phase synchronism for the line-drive synchronization.

A prerequisite for synchronism is achieved if the phase difference is lower than the threshold value.

Note: Synchronism is reached (r3819.2 = 1), if the AND logic operation of the results from the phase measurement (p3813) and voltage measurement (p3815) is fulfilled.

r3814 CO: Sync-line-drive voltage difference / Sync U_diff

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Display and connector output for the voltage difference between the measured target voltage and output voltage of the gating unit of the closed-loop control for line-drive synchronization.

p3815[0...n] Sync-line-drive voltage difference threshold value / Sync U_diff thresh

VECTOR_G

Can be changed: U, T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	20.00 [%]	10.00 [%]

Description: Sets the threshold value of the voltage difference for the line-drive synchronization.

A prerequisite for synchronism is reached if the voltage difference is less than the threshold value.

Note: Synchronism is reached (r3819.2 = 1), if the AND logic operation of the results from the phase measurement (p3813) and voltage measurement (p3815) is fulfilled.

For voltage manipulated quantity margin (reserve) of the drive converter, the amplitude difference (r3814) between the setpoint and actual value is controlled (corrected) to zero.

r3819.0...7 CO/BO: Sync-line-drive status word / Sync ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 7020
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the line-drive synchronization.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Sync-line-drive enabled	Yes	No	-
02	Sync-line-drive synchronism reached	Yes	No	-
03	Sync-line-drive synchronizing error	Yes	No	-
05	Sync-line-drive frequency measurement active	Yes	No	-
06	Sync-line-drive phase control active	Yes	No	-
07	Sync-line-drive without drive	Yes	No	-

p3820[0...n] Friction characteristic value n0 / Friction n0

VECTOR_G (n/M)

Can be changed: T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	15.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 1st value pair of the friction characteristic.

Dependency: Refer to: p3830, p3845

p3821[0...n] Friction characteristic value n1 / Friction n1

VECTOR_G (n/M)

Can be changed: T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	30.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 2nd value pair of the friction characteristic.

Dependency: Refer to: p3831, p3845

p3822[0...n] Friction characteristic value n2 / Friction n2

VECTOR_G (n/M)

Can be changed: T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	60.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 3rd value pair of the friction characteristic.

Dependency: Refer to: p3832, p3845

p3823[0...n] Friction characteristic value n3 / Friction n3

VECTOR_G (n/M)

Can be changed: T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	210000.00 [rpm]	120.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 4th value pair of the friction characteristic.

Dependency: Refer to: p3833, p3845

p3824[0...n]	**Friction characteristic value n4 / Friction n4**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	150.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 5th value pair of the friction characteristic.

Dependency: Refer to: p3834, p3845

p3825[0...n]	**Friction characteristic value n5 / Friction n5**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	300.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 6th value pair of the friction characteristic.

Dependency: Refer to: p3835, p3845

p3826[0...n]	**Friction characteristic value n6 / Friction n6**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	600.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 7th value pair of the friction characteristic.

Dependency: Refer to: p3836, p3845

p3827[0...n]	**Friction characteristic value n7 / Friction n7**		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	1200.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 8th value pair of the friction characteristic.

Dependency: Refer to: p3837, p3845

p3828[0...n]	Friction characteristic value n8 / Friction n8		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	1500.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 9th value pair of the friction characteristic.

Dependency: Refer to: p3838, p3845

p3829[0...n]	Friction characteristic value n9 / Friction n9		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** CALC_MOD_LIM_REF	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 3_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	210000.00 [rpm]	3000.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 10th value pair of the friction characteristic.

Dependency: Refer to: p3839, p3845

p3830[0...n]	Friction characteristic value M0 / Friction M0		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 1st value pair of the friction characteristic.

Dependency: Refer to: p3820, p3845

p3831[0...n]	Friction characteristic value M1 / Friction M1		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 2nd value pair of the friction characteristic.

Dependency: Refer to: p3821, p3845

p3832[0...n] Friction characteristic value M2 / Friction M2

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 3rd value pair of the friction characteristic.

Dependency: Refer to: p3822, p3845

p3833[0...n] Friction characteristic value M3 / Friction M3

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 4th value pair of the friction characteristic.

Dependency: Refer to: p3823, p3845

p3834[0...n] Friction characteristic value M4 / Friction M4

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 5th value pair of the friction characteristic.

Dependency: Refer to: p3824, p3845

p3835[0...n] Friction characteristic value M5 / Friction M5

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 6th value pair of the friction characteristic.

Dependency: Refer to: p3825, p3845

p3836[0...n]	Friction characteristic value M6 / Friction M6		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 7th value pair of the friction characteristic.

Dependency: Refer to: p3826, p3845

p3837[0...n]	Friction characteristic value M7 / Friction M7		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 8th value pair of the friction characteristic.

Dependency: Refer to: p3827, p3845

p3838[0...n]	Friction characteristic value M8 / Friction M8		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 9th value pair of the friction characteristic.

Dependency: Refer to: p3828, p3845

p3839[0...n]	Friction characteristic value M9 / Friction M9		
VECTOR_G (n/M)	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 10th value pair of the friction characteristic.

Dependency: Refer to: p3829, p3845

r3840.0...9 CO/BO: Friction characteristic status word / Friction ZSW

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 7010
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the friction characteristic.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Friction characteristic OK	Yes	No	-
01	Friction characteristic record activated	Yes	No	-
02	Friction characteristic record completed	Yes	No	-
03	Friction characteristic record aborted	Yes	No	-
08	Friction characteristic positive direction	Yes	No	-
09	Friction torque model controlled status	Upper	Lower	-

Note: Re bit 09:

For closed-control of an induction motors with encoder, the switchover between the current and observer model is displayed (see also r1751.19), if p3844 is > 0.

The following applies for bit 9 = 0 (observer model active):

The frictional torque is calculated from the characteristic values from the characteristic point entered into p3844.

The following applies for bit 9 = 1 (current model active):

The frictional torque is calculated from the characteristic values below the characteristic point entered into p3844.

r3841 CO: Friction characteristic output / Frict outp

VECTOR_G (n/M)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7010
P-Group: Functions	**Units group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for the torque of the friction characteristic dependent on the speed.

Dependency: Refer to: p1569, p3842

p3842 Friction characteristic activation / Frict act

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7010
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to activate and de-activate the friction characteristic.

Value:
0: Friction characteristic de-activated
1: Friction characteristic activated

Dependency: Refer to: p1569, r3841, p3845

p3843[0...n] Friction characteristic frictional torque diff. smoothing time / Frict M_diff t_sm

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	10000.00 [ms]	0.00 [ms]

Description: Sets the smoothing time constant (PT1) for the friction torque difference.

	Smoothing is activated when switching over from status bit r3840.9.
Dependency:	Refer to: p3844

p3844[0...n] Friction characteristic number changeover point upper / FricNo chng_pt up

VECTOR_G (n/M)			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
	Not for motor type: PEM, REL, FEM	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4	0

Description: Selects the upper changeover point of the friction characteristic for the frictional torque input controlled by the motor model of the induction motor.

The speed of this changeover point is preassigned when automatically calculating with the changeover speed p1752. The changeover point located below is preassigned with the changeover speed p1752 * (1 - p1753).

Example: p3844 = 3 means that the speed value for the change to the monitor model (p3823 = p1752) is entered into p3823 (friction characteristic value n3).

Depending on the display of r3840.9, the frictional torque is calculated from the friction characteristic values, which are associated with these changeover points. For the changeover of the motor model, with hysteresis, the frictional torque smoothed with p3843 changes between these two states.

Dependency: As part of the automatic calculation (p0340), p3844 is only activated for closed loop control (p1300 = 21, 23) of induction motors with encoder.

Refer to: p3843

Notice: If the changeover point defined using p3844 does not match the changeover speed p1752, then internally, the model-controlled friction torque input is automatically deactivated (same as for p3844 = 0).

Note: For p3844 = 0, the model-controlled frictional torque changeover is deactivated. The frictional torque is then calculated the same as for the encoderless control by interpolating between the points along the friction characteristic.

p3845 Friction characteristic record activation / Frict rec act

VECTOR_G			
	Can be changed: T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	3	0

Description: Setting for the friction characteristic record.

After the next power-on command, the friction characteristic is automatically recorded.

Value:
- 0: Friction characteristic record de-activated
- 1: Friction char record activated for all directions
- 2: Friction char record activated for positive direction
- 3: Friction char record activated for negative direction

Dependency: When selecting the friction characteristic measurement, the drive data set changeover is suppressed.

For linear drives (refer to r0108 bit 12) it is not permissible to carry out the friction characteristic measurement for mechanical systems that limit travel.

Danger: ⚠ For drives with a mechanical system that limit the distance moved, it must be ensured that during recording, the friction characteristic is not reached. If this is not the case, then it is not permissible that the measurement is carried out.

Notice: To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

Note: When the friction characteristic record is active, it is not possible to save the parameters (p0971, p0977).

When the friction characteristic record is active (p3845 > 0), it is not possible to change p3820 ... p3829, p3830 ... p3839 and p3842.

When recording the friction characteristic, in addition to the friction, the motor losses are also determined (e.g. iron losses, eddy current losses and re-magnetizing losses). A differentiation is not made between these individual loss components. We recommend that a motor temperature sensor is used because torque deviations can also be emulated/mapped on the characteristic due to the thermal influence.

p3846[0...n] Friction characteristic record ramp-up/ramp-down time / Frict rec t_RU/RD

VECTOR_G (n/M)			
	Can be changed: T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	999999.000 [s]	10.000 [s]

Description: Sets the ramp-up/ramp-down time of the ramp-up/ramp-down function generator to automatically record the friction characteristic.

The drive is accelerated from standstill (setpoint = 0) up to the maximum speed/velocity (p1082) in this time.

Dependency: Refer to: p3845

p3847[0...n] Friction characteristic record warm-up time / Frict rec t_warm

VECTOR_G (n/M)			
	Can be changed: T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** 7010
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: REL	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [s]	3600.000 [s]	0.000 [s]

Description: Sets the warm-up time.

For an automatic trace (record) to start, the highest selected speed (p3829) is approached and this time is held. After this, the measurement is started with the highest speed.

Dependency: Refer to: p3829, p3845

p3860 Number of Braking Modules connected in parallel / BM qty par_cct

B_INF (Brk Mod ext)			
	Can be changed: C2(2)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 9951
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	8	1

Description: Sets the number of Braking Modules connected in parallel in a DC link.

Note: The parameter can only be written to if the infeed is in the commissioning mode (p0010 = 2).

r3861.0...7 BO: Braking Module inhibit/acknowledgement / BM inhib/ackn

B_INF (Brk Mod ext)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9951
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Signal to energize terminal X21.1 "inhibit/acknowledgement" on the Braking Module.

This binector output is used as signal source to interconnect to a digital output.

For "booksize" formats the digital output must be connected to terminal X21.1 and for "chassis" formats the digital output must be connected to terminal X21.3 of the particular Braking Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Inhibit/acknowledge Braking Module 1	High	Low	-
01	Inhibit/acknowledge Braking Module 2	High	Low	-
02	Inhibit/acknowledge Braking Module 3	High	Low	-
03	Inhibit/acknowledge Braking Module 4	High	Low	-
04	Inhibit/acknowledge Braking Module 5	High	Low	-
05	Inhibit/acknowledge Braking Module 6	High	Low	-
06	Inhibit/acknowledge Braking Module 7	High	Low	-
07	Inhibit/acknowledge Braking Module 8	High	Low	-

Warning: Check that binector outputs BO: r3861.n are connected correctly and that the appropriate digital outputs are wired correctly.

If the interconnection/wiring is incorrect, the software could execute a different (incorrect) function via binector outputs BO: r3861.n if the Braking Module develops a fault.

p3862 Braking Module DC link fast discharge delay time / BM DC-dischg t_del

B_INF (Brk Mod ext)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9951
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
500 [ms]	4294967295 [ms]	1000 [ms]

Description: Sets the delay time for switching in the DC link fast discharge.

Dependency: Refer to: p3863, r3864

Note: The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3863 BI: Activating Braking Module DC link fast discharge / BM DC-dischg act

B_INF (Brk Mod ext)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9951
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to activate the DC link fast discharge.

The DC link fast discharge is started later with delay time (p3862) when the following conditions apply:

- BI: p3863 = 1 signal.
- an external line contactor is opened via r0863.1 "energize contactor".

The DC link fast discharge is interrupted when the following conditions apply:

- BI: p3863 = 0 signal.
- ON command for the infeed.

Recommend.: The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F30027).

Dependency: Refer to: r3864

Note: The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

r3864.0...7 BO: Braking Module DC link fast discharge / BM DC link dischg

B_INF (Brk Mod ext)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9951
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Signal to control (energize) terminal X21.2 "DC link fast discharge" on the Braking Module.

This binector output is used as signal source to interconnect to a digital output. The digital output must be connected to terminal X21.2 of the particular Braking Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fast discharge Braking Module 1	High	Low	-
01	Fast discharge Braking Module 2	High	Low	-
02	Fast discharge Braking Module 3	High	Low	-
03	Fast discharge Braking Module 4	High	Low	-
04	Fast discharge Braking Module 5	High	Low	-
05	Fast discharge Braking Module 6	High	Low	-

06	Fast discharge Braking Module 7	High	Low	-
07	Fast discharge Braking Module 8	High	Low	-

Dependency: Refer to: p3863

Warning:

It must be carefully ensured that the binector outputs BO: p3864.n are correctly interconnected and also that the appropriate digital outputs are correctly connected up.

If the interconnection/connection is incorrect, in the case of an active DC link fast discharge, the software could execute another function (incorrect function) via binector outputs BO: p3864.n or could also permanently control the DC link fast discharge even if the line contactor is closed.

Note: The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3865[0...7] BI: Braking Module pre-warning I*t shutdown / BM I*t shutdown

B_INF (Brk Mod ext)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9951
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the message "pre-alarm I*t shutdown" of the Braking Module.

BI: p3865[0...7] = 1 signal --> no pre-alarm, I*t shutdown

BI: p3865[0...7] = 0 signal --> pre-alarm I*t shutdown (A06901)

Note: For the Braking Module, this message is output via the following terminal:

- X21.4 for the "Booksize" format

This function is not supported for the "chassis" format.

p3866[0...7] BI: Braking Module fault / BM fault

B_INF (Brk Mod ext)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9951
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the "Fault" message of the Braking Module.

BI: p3866[0...7] = 1 signal --> No fault

BI: p3866[0...7] = 0 signal --> fault (A06900)

For a 0 signal, an acknowledgement via BO: r3861 is automatically carried out at certain time intervals.

Note: For the Braking Module, this message is output via the following terminal:

- X21.4 for the "Booksize" format
- X21.5 for the "Chassis" format

p3880 BI: ESM activation signal source / ESM act s s

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 7033
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to activate the essential service mode (ESM) via digital input.

Using this function, when required the motor can be operated for as long as possible (e.g. to extract smoke).

BI: p3880 = 1 signal:

The essential service mode is activated.

BI: p3880 = 0 signal:

The essential service mode is deactivated.

Dependency: Refer to: p3881, p3882, p3883, p3886, r3887, p3888, r3889

Warning: When activating the essential service mode (BI: p3880 = 1 signal), the motor immediately runs according to the selected setpoint source. When the essential service mode is activated, the motor cannot be stopped using the OFF commands.

Note: ESM: Essential Service Mode

Permissible signal sources:

- BO: r0722.x (high active)
- BO: r0723.x (low active), x = 0 ... 17, 20, 21

p3881 ESM setpoint source / ESM setp_src

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7033
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	7	0

Description: Sets the setpoint source for essential service mode (ESM).

Value:
0: Last known setpoint (r1078 smoothed)
1: Fixed speed setpoint 15 (p1015)
3: Fieldbus
5: TB30/TM31 analog input
6: Enable the response OFF1
7: Enable the response OFF2

Note: ESM: Essential Service Mode

When the essential service mode is activated, the effective speed setpoint is displayed in r1114.

Re p3881 = 0:

The last known setpoint value is only transmitted safely if it was present consistently for at least 30 s prior to activating the essential service mode. If this condition is not met, fixed speed setpoint 15 (p1015) is used.

Re p3881 = 5:

The signal source for the setpoint via analog input for TB30/TM31 is set via p3886.

Re p3881 = 6:

n_act = 0: pulse cancellation and switching-on inhibited.

n_active > 0: braking along the ramp-function generator down ramp (p1121), pulse cancellation and switching-on inhibited.

Re p3881 = 7:

n_act = 0: pulse cancellation and switching-on inhibited.

n_act > 0: immediate pulse cancellation and switching-on inhibited.

p3882 ESM setpoint source alternative / ESM setp_src alt

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 7033
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the alternative setpoint source for essential service mode (ESM).

This setpoint is used when the setpoint source set in p3881 is lost.

Value:
0: Last known setpoint (r1078 smoothed)
1: Fixed speed setpoint 15 (p1015)
2: Maximum speed (p1082)

Dependency: Refer to: p3881

Note: ESM: Essential Service Mode

The alternative setpoint source is only active for p3881 = 3, 5.

p3883	BI: ESM direction of rotation signal source / ESM rot dir s s		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 7033
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the direction of rotation during essential service mode (ESM).
p3883 = 1 signal:
Direction of rotation of the setpoint, parameterized for essential service mode, is reversed.
p3883 = 0 signal:
Direction of rotation of the setpoint parameterized for essential service mode is kept.

Note: ESM: Essential Service Mode

p3886	CI: ESM setpoint TB30/TM31 analog input / ESM setp TB30TM31		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 7033
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for the setpoint for p3881 = 5 (TB30/TM31 analog input) in the essential service mode (ESM).

Dependency: Refer to: p3881

Note: ESM: Essential Service Mode

r3887[0...1]	ESM number of activations/faults / ESM act/fault qty		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 7033
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the number of activations and faults that have occurred for the essential service mode (ESM).

Index: [0] = Activation of the essential service mode
[1] = Faults during the essential service mode

Dependency: Refer to: p3888

Note: ESM: Essential Service Mode

p3888	ESM reset number of activations/faults / ESM act/F qty r		
VECTOR_G	**Can be changed:** T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 7033
	P-Group: Functions	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Setting to reset the number of activations and faults that have occurred for the essential service mode (ESM).
1: counter reset active (r3887[0, 1])
0: inactive

Dependency: Refer to: r3887

Note: ESM: Essential Service Mode
The parameter is automatically reset to zero after the counter has been reset.

r3889.0...10 CO/BO: ESM status word / ESM ZSW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 7033
P-Group: Functions	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status word of the essential service mode (ESM).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Essential service mode (ESM) activated	Yes	No	-
01	Direction of rotation inverted	Yes	No	-
02	Setpoint signal lost	Yes	No	-
07	Setpoint TB30/TM31 analog input parameterized (p3886)	Yes	No	-
08	Power unit not permissible (permissible p0201 >= 14000)	Yes	No	-
09	Response OFF1/OFF2 activated	Yes	No	-
10	Automatic restart interrupted (F07320)	Yes	No	-

Note: ESM: Essential Service Mode

p3900 Completion of quick commissioning / Compl quick_comm

B_INF

Can be changed: C2(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the quick commissioning.

p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning. The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700 are re-established and all of the dependent filter and closed-loop control parameters are calculated (corresponding to p0340 = 1).

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700 and the calculations corresponding to p0340 = 1.

p3900 = 3 only includes the end of quick commissioning.

Value:
0: No quick parameterization
1: Quick parameterization after parameter reset
2: Quick param. (only) for controller par. and reset for BICO par
3: Completion of quick commissioning

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of zero.

p3900 Completion of quick commissioning / Compl quick_comm

VECTOR_G

Can be changed: C2(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.

p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning.

The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 and the calculations corresponding to p0340 = 1.

p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.

Value:
0: No quick parameterization
1: Quick parameterization after parameter reset
2: Quick parameterization (only) for BICO and motor parameters
3: Quick parameterization for motor parameters (only)

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of zero.

When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens catalog motor are not overwritten.

If a catalog motor has not been selected (p0300), then the following parameters are reset with p3900 > 0 in order to restore the situation that applied when commissioning the drive for the first time:

induction motors p0320, p0352, p0353, p0362 ... p0369, p0391 ... p0393, p0604, p0605, p0626 ... p0628

synchronous motor p0326, p0327, p0352, p0353, p0391 ... p0393, p0604, p0605.

p3901[0...n] Power unit EEPROM Vdc offset calibration / PU EEPROM Vdc offs

B_INF, VECTOR_G

Can be changed: C1, C2(1), T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-40.0 [V]	40.0 [V]	0.0 [V]

Description: Differential voltage for calibrating the offset for DC-link voltage measurement.

Dependency: Refer to: r0192, p0212

Caution: Incorrect use of the calibration can have a negative impact on the closed-loop control.

The parameter influences the upper and lower voltage detection.

Note: Parameter entries are directly saved in the DRIVE-CLiQ component involved.

The parameter is only effective in the case of booksize power units, if r0192.22 = 1 and p0212.0 = 1.

r3925[0...n] Identification final display / Ident final_disp

VECTOR_G

Can be changed: -	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the commissioning steps that have been carried out.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor/control parameters calculated (p0340 = 1, p3900 > 0)	Yes	No	-
02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No	-
03	Rotating measurement carried out (p1960 = 1, 2)	Yes	No	-
04	Motor encoder adjustment carried out (p1960 = 1, p1990 = 1, 3)	Yes	No	-
08	Motor identification data have been automatically backed up	Yes	No	-

10	Automatic parameterization only for U/f control (r0108.2 = 0)	Yes	No	-
15	Motor equivalent circuit diagram parameters changed	Yes	No	-

Note: The individual bits are only set if the appropriate action has been initiated and successfully completed.

When motor rating plate parameters are changed, the final display is reset.

r3927[0...n] Motor data identification control word / MotID STW

VECTOR_G

Can be changed: -	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Successfully completed component of the last motor data identification carried out.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Stator inductance estimate no measurement	Yes	No	-
01	Cl.-loop current control w/ dead-beat controller	Yes	No	-
02	Rotor time constant estimate no measurement	Yes	No	-
03	Leakage inductance estimate no measurement	Yes	No	-
04	Activates the identification dynamic leakage inductance	Yes	No	-
05	Determine Tr and Lsig evaluation in the time range	Yes	No	-
06	Activate vibration damping	Yes	No	-
07	De-activate vibration detection	Yes	No	-
11	De-activate pulse measurement Lq Ld	Yes	No	-
12	De-activate rotor resistance Rr measurement	Yes	No	-
14	De-activate valve interlocking time measurement	Yes	No	-
15	Determine only stator resistance, valve voltage fault, dead time	Yes	No	-
16	Short motor identification (lower quality)	Yes	No	-
17	Measurement without control parameter calculation	Yes	No	-
18	After motID direct transition into operation	Yes	No	-
19	After MotID automatically save results	Yes	No	-
20	Estimate cable resistance	Yes	No	-
21	Calibrating the output voltage measurement	Yes	No	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1909.

r3928[0...n] Rotating measurement configuration / Rot meas config

VECTOR_G (n/M)

Can be changed: -	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: Motor identification	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder test active	Yes	No	-
01	Saturation characteristic identification	Yes	No	-
02	Moment of inertia identification	Yes	No	-
03	Re-calculates the speed controller parameters	Yes	No	-
04	Speed controller optimization (vibration test)	Yes	No	-
05	q leakage inductance ident. (for current controller adaptation)	Yes	No	-
11	Do not change the controller parameters during the measurement	Yes	No	-
12	Measurement shortened	Yes	No	-
13	After measurement direct transition into operation	Yes	No	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1959.

p3950 Service parameter / Serv par

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: For service personnel only.

r3974 Drive unit status word / Drv_unit ZSW

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word for the drive unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Software reset active	Yes	No	-
01	Writing of parameters disabled as parameter save in progress	Yes	No	-
02	Writing of parameters disabled as macro is running	Yes	No	-

r3977 BICO counter topology / BICO counter topo

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology.
The counter is incremented by one for each modified BICO interconnection.

Dependency: Refer to: r3978, r3979

r3978 BICO CounterDevice / BICO CounterDevice

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the counter reading for modified BICO interconnections on this device.
The counter is incremented by one for each modified BICO interconnection.

r3979 BICO counter drive object / BICO counter DO

B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the counter reading for modified BICO interconnections on this drive object.
The counter is incremented by one for each modified BICO interconnection.

p3981 Faults acknowledge drive object / Faults ackn DO

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 8060
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to acknowledge all active faults of a drive object.

Notice: Safety messages cannot be acknowledged using this parameter.

Note: Parameter should be set from 0 to 1 to acknowledge.
After acknowledgement, the parameter is automatically reset to 0.

p3985 Master control mode selection / PcCtrl mode select

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Setpoints	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the mode to change over the master control / LOCAL mode.

Value:
0: Change master control for STW1.0 = 0
1: Change master control in operation

Danger: When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.

r3986	**Parameter count / Parameter No.**		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the number of parameters for this drive unit.
The number comprises the device-specific and the drive-specific parameters.

Dependency: Refer to: r0980, r0981, r0989

r3988[0...1]	**Boot state / Boot_state**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10800	-

Description: Index 0:
Displays the boot state.
Index 1:
Displays the partial boot state

Value:
0: Not active
1: Fatal fault
10: Fault
20: Reset all parameters
30: Drive object modified
40: Download using commissioning software
50: Parameter download using commissioning software
90: Reset Control Unit and delete drive objects
100: Start initialization
101: Wait for topology input
110: Instantiate Control Unit basis
111: Insert drive object
112: Remove drive object
113: Change drive object number
114: Change component number
115: Parameter download using commissioning software
117: Remove component
150: Wait until actual topology determined
160: Evaluate topology
170: Instantiate Control Unit reset
180: Initialization YDB configuration information
200: First commissioning
210: Create drive packages
250: Wait for topology acknowledge
325: Wait for input of drive type
350: Determine drive type
360: Write into topology-dependent parameters
370: Wait until p0009 = 0 is set
380: Check topology
550: Call conversion functions for parameter
625: Wait non-cyclic starting DRIVE-CLiQ
650: Start cyclic operation
660: Evaluate drive commissioning status
670: Autom. FW update DRIVE-CLiQ components
680: Wait for CU LINK slaves
690: Wait non-cyclic starting DRIVE-CLiQ
700: Save parameters

725: Wait until DRIVE-CLiQ cyclic
740: Check the ability to operate
745: Start of the time slices
750: Interrupt enable
800: Initialization finished
10050: Wait for synchronization
10100: Wait for CU LINK slaves
10150: Wait until actual topology determined
10200: Evaluation component status
10250: Call conversion functions for parameter
10300: Preparation cyclic operation
10350: Autom. FW update DRIVE-CLiQ components
10400: Wait for slave properties
10450: Check CX/NX status
10500: Wait until DRIVE-CLiQ cyclic
10550: Carry out warm start
10600: Evaluate, encoder status
10800: Partial boot completed

Index: [0] = System
[1] = Partial boot

r3996[0...1] Parameter write inhibit status / Par_write inhib st

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays whether writing to parameters is inhibited.

r3996[0] = 0:

Parameter write not inhibited.

0 < r3996[0] < 100:

Parameter write inhibited. The value shows how the calculations are progressing.

Index: [0] = Progress calculations
[1] = Cause

Note: Re index 1:

Only for internal Siemens troubleshooting.

r3998 First infeed commissioning / First inf_comm

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	-

Description: Displays whether the infeed must be commissioned for the first time.

0 = Yes

2 = No

r3998[0...n] First drive commissioning / First drv_comm

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	-

Description: Displays whether the drive still has to be commissioned for the first time.

0 = Yes

2 = No

r4021 TB30 digital inputs terminal actual value / TB30 DI act value

TB30	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9100
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual value at the digital inputs.

This means that the actual input signal can be checked at terminal DI x prior to switching from the simulation mode (p4095.x = 1) to the terminal mode (p4095.x = 0).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X481.1)	High	Low	-
01	DI 1 (X481.2)	High	Low	-
02	DI 2 (X481.3)	High	Low	-
03	DI 3 (X481.4)	High	Low	-

Note: DI: Digital Input

r4021 TM31 digital inputs terminal actual value / TM31 DI act value

TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9550, 9552, 9560, 9562
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual value at the digital inputs.

This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Note: If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r4022.0...3 CO/BO: TB30 digital inputs status / TB30 DI status

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9099, 9100
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital inputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X481.1)	High	Low	-
01	DI 1 (X481.2)	High	Low	-
02	DI 2 (X481.3)	High	Low	-
03	DI 3 (X481.4)	High	Low	-

Dependency: Refer to: r4023

Note: DI: Digital Input

r4022.0...11 CO/BO: TM31 digital inputs status / TM31 DI status

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9550, 9552, 9560, 9562
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital inputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Dependency: Refer to: r4023

Note: DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r4023.0...3 BO: TB30 digital inputs status inverted / TB30 DI status inv

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9099, 9100
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the inverted status of the digital inputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X481.1)	High	Low	-
01	DI 1 (X481.2)	High	Low	-
02	DI 2 (X481.3)	High	Low	-
03	DI 3 (X481.4)	High	Low	-

Dependency: Refer to: r4022

Note: DI: Digital Input

r4023.0...11 CO/BO: TM31 digital inputs status inverted / TM31 DI status inv

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9550, 9552, 9560, 9562
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the inverted status of the digital inputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Dependency: Refer to: r4022

Note: DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p4028 TM31 set input or output / TM31 DI or DO

TM31

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9560, 9562
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the bidirectional digital inputs/outputs as input or output on the Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X541.2)	Output	Input	-
09	DI/DO 9 (X541.3)	Output	Input	-
10	DI/DO 10 (X541.4)	Output	Input	-
11	DI/DO 11 (X541.5)	Output	Input	-

Note: DI/DO: Bidirectional Digital Input/Output

p4030 BI: TB30 signal source for terminal DO 0 / TB30 s s DO 0

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9099, 9102
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for digital output DO 0 (X481.5) of the Terminal Board 30 (TB30).

Note: DO: Digital Output

p4030 BI: TM31 signal source for terminal DO 0 / TM31 s s DO 0

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9549, 9556
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the digital output DO 0 (X542.1, X542.2, X542.3) of Terminal Module 31 (TM31).

Digital output 0 of TM31 is a relay output.

If the signal at the binector input p4030 is low, then terminal COM 0 (X542.2) is connected to NC 0 (X542.1). This connection also matches the mechanical quiescent setting of the relay.

If the signal at the binector input p4030 is high, then terminal COM 0 (X542.2) is connected to NO 0 (X542.3).

Note: DO: Digital Output

NC: Normally Closed contact

NO: Normally Open contact

p4031 BI: TB30 signal source for terminal DO 1 / TB30 s s DO 1

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9102
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DO 1 (X481.6) of the Terminal Board 30 (TB30).

Note: DO: Digital Output

p4031 BI: TM31 signal source for terminal DO 1 / TM31 s s DO 1

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9549, 9556
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the digital output DO 1 (X542.4, X542.5, X542.6) of Terminal Module 31 (TM31).

Digital output 1 of TM31 is a relay output.

If the signal at the binector input p4031 is low, then terminal COM 1 (X542.5) is connected to NC 1 (X542.4). This connection also matches the mechanical quiescent setting of the relay.

If the signal at the binector input p4031 is high, then terminal COM 1 (X542.5) is connected to NO 1 (X542.6).

Note: DO: Digital Output

NC: Normally Closed contact

NO: Normally Open contact

p4032 BI: TB30 signal source for terminal DO 2 / TB30 s s DO 2

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9102
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for terminal DO 2 (X481.7) of the Terminal Board 30 (TB30).

Note: DO: Digital Output

p4033	BI: TB30 signal source for terminal DO 3 / TB30 s s DO 3		
TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9099, 9102
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for terminal DO 3 (X481.8) of the Terminal Board 30 (TB30).

Note: DO: Digital Output

p4038	BI: TM31 signal source for terminal DI/DO 8 / TM31 S_src DI/DO8		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9549, 9560
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X541.2) of Terminal Module 31 (TM31).

Note: Prerequisite: The DI/DO must be set as an output (p4028.8 = 1).
DI/DO: Bidirectional Digital Input/Output

p4039	BI: TM31 signal source for terminal DI/DO 9 / TM31 S_src DI/DO9		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9560
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X541.3) of Terminal Module 31 (TM31).

Note: Prerequisite: The DI/DO must be set as an output (p4028.9 = 1).
DI/DO: Bidirectional Digital Input/Output

p4040	BI: TM31 signal source for terminal DI/DO 10 / TM31 S_src DI/DO10		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9562
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X541.4) of Terminal Module 31 (TM31).

Note: Prerequisite: The DI/DO must be set as an output (p4028.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p4041	BI: TM31 signal source for terminal DI/DO 11 / TM31 S_src DI/DO11		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9549, 9562
	P-Group: Commands	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for terminal DI/DO 11 (X541.5) of Terminal Module 31 (TM31).

Note: Prerequisite: The DI/DO must be set as an output (p4028.11 = 1).
DI/DO: Bidirectional Digital Input/Output

p4046 TM31 digital outputs limit current / TM31 DO limit curr

TM31

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9560
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the limit for the total output voltage of terminals X541.1, X541.2, X541.3 and X541.4 (DI/DO 8 ... 11) of Terminal Module 31 (TM31).

Value:
0: 0.1 A total current limit DI/DO 8 ... 11
1: 1.0 A total current limit DI/DO 8 ... 11

Dependency: Refer to: p4028

Warning: Since the sum of the output currents at terminals X541.1, X541.2, X541.3 and X541.4 is limited, an overcurrent or short circuit at one output terminal can cause a dip in the signal at the other terminals.

r4047 TB30 digital outputs status / TB30 DO status

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9102
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital outputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X481.5)	High	Low	-
01	DO 1 (X481.6)	High	Low	-
02	DO 2 (X481.7)	High	Low	-
03	DO 3 (X481.8)	High	Low	-

Note: Inversion using p4048 has been taken into account.
DO: Digital Output

r4047 TM31 digital outputs status / TM31 DO status

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9556, 9560, 9562
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital outputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X542.1 - 3)	High	Low	-
01	DO 1 (X542.4 - 6)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Note: Inversion using p4048 has been taken into account.
The setting of the DI/DO as either input or output is of no significance (p4028).
DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

p4048 TB30 invert digital outputs / TB30 DO inv

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9102
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Setting to invert the signals at the digital outputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X481.5)	Inverted	Not inverted	-
01	DO 1 (X481.6)	Inverted	Not inverted	-
02	DO 2 (X481.7)	Inverted	Not inverted	-
03	DO 3 (X481.8)	Inverted	Not inverted	-

Note: DO: Digital Output

p4048 TM31 invert digital outputs / TM31 DO inv

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9556, 9560, 9562
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the signals at the digital outputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X542.1 - 3)	Inverted	Not inverted	-
01	DO 1 (X542.4 - 6)	Inverted	Not inverted	-
08	DI/DO 8 (X541.2)	Inverted	Not inverted	-
09	DI/DO 9 (X541.3)	Inverted	Not inverted	-
10	DI/DO 10 (X541.4)	Inverted	Not inverted	-
11	DI/DO 11 (X541.5)	Inverted	Not inverted	-

Note: DO: Digital Output

DI/DO: Bidirectional Digital Input/Output

r4052[0...1] CO: TB30 analog inputs actual input voltage / TB30 AI U_inp act

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the actual input voltage at the analog inputs for Terminal Board 30 (TB30).

Note:

For p4056[x] = 3 (unipolar current input monitored (+4 mA ... +20 mA)) the following applies:

A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

r4052[0...1]	CO: TM31 analog inputs current input voltage/current / TM31 AI U/I_inp		
TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the actual input voltage in V when set as voltage input.
Displays the actual input current in mA when set as current input and with the load resistor switched in.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The type of analog input AI x (voltage or current input) is set using p4056.
Refer to: r4056, p4056

Note: AI: Analog Input

p4053[0...1]	TB30 analog inputs smoothing time constant / TB30 AI T_smooth		
TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of the Terminal Board 30 (TB30).

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

p4053[0...1]	TM31 analog inputs smoothing time constant / TM31 AI T_smooth		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

r4055[0...1]	CO: TB30 analog inputs actual value in percent / TB30 AI value in %		
TB30	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9099, 9104
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the currently referred input value of the analog inputs of Terminal Board 30 (TB30).
When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

r4055[0...1] — CO: TM31 analog inputs actual value in percent / TM31 AI value in %

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9549, 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the currently referred input value of the analog inputs of Terminal Module 31 (TM31).

When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

r4056[0...1] — TB30 analog inputs type / TB30 AI type

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
4	4	-

Description: Displays the type of analog inputs.

Value:
4: Bipolar voltage input (-10 V ... +10 V)

Index:
[0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

p4056[0...1] — TM31 analog inputs type / TM31 AI type

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	5	4

Description: Sets the type of analog inputs of Terminal Module 31 (TM31).

p4056[x] = 0, 4 correspond to a voltage input (r4052, p4057, p4059 are displayed in V).

p4056[x] = 2, 3, 5 correspond to a current input (r4052, p4057, p4059 are displayed in mA).

In addition, the associated switch S5 must be appropriately set.

AI 0: S5.0 = V --> voltage input, S5.0 = I --> current input (burden resistor = 250 Ohm)

AI 1: S5.1 = V --> voltage input, S5.1 = I --> current input (burden resistor = 250 Ohm)

Value:
0: Unipolar voltage input (0 V ... +10 V)
2: Unipolar current input (0 mA ... +20 mA)
3: Unipolar current input monitored (+4 mA to +20 mA)
4: Bipolar voltage input (-10 V ... +10 V)
5: Bipolar current input (-20 mA to +20 mA)

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Warning: The maximum voltage difference between the analog input terminals AI+, AI- and the ground of the TM31 (X520.6, X530.3) may not exceed 35 V.

For operation with the load resistor switched in, the voltage between the differential inputs AI+ and AI- may not exceed 15 V or the impressed current of 60 mA; if this is not carefully observed, the input will be damaged.

Notice: For operation as a voltage input/current input, switch S5.0 or S5.1 must be appropriately set.

Note: When changing p4056, the parameters of the scaling characteristic (p4057, p4058, p4059, p4060) are overwritten with the following default values:

For p4056 = 0, 4, p4057 is set to 0.0 V, p4058 to 0.0 %, p4059 to 10.0 V and p4060 to 100.0 %.

For p4056 = 2, 5, p4057 is set to 0.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

For p4056 = 3, p4057 is set to 4.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

p4057[0...1] TB30 analog inputs characteristic value x1 / TB30 AI char x1

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-11.000 [V]	11.000 [V]	0.000 [V]

Description: Sets the scaling characteristic for the analog inputs of Terminal Board 30 (TB30).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the x coordinate (input voltage in V) of the 1st value pair of the characteristic.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: The parameters for the characteristic do not have a limiting effect.

p4057[0...1] TM31 analog inputs characteristic value x1 / TM31 AI char x1

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000	20.000	0.000

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 1st value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.

Refer to: r4056, p4056

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4058[0...1] TB30 analog inputs characteristic value y1 / TB30 AI char y1

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Board 30 (TB30).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: The parameters for the characteristic do not have a limiting effect.

p4058[0...1] TM31 analog inputs characteristic value y1 / TM31 AI char y1

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4059[0...1] TB30 analog inputs characteristic value x2 / TB30 AI char x2

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-11.000 [V]	11.000 [V]	10.000 [V]

Description: Sets the scaling characteristic for the analog inputs of Terminal Board 30 (TB30).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the x coordinate (input voltage in V) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: The parameters for the characteristic do not have a limiting effect.

p4059[0...1] TM31 analog inputs characteristic value x2 / TM31 AI char x2

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000	20.000	10.000

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.
Refer to: r4056, p4056

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4060[0...1] TB30 analog inputs characteristic value y2 / TB30 AI char y2

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Board 30 (TB30).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: The parameters for the characteristic do not have a limiting effect.

p4060[0...1] TM31 analog inputs characteristic value y2 / TM31 AI char y2

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4061[0...1] TM31 analog inputs wire breakage monitoring response threshold / TM31 WireBrkThresh

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mA]	20.00 [mA]	2.00 [mA]

Description: Sets the response threshold for wire-breakage monitoring of the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: For the following analog input type, the wire breakage monitoring is active:

p4056[x] = 3 (unipolar current input monitored (+4 mA ... +20 mA))

Refer to: r4056, p4056

p4062[0...1] TM31 analog inputs wire breakage monitoring delay time / TM31 wirebrk t_del

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	1000 [ms]	100 [ms]

Description: Sets the delay time for wire-breakage monitoring of the analog inputs on Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4063[0...1] TB30 analog inputs offset / TB30 AI offset

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000 [V]	20.000 [V]	0.000 [V]

Description: Sets the offset for the analog inputs of Terminal Board 30 (TB30).
The offset is added to the input signal before the scaling characteristic.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

p4063[0...1] TM31 analog inputs offset / TM31 AI offset

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000	20.000	0.000

Description: Sets the offset for the analog inputs of Terminal Module 31 (TM31).
The offset is added to the input signal before the scaling characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4066[0...1] TB30 analog inputs activate absolute value generation / TB30 AI absVal act

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates the absolute value generation for the analog input signals of the Terminal Board 30 (TB30).

Value:
0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

p4066[0...1] TM31 analog inputs activate absolute value generation / TM31 AI absVal act

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates the absolute value generation for the analog input signals of Terminal Module 31 (TM31).

Value:
0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4067[0...1]	BI: TB30 analog inputs invert signal source / TB30 AI inv s s		
TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9104
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to invert the analog input signals of the Terminal Board 30 (TB30).

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

p4067[0...1]	BI: TM31 analog inputs invert signal source / TM31 AI inv s s		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9566, 9568
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source to invert the analog inputs signals of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4068[0...1]	TB30 analog inputs noise suppression window / TB30 AI window		
TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	20.00 [%]	0.00 [%]

Description: Sets the noise suppression window of the analog inputs for Terminal Board 30 (TB30).
Changes less than the window are suppressed.

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Note: AI: Analog Input

p4068[0...1]	TM31 analog inputs window to suppress noise / TM31 AI window		
TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	20.00 [%]	0.00 [%]

Description: Sets the noise suppression window of the analog inputs for Terminal Module31 (TM31).
Changes less than the window are suppressed.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

p4069[0...1] BI: TB30 analog inputs signal source for enable / TB30 AI enable

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for enabling the analog inputs of the Terminal Board 30 (TB30).

Index:
[0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

p4069[0...1] BI: TM31 analog inputs signal source for enable / TM31 AI enable

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for the enable signal of the analog inputs of Terminal Module 31 (TM31).

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4071[0...1] CI: TB30 analog outputs signal source / TB30 AO s s

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9099, 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the analog outputs of the Terminal Board 30 (TB30).

Index:
[0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

Note: AO: Analog Output

p4071[0...1] CI: TM31 analog outputs signal source / TM31 AO s s

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9549, 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the analog outputs of Terminal Module 31 (TM31).

Index:
[0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Note: AO: Analog Output

r4072[0...1] TB30 analog outputs output value currently referred / TB30 AO outp_val

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the actual referred output value of the analog outputs of the Terminal Board 30 (TB30).

Index:
[0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

r4072[0...1] TM31 analog outputs output value currently referred / TM31 AO outp_val

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the actual referred output value of the analog outputs of Terminal Module 31 (TM31).

Index:
[0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

p4073[0...1] TB30 analog outputs smoothing time constant / TB30 AO T_smooth

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st order low pass filter for the analog outputs of the Terminal Board 30 (TB30).

Index:
[0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4073[0...1] TM31 analog outputs smoothing time constant / TM31 AO T_smooth

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog outputs of Terminal Module 31 (TM31).

Index:
[0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

r4074[0...1] TB30 analog outputs actual output voltage / TB30 AO U_outp

TB30

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the actual output voltage at the analog outputs of the Terminal Board 30 (TB30).

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

r4074[0...1] TM31 analog outputs current output voltage/current / TM31 AO U/I_outp

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual output voltage in V when set as voltage output.
Displays the actual output voltage in mA when set as current output.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The type of the analog output AO x (voltage or current output) is set using p4076.
Refer to: r4076, p4076

Note: AO: Analog Output

p4075[0...1] TB30 analog outputs activate absolute value generation / TB30 AO absVal act

TB30

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates the absolute value generation for the analog outputs of the Terminal Board 30 (TB30).

Value:
0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4075[0...1] TM31 analog outputs activate absolute value generation / TM31 AO absVal act

TM31

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates the absolute value generation for the analog outputs of Terminal Module 31 (TM31).

Value:
0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

r4076[0...1] TB30 analog outputs type / TB30 AO type

TB30	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	4	4	-

Description: Displays the type of analog outputs of the Terminal Board 30 (TB30).

Value: 4: Voltage output (-10 V ... +10 V)

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4076[0...1] TM31 analog outputs type / TM31 AO type

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9572
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4	4

Description: Sets the type of analog outputs of Terminal Module 31 (TM31).

p4076[x] = 1, 4 correspond to a voltage output (p4074, p4078, p4080, p4083 are displayed in V).

p4076[x] = 0, 2, 3 correspond to a current output (p4074, p4078, p4080, p4083 are displayed in mA).

Value:
0: Current output (0 mA ... +20 mA)
1: Voltage output (0 V ... +10 V)
2: Current output (+4 mA ... +20 mA)
3: Current output (-20 mA ... +20 mA)
4: Voltage output (-10 V ... +10 V)

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: Refer to: p4077, p4078, p4079, p4080

Note: When changing p4076, the parameters of the scaling characteristic (p4077, p4078, p4079, p4080) are overwritten with the following default values:

For p4076 = 0, 3, p4077 is set to 0.0 %, p4078 to 0.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA.

For p4076 = 1, 4, p4077 is set to 0.0 %, p4078 to 0.0 V, p4079 to 100.0 % and p4080 to 10.0 V.

For p4076 = 2, p4077 is set to 0.0 %, p4078 to 4.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA.

p4077[0...1] TB30 analog outputs characteristic value x1 / TB30 AO char x1

TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Board 30 (TB30).

The scaling characteristic for the analog outputs is defined using 2 points.

This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

Note: The parameters for the characteristic do not have a limiting effect.

p4077[0...1] TM31 analog outputs characteristic value x1 / TM31 AO char x1

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: Refer to: r4076, p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4078[0...1] TB30 analog outputs characteristic value y1 / TB30 AO char y1

TB30	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-11.000 [V]	11.000 [V]	0.000 [V]

Description: Sets the scaling characteristic for the analog outputs of Terminal Board 30 (TB30).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

Note: The parameters for the characteristic do not have a limiting effect.

p4078[0...1] TM31 analog outputs characteristic value y1 / TM31 AO char y1

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-20.000 [V]	20.000 [V]	0.000 [V]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog output type.
Refer to: r4076, p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4079[0...1] TB30 analog outputs characteristic value x2 / TB30 AO char x2

TB30			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Board 30 (TB30).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

Note: The parameters for the characteristic do not have a limiting effect.

p4079[0...1] TM31 analog outputs characteristic value x2 / TM31 AO char x2

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: Refer to: r4076, p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4080[0...1] TB30 analog outputs characteristic value y2 / TB30 AO char y2

TB30			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-11.000 [V]	11.000 [V]	10.000 [V]

Description: Sets the scaling characteristic for the analog outputs of Terminal Board 30 (TB30).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V) of the 2nd value pair of the characteristic.

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

Note: The parameters for the characteristic do not have a limiting effect.

p4080[0...1] TM31 analog outputs characteristic value y2 / TM31 AO char y2

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-20.000 [V]	20.000 [V]	10.000 [V]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 2nd value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog output type.
Refer to: r4076, p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4082[0...1] BI: TB30 analog outputs invert signal source / TB30 AO inv s s

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for inverting the analog output signals of the Terminal Board 30 (TB30).

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4082[0...1] BI: TM31 analog outputs invert signal source / TM31 AO inv s s

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to invert the analog output signals of Terminal Module 31 (TM31).

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

p4083[0...1] TB30 analog outputs offset / TB30 AO offset

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9106
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10.000	10.000	0.000

Description: Sets the offset for the analog outputs of Terminal Board 30 (TB30).
The offset is added to the output signal after the scaling characteristic.

Index: [0] = AO 0 (X482.5/X482.6)
[1] = AO 1 (X482.7/X482.8)

p4083[0...1] TM31 analog outputs offset / TM31 AO offset

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9572
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000	20.000	0.000

Description: Sets the offset for the analog outputs of Terminal Module 31 (TM31).
The offset is added to the output signal after the scaling characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.

Refer to: r4076, p4076

Note: This means, for example, the offset of a downstream isolating amplifier can be compensated.

p4095 TB30 digital inputs simulation mode / TB30 DI sim_mode

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9099, 9100
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the simulation mode for the digital inputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X481.1)	Simulation	Terminal eval	-
01	DI 1 (X481.2)	Simulation	Terminal eval	-
02	DI 2 (X481.3)	Simulation	Terminal eval	-
03	DI 3 (X481.4)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p4096.

Refer to: p4096

Warning: A drive that is moved by simulating the inputs of a Terminal Board is brought to a standstill while the Terminal Module is being activated or de-activated.

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

p4095 TM31 digital inputs simulation mode / TM31 DI sim_mode

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9550, 9552, 9560, 9562
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the simulation mode for the digital inputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	Simulation	Terminal eval	-
01	DI 1 (X520.2)	Simulation	Terminal eval	-
02	DI 2 (X520.3)	Simulation	Terminal eval	-
03	DI 3 (X520.4)	Simulation	Terminal eval	-
04	DI 4 (X530.1)	Simulation	Terminal eval	-
05	DI 5 (X530.2)	Simulation	Terminal eval	-
06	DI 6 (X530.3)	Simulation	Terminal eval	-
07	DI 7 (X530.4)	Simulation	Terminal eval	-
08	DI/DO 8 (X541.2)	Simulation	Terminal eval	-
09	DI/DO 9 (X541.3)	Simulation	Terminal eval	-
10	DI/DO 10 (X541.4)	Simulation	Terminal eval	-
11	DI/DO 11 (X541.5)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p4096.

Refer to: p4096

Warning: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while the Terminal Module is being activated or de-activated.

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p4096 TB30 digital inputs simulation mode setpoint / TB30 DI sim setpt

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9099, 9100
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of the Terminal Board 30 (TB30).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X481.1)	High	Low	-
01	DI 1 (X481.2)	High	Low	-
02	DI 2 (X481.3)	High	Low	-
03	DI 3 (X481.4)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.

Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

p4096 TM31 digital inputs simulation mode setpoint / TM31 DI sim setp

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9549, 9550, 9552, 9560, 9562
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.

Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p4097[0...1] TB30 analog inputs simulation mode / TB30 AI sim_mode

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the simulation mode for the analog inputs of the Terminal Board 30 (TB30).

Value: 0: Terminal evaluation for analog input x
1: Simulation for analog input x

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Dependency: The setpoint for the input voltage is specified via p4098.
Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4097[0...1] TM31 analog inputs simulation mode / TM31 AI sim_mode

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the simulation mode for the analog inputs of Terminal Module 31 (TM31).

Value: 0: Terminal evaluation for analog input x
1: Simulation for analog input x

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The setpoint for the input voltage is specified via p4098.
Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...1] TB30 analog inputs simulation mode setpoint / TB30 AI sim setp

TB30

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9104
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-11.000 [V]	11.000 [V]	0.000 [V]

Description: Sets the setpoint for the input voltage in the simulation mode of the analog inputs of Terminal Board 30 (TB30).

Index: [0] = AI 0 (X482.1/X482.2)
[1] = AI 1 (X482.3/X482.4)

Dependency: The simulation of an analog input is selected using p4097.
Refer to: p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...1] TM31 analog inputs simulation mode setpoint / TM31 AI sim setp

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9566, 9568
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-20.000	20.000	0.000

Description: Sets the setpoint for the input value in simulation mode of the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The simulation of an analog input is selected using p4097.

If AI x is parameterized as voltage input (p4056), then the setpoint is a voltage in V.

If AI x is parameterized as current input (p4056), then the setpoint is a current in mA.

Refer to: r4056, p4056, p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).

AI: Analog Input

p4099[0...2] TB30 inputs/outputs sampling time / TB30 I/O t_sample

TB30

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9099, 9100
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	5000.00 [µs]	[0] 4000.00 [µs] [1] 4000.00 [µs] [2] 4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of Terminal Board 30 (TB30).

Index:
[0] = Digital inputs/outputs (DI/DO)
[1] = Analog inputs (AI)
[2] = Analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.

The sampling times can only be set as an integer multiple of the basic sampling time (r0110, r0111).

Refer to: p0009, r0110, r0111

Note: The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

For clock cycle synchronous PROFIBUS operation, the TB30 hardware (e.g. A/D converter) is operated with the PROFIBUS clock cycle (r2064[1]). This clock cycle is also kept after the PROFIBUS connection has been exited up to the next time that the Control Unit is powered down. In this case, a faster sampling time than the PROFIBUS clock cycle is not practical in p4099[0...2].

p4099[0...2] TM31 inputs/outputs sampling time / TM31 I/O t_sample

TM31

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9549, 9550
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	5000.00 [µs]	4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of Terminal Module 31 (TM31).

Index:
[0] = Digital inputs/outputs (DI/DO)
[1] = Analog inputs (AI)
[2] = Analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.

The following applies for the sampling time:

The sampling times at a DRIVE-CLiQ line must be integral multiples of one another.

The sampling times of this TM must be an integral multiple of a servo or vector drive that exists in the system.

The minimum permissible sampling time is 125 µs.

The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs).

Refer to: p0009, r0110, r0111

Notice: The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs).

Note: The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

Parameter p4099[0] must never be equal to zero.

p4100[0...11] TM150 sensor type / TM150 sensor type

TM150			
	Can be changed: T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	6	5

Description: Sets the sensor type for Terminal Module 150 (TM150)

This means that the temperature sensor type is selected and the evaluation is switched in.

Value:
0: Evaluation disabled
1: PTC thermistor
2: KTY84
4: Bimetallic NC contact
5: PT100
6: PT1000

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Notice: For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note: The temperature sensors are connected to the following terminals:

X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)

X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)

X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)

X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)

X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)

X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)

Details on the wiring are included in the parameter description for p4108.

p4100 TM31 sensor type / TM31 sensor type

TM31			
	Can be changed: T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9576
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	2	0

Description: Sets the sensor type for Terminal Module 31 (TM31)

This means that the temperature sensor type is selected and the evaluation is switched in.

Value:
0: Evaluation disabled
1: PTC thermistor
2: KTY84

Notice: For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

To activate the corresponding alarm or fault, p4102[0...1] must be set <= 250 °C.

Note: The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

r4101[0...11] TM150 sensor resistance / TM150 R_sensor

TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Note: The maximum measurable resistance value is approx. 2500 Ohm.

For 1x2 and 2x2 wire evaluation:

The actual sensor resistance is displayed in this parameter(i.e. the wire resistance (p4110) is taken into account).

The temperature sensors are connected to the following terminals:

X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)

X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)

X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)

X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)

X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)

X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)

Details on the wiring are included in the parameter description for p4108.

r4101 TM31 sensor resistance / TM31 R_sensor

TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9576
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Note: The maximum measurable resistance value is approx. 2170 Ohm.

The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

p4102[0...23] TM150 fault threshold/alarm threshold / TM150 F/A_thresh

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-99 [°C]	251 [°C]	251 [°C]

Description: Sets the fault threshold/alarm threshold for Terminal Module 150 (TM150).

For alarms (even indices [0, 2, 4 ... 22]), the following applies:

- The corresponding alarm is initiated, if the temperature actual value associated with a temperature channel exceeds the associated alarm threshold (r4105[x] > p4102[2x]. In addition, the timer is started (p4103[x]).

- The alarm remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x] - hysteresis (p4118[x]).

For faults (uneven indices [1, 3, 5 ... 23]), the following applies:

- The corresponding fault is initiated, if the temperature actual value associated with a temperature channel exceeds the associated fault threshold (r4105[x] > p4102[2x+1] or the associated timer (p4103[x] has expired.

- The fault remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

Index:
[0] = Channel 0 alarm threshold (A35211)
[1] = Channel 0 fault threshold (F35207)
[2] = Channel 1 alarm threshold (A35212)
[3] = Channel 1 fault threshold (F35208)
[4] = Channel 2 alarm threshold (A35213)
[5] = Channel 2 fault threshold (F35209)
[6] = Channel 3 alarm threshold (A35214)
[7] = Channel 3 fault threshold (F35210)
[8] = Channel 4 alarm threshold (A35410)
[9] = Channel 4 fault threshold (F35400)
[10] = Channel 5 alarm threshold (A35411)
[11] = Channel 5 fault threshold (F35401)
[12] = Channel 6 alarm threshold (A35412)
[13] = Channel 6 fault threshold (F35402)
[14] = Channel 7 alarm threshold (A35413)
[15] = Channel 7 fault threshold (F35403)
[16] = Channel 8 alarm threshold (A35414)
[17] = Channel 8 fault threshold (F35404)
[18] = Channel 9 alarm threshold (A35415)
[19] = Channel 9 fault threshold (F35405)
[20] = Channel 10 alarm threshold (A35416)
[21] = Channel 10 fault threshold (F35406)
[22] = Channel 11 alarm threshold (A35417)
[23] = Channel 11 fault threshold (F35407)

Dependency: Refer to: p4103, r4104, r4105, p4118

Notice: Faults F35207 ... F35210 and F35400 ... F35407 only result in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.

For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100[0...11] = 1), the following applies:

To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note: The hysteresis can be set in p4118[0...11].

p4102[0...1] TM31 fault threshold/alarm threshold / TM31 F/A_thresh

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9576
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-48 [°C]	251 [°C]	[0] 100 [°C] [1] 120 [°C]

Description: Sets the fault threshold/alarm threshold for Terminal Module 31 (TM31).

A35211 is initiated, if the temperature actual value r4105[0] > p4102[0]

F35207 is initiated if the temperature actual value r4105[0] > p4102[1] or timer p4103[0] has expired

For alarm A35211 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[0] - hysteresis).

For fault F35207 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[1] - hysteresis) and the fault has been acknowledged.

- The hysteresis value is 5 K and cannot be changed by the user.

Index:
[0] = Alarm threshold
[1] = Fault threshold

Dependency: Refer to: r4104

Notice: Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.

For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

To activate the alarm or fault, p4102[0...1] must be set <= 250 °C.

p4103[0...11] TM150 delay time / TM150 t_delay

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [s]	600.0 [s]	0.0 [s]

Description: Sets the delay time for the output of the fault for the Terminal Module 150 (TM150).

The timer is started when the alarm threshold (e.g. p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then the corresponding fault is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- If the fault threshold (e.g. p4102[1]) is exceeded before the delay time has expired, then the corresponding fault is immediately output.

For sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: Refer to: p4102, r4104, r4105, p4118

Warning: The fault F35207 ... F35210 and F35400 ... 35407 only results in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.

Note: For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- The corresponding fault can only be initiated via the fault threshold (output of the timer is always a logical 0).

For p4103 = 0 s and sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- The corresponding alarm and fault are simultaneously output (delay time = 0 s).

p4103 TM31 temperature evaluation delay time / TM31 temp t_delay

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9576
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [ms]	600000.000 [ms]	0.000 [ms]

Description: Sets the delay time for the output of the fault for the Terminal Module 31 (TM31).

The timer is started when the alarm threshold (p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F35207 is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

For sensor type "KTY84" (p4100 = 2), the following applies:

If the fault threshold (p4102[1]) is exceeded before the delay time has expired, then fault F35207 is immediately output.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Dependency: Refer to: r4104

Warning: Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.

Note: With p4103 = 0 ms, the timer is de-activated and only the fault threshold is effective.

r4104.0...23 BO: TM150 temperature evaluation status / TM150 temp status

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output for the status for the Terminal Module 150 (TM150).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Channel 0 alarm present	Yes	No	9626
01	Channel 0 fault present	Yes	No	9626
02	Channel 1 alarm present	Yes	No	9626
03	Channel 1 fault present	Yes	No	9626
04	Channel 2 alarm present	Yes	No	9626
05	Channel 2 fault present	Yes	No	9626
06	Channel 3 alarm present	Yes	No	9626
07	Channel 3 fault present	Yes	No	9626
08	Channel 4 alarm present	Yes	No	9626
09	Channel 4 fault present	Yes	No	9626
10	Channel 5 alarm present	Yes	No	9626
11	Channel 5 fault present	Yes	No	9626
12	Channel 6 alarm present	Yes	No	9627
13	Channel 6 fault present	Yes	No	9627
14	Channel 7 alarm present	Yes	No	9627
15	Channel 7 fault present	Yes	No	9627
16	Channel 8 alarm present	Yes	No	9627
17	Channel 8 fault present	Yes	No	9627
18	Channel 9 alarm present	Yes	No	9627
19	Channel 9 fault present	Yes	No	9627
20	Channel 10 alarm present	Yes	No	9627
21	Channel 10 fault present	Yes	No	9627
22	Channel 11 alarm present	Yes	No	9627
23	Channel 11 fault present	Yes	No	9627

Dependency: Refer to: p4102, p4103, r4105, p4118

r4104.0...1 BO: TM31 temperature evaluation status / TM31 temp status

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9549, 9576
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output for the status for the Terminal Module 31 (TM31).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Alarm is present	Yes	No	-
01	Fault is present	Yes	No	-

Dependency: Refer to: p4102

r4105[0...11]	**CO: TM150 temperature actual value / TM150 temp_act val**		
TM150	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9626, 9627
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value for the Terminal Module 150 (TM150)

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- below the nominal response temperature, r4105[0...11] = -50 °C.
- above the nominal response temperature, r4105[0...11] = 250 °C.

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- the displayed value corresponds to the temperature actual value.

Refer to: p4100, p4111, r4112, r4113, r4114

Note: r4105[0...11] = -300 °C is displayed in the following cases:

- temperature actual value invalid (F35920 ... F35931 output).
- no sensor selected (p4100[0...11] = 0).

The temperature actual values can be grouped using p4111[0...2] and the maximum value, minimum value as well as the average value for each group evaluated (r4112[0...2], r4113[0...2], r4114[0...2]).

r4105	**CO: TM31 temperature actual value / TM31 temp_act val**		
TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9549, 9576
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value for the Terminal Module 31 (TM31)

Dependency: For sensor type "PTC thermistor" (p4100 = 1), the following applies:

- below the nominal response temperature, r4105 = -50°C.
- above the nominal response temperature, r4105 = 250 °C.

For sensor type "KTY84" (p4100 = 2), the following applies:

- the displayed value corresponds to the temperature actual value.

Refer to: p4100

Note: r4105 = -300 °C is displayed in the following cases:

- temperature actual value invalid (F35920 output).
- no sensor selected (p4100 = 0).

The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

p4108[0...5] TM150 terminal block measuring method / TM150 meas method

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9625, 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	1

Description: Sets the measuring method for the terminal block X531 ... X536 for the Terminal Module 150 (TM150).

Re p4108[0...5] = 0 (1x2 wire evaluation):

- the temperature sensor is connected at terminals 1(+) and 2(-).

Re p4108[0...5] = 1 (2x2 wire evaluation):

- The first temperature sensor is connected at terminals 1(+) and 2(-).

- The second temperature sensor is connected at terminals 3(+) and 4(-).

Re p4108[0...5] = 2 (3 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).

- the measuring conductor is connected at terminal 1(+).

- terminals 2(-) and 4(-) must be jumpered.

Re p4108[0...5] = 3 (4 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).

- the measuring conductor is connected at terminals 1(+) and 2(-).

Value:
0: 1x2 wire evaluation
1: 2x2 wire evaluation
2: 3 wire evaluation
3: 4 wire evaluation

Index:
[0] = X531
[1] = X532
[2] = X533
[3] = X534
[4] = X535
[5] = X536

Note: The temperature sensors are connected to the following terminals:

X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)

X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)

X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)

X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)

X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)

X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)

Re p4108[0...5] = 0, 2, 3 (1x2, 3, 4 wire evaluation):

The temperature channel belonging to the terminal block with the higher number is automatically deactivated (e.g. for X531 with 3-wire evaluation, channel 6 is deactivated).

p4109[0...11] TM150 wire resistance measurement / TM150 R_wire meas

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to start the measurement of the wire resistance for a channel for the Terminal Module 150 (TM150).

For a 2 wire evaluation, the total wire resistance is measured and saved. During the temperature evaluation, the temperature actual value is automatically calibrated using the measured wire resistance.

Procedure:

1. Select the measuring method (1x2/2x2) for the corresponding terminal block (p4108[0...5] = 0, 1).
2. Set the required sensor type for the corresponding channel (p4100[x] = 1 ... 6, x = 0...5 or 0...11).
3. Jumper the sensor to be connected (short-circuit the sensor conductor close to the sensor).
4. Connect the sensor conductors to the appropriate terminals 1(+), 2(-) or 3(+), 4(-).
5. For the corresponding channel, start the measurement of the wire resistance (p4109[x] = 1).
6. After p4109[x] = 0, check the measured resistance value in p4110[x].
7. Remove the jumper across the temperature sensor.

Value: 0: Inactive
1: Start

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: Refer to: p4100, p4108, p4110

Notice: Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note: The wire resistance value can be also directly entered into p4110[0...11].

The automatic conductor calibration for 1x2 and 2x2 wire evaluation is always performed with the value in p4110[0...11].

p4110[0...11] TM150 wire resistance value / TM150 R_wire value

TM150	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9626, 9627
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ohm]	3000.00 [ohm]	0.00 [ohm]

Description: Sets and displays the wire resistance for Terminal Module 150 (TM150).

The value is used for the automatic conductor calibration.

The value is automatically set by starting the wire resistance measurement (p4109[0...11]) of the corresponding channel.

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: Refer to: p4109

Notice: Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note: Automatic conductor calibration is deactivated using p4110[0...11] = 0.

p4111[0...2] TM150 group channel assignment / TM150 grp channel

TM150			
	Can be changed: T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9625
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 0000 0000 0000 bin

Description: Assigns the temperature channels to groups for the Terminal Module 150 (TM150)

For each group, the following calculated values are provided from the temperature actual values (r4105[0...11]):

- Maximum value (r4112[0...2])

- Minimum value (r4113[0...2])

- average value (r4114[0...2])

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Temperature channel 0	Yes	No	-
01	Temperature channel 1	Yes	No	-
02	Temperature channel 2	Yes	No	-
03	Temperature channel 3	Yes	No	-
04	Temperature channel 4	Yes	No	-
05	Temperature channel 5	Yes	No	-
06	Temperature channel 6	Yes	No	-
07	Temperature channel 7	Yes	No	-
08	Temperature channel 8	Yes	No	-
09	Temperature channel 9	Yes	No	-
10	Temperature channel 10	Yes	No	-
11	Temperature channel 11	Yes	No	-

Dependency: Refer to: r4105, r4112, r4113, r4114

Notice: When forming groups, it must be ensured that in one particular group, only temperature channels with the following sensor types are included:

- "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6), real temperature actual value

or alternatively

- "PTC thermistor", "bimetallic NC contact" (p4100[0...11] = 1, 4), fictitious temperature actual value (-50 °C, 250 °C)

If these sensor types are combined within one group, then the calculated values for maximum, minimum and average value will be falsified.

Note: Active and inactive temperature channels can be included in one group. However, when calculating the values (r4112, r4113, r4114) only the active temperature channels with valid actual value are taken into account (r4105[0...11] not equal to -300 °C).

r4112[0...2] CO: TM150 group temperature actual value maximum value / TM150 grp temp max

TM150			
	Can be changed: -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9625
	P-Group: Terminals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Display and connector output for the maximum value of each group for the Terminal Module 150 (TM150).

This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommend.: The following connector inputs can use these connector outputs for interconnection:

- CI: p0603

- CI: p0608[0...3]

- CI: p0609[0...3]

- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: Refer to: r4105, p4111, r4113, r4114

r4113[0...2] CO: TM150 group temperature actual value minimum value / TM150 grp temp min

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9625
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Display and connector output for the minimum value of each group for the Terminal Module 150 (TM150).
This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommend.: The following connector inputs can use these connector outputs for interconnection:
- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: Refer to: r4105, p4111, r4112, r4114

r4114[0...2] CO: TM150 group temperature average actual value / TM150 grp temp av

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 9625
P-Group: Terminals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Display and connector output for the average value of each group for the Terminal Module 150 (TM150).
This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommend.: The following connector inputs can use these connector outputs for interconnection:
- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: Refer to: r4105, p4111, r4112, r4113

Note: If one group is assigned sensor type "PTC" or "bimetal NC contact", then the average value -300 °C is output.

p4117[0...2] TM150 group sensor error effect / TM150 error effect

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9625
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the effect for an error of a sensor of a group for Terminal Module TM150 (TM150).
For p4117 = 0, the following applies:
The defective temperature sensor assigned to a group is not take into account when forming the group.

For p4117 = 1, the following applies:

For a sensor error, for the maximum value, minimum value and average value of the corresponding group, a value of -300 °C is output.

Value: 0: Skip sensor
1: Output value = -300 °C

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: Refer to: r4105, p4111, r4112, r4113, r4114

p4118[0...11] TM150 fault threshold/alarm threshold hysteresis / TM150 thresh hyst

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [K]	50 [K]	5 [K]

Description: Sets the hysteresis for the fault threshold/alarm threshold (p4102[0...23]) for the Terminal Module 150 (TM150).

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: Refer to: p4102, p4103, r4104, r4105

Note: The following applies for a corresponding alarm:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x] - hysteresis (p4118[x]).

The following applies for a corresponding fault:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

p4119[0...11] TM150 activate/deactivate smoothing / TM150 smooth act

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to activate/deactivate the filter to smooth the temperature signal for the Terminal Module 150 (TM150).

The smoothing is realized with a 1st order lowpass filter

The effective smoothing time constant depends on the number of channels that are simultaneously active and is displayed in r4120.

Value: 0: Filter deactivated
1: Filter activated

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6

[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: Refer to: r4120

r4120 TM150 temperature filter time constant / TM150 temp_filt T

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the smoothing time constant for the temperature filter for Terminal Module 150 (TM150).

Dependency: Refer to: r4105, p4111, r4112, r4113

Note: The time constant lies in the range from 80 to 1000 ms and depends on the number of channels that are simultaneously active.

p4121 TM150 filter rated line frequency / TM150 filt f_line

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9626, 9627
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the rated line frequency for the filter to skip the line frequency for Terminal Module 150 (TM150).

Value:
0: 50 Hz
1: 60 Hz

p4600[0...n] Motor temperature sensor 1 sensor type / Temp_sens 1 type

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	0

Description: Sets the sensor type of the first temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 10.

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4601[0...n]	Motor temperature sensor 2 sensor type / Temp_sens 2 type		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 8016
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	32	0

Description: Sets the sensor type of the second temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 10.

Terminals for KTY84: X200.1, X200.2

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4602[0...n]	Motor temperature sensor 3 sensor type / Temp_sens 3 type		
VECTOR_G	**Can be changed:** C2(3), U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 8016
	P-Group: Motor	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	32	0

Description: Sets the sensor type of the third temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 10.

Terminals for PTC triplet and bimetallic: X200.3, X200.4

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4603[0...n] Motor temperature sensor 4 sensor type / Temp_sens 4 type

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	0

Description: Sets the sensor type of the fourth temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 10.

Terminals for PTC triplet: X200.5, X200.6

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4610[0...n] Motor temperature sensor 1 sensor type MDS / Temp sens1 typ MDS

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	10

Description: Sets the sensor type of the first temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84, PT100, PT1000
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 11.

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4611[0...n] Motor temperature sensor 2 sensor type MDS / Temp sens2 typ MDS

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	10

Description: Sets the sensor type of the second temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84, PT100, PT1000
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 11.

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4612[0...n] Motor temperature sensor 3 sensor type MDS / Temp sens3 typ MDS

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	10

Description: Sets the sensor type of the third temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84, PT100, PT1000
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 11.

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

p4613[0...n] Motor temperature sensor 4 sensor type MDS / Temp sens4 typ MDS

VECTOR_G

Can be changed: C2(3), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS, p0130	**Func. diagram:** 8016
P-Group: Motor	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	32	10

Description: Sets the sensor type of the fourth temperature sensor for the motor temperature monitoring.

Value:
0: No sensor
10: PTC fault
11: PTC alarm
12: PTC alarm & timer
20: KTY84, PT100, PT1000
30: Bimetallic NC contact fault
31: Bimetallic NC contact alarm
32: Bimetallic NC contact alarm & timer

Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 11.
PTC thermistor: Tripping resistance = 1650 Ohm
Information on using temperature sensors is provided in the following literature:
- hardware description of the appropriate components
- SINAMICS S120 Commissioning Manual

r4620[0...3] Motor temperature measured / Mot_temp meas

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the actual temperature in the motor measured through temperature channels 1 ... 4.

Index:
[0] = Temperature channel 1
[1] = Temperature channel 2
[2] = Temperature channel 3
[3] = Temperature channel 4

Note: For a value not equal to -200.0 °C, the following applies:
- this temperature display is valid.
- a KTY sensor is connected.
For a value equal to -200.0 °C, the following applies:
- this temperature display is not valid (temperature sensor error).
- A PTC sensor or bimetallic NC contact is connected.
- the temperature sensor evaluation is de-activated (p0600 = 0 or p0601 = 0).
- the sensor channel is de-activated (p460x = 0 or p461x = 0).

r4640[0...95] Encoder diagnostics state machine / Enc diag stat_ma

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder diagnostics for the PROFIdrive interface.

p4641[0...2] OEM encoder diagnostic signal selection / OEM enc diag sel

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Trace functionality for OEM encoder manufacturers.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

p4650 Encoder functional reserve component number / Enc fct_res num

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	399	0

Description: Sets the component number (p0141) of the encoder whose functional reserve is to be displayed (r4651).

Dependency: Refer to: r4651

r4651[0...3] Encoder functional reserve / Enc fct_reserve

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the functional reserve of the encoder selected via p4650.

0 ... 25 %:

The function limit has been reached. A service is recommended.

26 ... 100 %:

The encoder is working in the specified range.

Index:
[0] = Function reserve 1
[1] = Function reserve 2
[2] = Function reserve 3
[3] = Function reserve 4

Dependency: Refer to: p4650

Note: Value = 999 means:

- the component specified in p4650 is not connected
- the encoder does not support the display of the functional reserve

p4652 XIST1_ERW reset mode / XIST1_ERW res mode

ENC

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the mode to reset the actual value in XIST_ERW (CO: r4653).

Value:
0: Inactive
1: Reset with zero mark
2: Reset with BICO
3: Reset with selected zero mark

Dependency: Refer to: r4653, r4654, p4655

Note: If value = 1:

The value in XIST1_ERW is reset when passing every zero mark.

If value = 2:

The value in XIST1_ERW is reset with a 0/1 edge via binector input p4655.

If value = 3:

The value in XIST1_ERW is reset after a 0/1 edge via binector input p4655 when passing the next zero mark.

p4652[0...2] XIST1_ERW reset mode / XIST1_ERW res mode

VECTOR_G

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the mode to reset the actual value in XIST_ERW (CO: r4653).

Value:
0: Inactive
1: Reset with zero mark
2: Reset with BICO
3: Reset with selected zero mark

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: r4653, r4654, p4655

Note: If value = 1:

The value in XIST1_ERW is reset when passing every zero mark.

If value = 2:

The value in XIST1_ERW is reset with a 0/1 edge via binector input p4655.

If value = 3:

The value in XIST1_ERW is reset after a 0/1 edge via binector input p4655 when passing the next zero mark.

r4653 CO: XIST1_ERW actual value / XIST1_ERW actval

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the actual value XIST1_ERW.

Dependency: Refer to: p4652, r4654, p4655

r4653[0...2] CO: XIST1_ERW actual value / XIST1_ERW actval

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the actual value XIST1_ERW.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p4652, r4654, p4655

r4654.0 — CO/BO: XIST1_ERW status / XIST1_ERW stat

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output to reset XIST1_ERW.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	XIST1_ERW reset	High	Low	-

Dependency: Refer to: p4652, r4653, p4655

Note: The reset of XIST1_ERW is initiated via binector input p4655.

Binector output r4654 is reset with a 0 signal from binector input p4655.

r4654.0...16 — CO/BO: XIST1_ERW status / XIST1_ERW stat

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output to reset XIST1_ERW.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder 1 XIST1_ERW reset	High	Low	-
08	Encoder 2 XIST1_ERW reset	High	Low	-
16	Encoder 3 XIST1_ERW reset	High	Low	-

Dependency: Refer to: p4652, r4653, p4655

Note: The reset of XIST1_ERW is initiated via binector input p4655.

Binector output r4654 is reset with a 0 signal from binector input p4655.

p4655 — BI: XIST1_ERW reset signal source / XIST1_ERW resS_src

ENC

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to reset XIST1_ERW (CO: r4653).

Dependency: Refer to: p4652, r4653, r4654

Note: The reset of XIST1_ERW depends on the selected mode (p4652).

p4655[0...2] — BI: XIST1_ERW reset signal source / XIST1_ERW resS_src

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 4750
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to reset XIST1_ERW (CO: r4653).

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p4652, r4653, r4654

Note: The reset of XIST1_ERW depends on the selected mode (p4652).

---

p4660 — Sensor Module filter bandwidth / SM Filt_bandw

ENC

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [kHz]	20000.00 [kHz]	0.00 [kHz]

Description: Sets the filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).

The value set on the Sensor Module is displayed in r4661.

The Sensor Module hardware only supports the following values:

- 0: The Sensor Module's default is used.
- 50 kHz
- 170 kHz
- 500 kHz
- Unlimited: Only the bandwidth of the operational amplifier is effective.

Dependency: Refer to: r4661

Note: A value of zero is displayed if an encoder is not present.

---

p4660[0...2] — Sensor Module filter bandwidth / SM Filt_bandw

VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [kHz]	20000.00 [kHz]	0.00 [kHz]

Description: Sets the filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).

The value set on the Sensor Module is displayed in r4661.

The Sensor Module hardware only supports the following values:

- 0: The Sensor Module's default is used.
- 50 kHz
- 170 kHz
- 500 kHz
- Unlimited: Only the bandwidth of the operational amplifier is effective.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: r4661

Note: A value of zero is displayed if an encoder is not present.

---

r4661 — Sensor Module filter bandwidth display / SM Filt_bandw disp

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kHz]	- [kHz]	- [kHz]

Description: Display of the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).

The bandwidth of the filter is set using p4660.

Dependency: Refer to: p4660

Note: A value of zero is displayed if an encoder is not present.

r4661[0...2] Sensor Module filter bandwidth display / SM Filt_bandw disp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kHz]	- [kHz]	- [kHz]

Description: Display of the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).

The bandwidth of the filter is set using p4660.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p4660

Note: A value of zero is displayed if an encoder is not present.

p4662[0...n] Encoder characteristic type / Enc char_type

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the characteristic type.

For non-linear sensors, the interrelationship between the signal voltage and the position can be defined using a third degree polynomial.

Value:
0: Characteristic inactive
1: Characteristic polynomial third degree

Dependency: Refer to: p4663, p4664, p4665, p4666

Note: If value = 1:

A third degree polynomial is defined as follows:

F(x) = K3 * x^3 + K2 * x^2 + K1 * x + K0

Coefficients K0 ... K3 should be defined and entered into p4663 ... p4666.

The sensor range is emulated to x = -0.5 ... +0.5.

p4663[0...n] Encoder characteristic K0 / Enc char K0

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Setting for coefficient K0 to calculate the characteristic (p4662).

Dependency: Refer to: p4662, p4664, p4665, p4666

p4664[0...n] Encoder characteristic K1 / Enc char K1

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Setting for coefficient K1 to calculate the characteristic (p4662).

Dependency: Refer to: p4662, p4663, p4665, p4666

p4665[0...n] Encoder characteristic K2 / Enc char K2

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Setting for coefficient K2 to calculate the characteristic (p4662).

Dependency: Refer to: p4662, p4663, p4664, p4666

p4666[0...n] Encoder characteristic K3 / Enc char K3

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Setting for coefficient K3 to calculate the characteristic (p4662).

Dependency: Refer to: p4662, p4663, p4664, p4665

p4670[0...n] Analog sensor configuration / Ana_sens config

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the configuration for evaluation on the analog sensor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
06	Set velocity to 0	Yes	No	-
08	Pos val range	0.0 / 1.0 pulse	-0.5 / +0.5 pulse	-
09	Fault/alarm messages	Alarm	Fault	-
10	Channel B act	Yes	No	-
11	Channel A act	Yes	No	-
13	Commutation angle constant	Yes	No	-
14	Suppress faults	Yes	No	-
31	Extrapolation	ON	OFF	-

Notice: Re bit 06:

Setting the bit sets the velocity actual value (r0061) permanently to 0.

Re bit 13:

Setting the bit sets the commutation angle permanently to the commutation angle offset (p0431).

Note: Re bit 09:

A setting of bit = 0 will trigger a fault for the relevant channel if the actual value is invalid.

A setting of bit = 1 will trigger an alarm for the relevant channel if the actual value is invalid.

Re bit 10, 11:

If both channels are activated, the actual value is generated from the mean value of both channels. If a channel fails (actual value invalid), it is not included when the mean value is generated.

Re bit 14:

The bit is only evaluated for encoder 1. Otherwise no effect.

p4671[0...n] Analog sensor input / Ana_sens inp

ENC, VECTOR_G	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	3	0

Description: Sets the input circuit for the analog sensor.

Value:
0: Differential
1: Single-ended A, B
2: Single-ended A*, B*
3: Single-ended A, B sensitive

Note: p4671 = 0:

The two signals on a track are evaluated differentially.

p4671 = 1:

Only the non-inverted signal on a track is evaluated.

p4671 = 2:

Only the inverted signal on a track is evaluated.

p4671 = 3:

Only the non-inverted signal on a track (high resolution) is evaluated.

p4672[0...n] Analog sensor channel A voltage at actual value zero / Ana_sens A U at 0

ENC, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-10.0000 [V]	10.0000 [V]	0.0000 [V]

Description: Sets the voltage when the connected sensor is at actual value zero.

At this voltage channel A supplies an actual value of zero.

p4673[0...n] Analog sensor channel A voltage per encoder period / Ana_sens A U/per

ENC, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-10.0000 [V]	10.0000 [V]	6.0000 [V]

Description: Sets the output voltage range to be mapped for the connected analog sensor.

The voltage range is determined by the following parameters:

- p4672 (voltage at actual value 0)
- p4673 (voltage per encoder period)

Note: The minimum actual value which can be mapped is equal to p4672 - p4673/2.

The maximum actual value which can be mapped is equal to p4672 + p4673/2.

p4674[0...n] Analog sensor channel B voltage at actual value zero / Ana_sens B U at 0

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10.0000 [V]	10.0000 [V]	0.0000 [V]

Description: Sets the voltage when the connected sensor is at actual value zero.
At this voltage channel B supplies an actual value of zero.

p4675[0...n] Analog sensor channel B voltage per encoder period / Ana_sens B U/per

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-10.0000 [V]	10.0000 [V]	6.0000 [V]

Description: Sets the output voltage range to be mapped for the connected analog sensor.
The voltage range is determined by the following parameters:
- p4674 (voltage at actual value 0)
- p4675 (voltage per encoder period)

Note: The minimum actual value which can be mapped is equal to p4674 - p4675/2.
The maximum actual value which can be mapped is equal to p4674 + p4675/2.

p4676[0...n] Analog sensor range limit threshold / Ana_sens lim thr

ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0 [%]	100.0 [%]	100.0 [%]

Description: Sets the threshold for limit monitoring of the absolute actual value on the analog sensor.
If this threshold is overshot by the actual value of a channel, a corresponding fault/alarm (p4670.9) is output.

Dependency: Refer to: p4673, p4675

p4677[0...n] Analog sensor LVDT configuration / Ana_sens LVDT conf

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for LVDT mode on the analog sensor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	LVDT ON	Yes	No	-
01	Track B excitation	Yes	No	-
02	Fixed value amplitude	Yes	No	-
03	Fixed value amplitude and phase	Yes	No	-

p4678[0...n] Analog sensor LVDT ratio / An_sens LVDT ratio

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [%]	200.00 [%]	50.00 [%]

Description: Sets the ratio for the LVDT sensor.

p4679[0...n] Analog sensor LVDT phase / An_sens LVDT ph

ENC, VECTOR_G

Can be changed: C2(4), T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-360.00 [°]	360.00 [°]	0.00 [°]

Description: Sets the phase for the LVDT sensor.

p4680[0...n] Zero mark monitoring tolerance permissible / ZM_monit tol perm

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1000	4

Description: Sets the permissible tolerance in encoder pulses for the zero mark distance in the context of zero mark monitoring.

Causes fault F3x100 to appear less frequently.

p4681[0...n] Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1000	2

Description: Sets the positive tolerance window in encoder pulses for limit 1 for the zero mark monitoring.

If the deviation is less than this limit, then the pulse number is not corrected. If it is higher than this limit, fault F3x131 is triggered.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.

Dependency: Refer to: p0437, p4688

Note: This monitoring is activated by setting p0437.2 = 1 (position actual value correction).

The positive limit describes additional pulses due to EMC.

p4682[0...n] Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1001	0	-1001

Description: Sets the negative tolerance window in encoder pulses for limit 1 for the zero mark monitoring.

If the deviation is less than this limit, the PPR is not corrected. If it is higher than this limit, fault F3x131 is triggered.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.

Dependency: Refer to: p0437, p4681, p4688

Note: This monitoring is activated by setting p0437.2 = 1 (position actual value correction).

For a set value = -1001, the negated value of p4681 is effective.

The negative limit describes the pulses lost due to a covered glass panel in the incremental encoder.

p4683[0...n] Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	100000	0

Description: Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: Refer to: p0437, p4681, p4682, p4688

Note: Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

p4684[0...n] Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100001	0	-100001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: Refer to: p0437, p4683, p4688

Note: Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

For a set value = -100001, the negated value of p4683 is effective.

p4685[0...n] Speed actual value mean value generation / n_act mean val

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	20	0

Description: Sets the number of current controller clock cycles for mean value generation of the speed actual value.

Note: Value = 0, 1: No mean value generation.

Higher values also mean higher dead times for the speed actual value.

p4686[0...n] Zero mark minimum length / ZM min length

ENC, VECTOR_G

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	10	1

Description: Sets the minimum length for the zero mark in 1/4 encoder pulses.

Dependency: Refer to: p0425, p0437

Note: The value for the minimum length of the zero mark must be set less than p0425.

The parameter is activated using p0437.1 = 1 (zero mark edge detection).

p4688 CO: Zero mark monitoring differential pulse count / ZM diff_pulse qty

ENC

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147483648	2147483647	0

Description: Displays the number of differential pulses for the zero mark monitoring that have accumulated.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688).

Dependency: Refer to: p4681, p4682, p4683, p4684

Note: The display can only be reset to zero.

p4688[0...2] CO: Zero mark monitoring differential pulse count / ZM diff_pulse qty

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147483648	2147483647	0

Description: Displays the number of differential pulses for the zero mark monitoring that have accumulated.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688).

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: Refer to: p4681, p4682, p4683, p4684

Note: The display can only be reset to zero.

r4689 CO: Squarewave encoder diagnostics / Sq-wave enc diag

ENC

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Encoder	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the encoder status according to PROFIdrive for a squarewave encoder.

Note: After alarm A3x422 is output, this parameter is set for 100 ms.

r4689[0...2]	CO: Squarewave encoder diagnostics / Sq-wave enc diag		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Encoder	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the encoder status according to PROFIdrive for a squarewave encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Note: After alarm A3x422 is output, this parameter is set for 100 ms.

p4690	SMI spare part component number / SMI comp_no		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	399	0

Description: Sets the component number for the SMI/DQI for which motor and/or encoder data should be saved, deleted or downloaded.

Dependency: Refer to: p4691, p4692, p4693

Note: DQI: DRIVE-CLiQ Sensor Integrated

SMI: SINAMICS Sensor Module Integrated

p4691	SMI spare part save/download data / Save/DL SMI data		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	39	0

Description: Setting for the saving/downloading/deletion of motor and/or encoder data for the component specified in p4690 (SMI/DQI).

A backup of this data can be saved to non-volatile memory. The backup procedure is performed automatically as part of the function for saving to non-volatile memory (p0977 = 1 or "Copy RAM to ROM"). If a part is replaced, the saved data can be reloaded.

Procedure:

p4690 = set component number

p4691 = 1, 2, 30: Set the required procedure (save/download/delete).

p4691 = 9, 10, 36: Feedback signal on successful completion of the procedure.

p4691 = 11... 22, 37, 38: Error values if the procedure could not be executed successfully.

Value:
0: Inactive
1: Save SMI data
2: Download SMI data
9: SMI data downloaded and POWER ON required for component
10: SMI data backup complete
11: SMI data backup for selected component not found
12: Selected component not available or not connected
13: Insufficient memory space for backup
14: Format of saved data is incompatible
15: Transfer fault during data download
16: Transfer fault during data backup
17: Data backup does not match parameterized encoder/motor

18: Data backup directory not permissible
19: Component already contains data
20: Component does not contain any data
21: Component is not an SMI or a DQI
22: SMI data cannot be downloaded for component
30: Delete SMI data
35: Confirmation of SMI data delete required
36: SMI data deleted and POWER ON required for component
37: Access level not sufficient for delete
38: Delete SMI data not permitted for component
39: SMI data for component cannot be deleted

Dependency: Refer to: p4690, p4692, p4693

Notice: Once SMI/DQI data has been deleted or downloaded successfully, the component has to be powered up.

Note: SMI: SINAMICS Sensor Module Integrated

DQI: DRIVE-CLiQ Sensor Integrated

Help for error value = 11:

- Save the data for the original SMI on the memory card.

- Use an SMI with a suitable hardware version.

Help for error value = 12:

- Set the correct component number or connect the component.

Help for error value = 13:

- Use a memory card with more memory space.

Help for error value = 14:

- Create a data backup on the memory card corresponding to the SMI type.

Help for error value = 15:

- Check the DRIVE-CLiQ wiring for the component.

Help for error value = 16:

- Check the DRIVE-CLiQ wiring for the component.

Help for error value = 17:

- Save the data for the original SMI on the memory card.

Help for error value = 18:

- Set parameter p4693 to an appropriate value.

Help for error value = 19:

- Perform an SMI delete or use a blank SMI.

Help for error value = 20:

- Use an SMI that is not blank.

Help for error value = 21:

- Set the correct component number (p4690).

Note for error value = 22:

- Data cannot be downloaded for component.

Help for error value = 35:

- Reset parameter p4691 to 30.

Help for error value = 37:

- Set the access level to Expert or higher.

Help for error value = 38:

- Insert the SMI/DQI into the actual topology as an additional component (component number >= 200).

- Set the component number from the actual topology (p4690 >= 200).

- Set the correct component number (p4690 >= 200).

Note for error value = 39:

- SMI already deleted or too old. Delete not possible.

p4692 SMI spare part save data of all SMIs / Save SMI data

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	29	0

Description: Setting to back up the data of all SMIs and DQIs featured in the target topology.

Value:
0: Inactive
1: Save data of all SMIs and DQIs
10: Save all data successful
13: Insufficient memory space for backup
16: Transfer fault during data backup
20: Component does not contain any data
29: Not all components from target topology saved

Note: SMI: SINAMICS Sensor Module Integrated

p4692 = 10: Automatic on successful completion of backup procedure.

p4692 = 13, 16, 20, 29: Error values if the procedure could not be executed successfully.

The procedure must be repeated if the data save operation was interrupted (e.g. if the power supply voltage failed).

Help for error value = 13:

- Use a memory card with more memory space.

Help for error value = 16:

- check the DRIVE-CLiQ wiring.

Help for error value = 20:

- Use an SMI that is not blank.

Help for error value = 29:

- Check and correct the target and actual topologies for the SMIs.

- Repeat the save procedure.

p4693[0...1] SMI spare part data backup directory / SMI dat_bkup dir

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	399	0

Description: Sets the directory for downloading and saving data.

Example:

The SMI has the component number 5 and the SMI data (motor/encoder data) is to be stored in subdirectory C205.

--> p4690 = 5, p4693[0] = 205, p4691 = 1

Index:
[0] = Subdirectory selection
[1] = Reserved

Dependency: Refer to: p4691, r4694

Notice: If p4693[0] is not equal to 0 and p4693[0] is not equal to p4690, the following applies:

- Only a number >= 200 may be selected for the subdirectory when saving.

- In the case of downloads, a selection for the subdirectory may only be made for an SMI/DQI with a component number >= 200 (preliminary component number) (p4690 >= 200).

Note: DQI: DRIVE-CLiQ Sensor Integrated

SMI: SINAMICS Sensor Module Integrated

Re index 0:

This index is used to select the subdirectory for saving and downloading data. The motor order number (MLFB) of the corresponding data backup is displayed in r4694.

For p4693[0] = 0, the following applies:

The directory is determined by the setting of p4690.

r4694[0...19] SMI spare part data backup motor order number / SMI dat_bkup MLFB

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the motor order number (MLFB) of the data backup selected with p4693.

Dependency: Refer to: p4691, p4692

Caution: If the selected subdirectory contains a number of data sets, "More Datasets" is displayed in r4694[0...19].

If there is no SMI data (motor/encoder data) in the selected subdirectory or if the selected subdirectory does not exist, the following applies:

- The number of the next subdirectory located is displayed.
- This subdirectory is not checked for valid SMI data.
- If another subdirectory cannot be located, nothing is displayed in r4694[0...19].

Note: SMI: SINAMICS Sensor Module Integrated

p4700[0...1] Trace control / Trace control

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0	1	0

Description: Setting to control the trace function.

Value:
0: Stop trace
1: Start trace

Index:
[0] = Trace 0
[1] = Trace 1

p4701 Measuring function control / Meas fct ctrl

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0	3	0

Description: Setting to control the measurement function.

Value:
0: Stop measuring function
1: Start measuring function
2: Measuring function check parameterization
3: Start measuring function without enable signals

p4703[0...1] Trace options / Trace options

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	0000 bin

Description: Sets the options for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Automatically start trace with time slices	Yes	No	-

Dependency: Refer to: p4700

Note: Re bit 00:

0: The trace starts with p4700 as before.

1: When powering up, the trace starts immediately with the saved parameter settings with the start of the time slices.

r4705[0...1] Trace status / Trace status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4	-

Description: Displays the actual status of the trace.

Value:
0: Trace inactive
1: Trace is recording presamples
2: Trace is waiting for trigger event
3: Trace is recording
4: Recording (trace) ended

Index:
[0] = Trace 0
[1] = Trace 1

r4706 Measuring function status / Meas fct status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	5	-

Description: Displays the actual status of the measuring function.

Value:
0: Measurement function inactive
1: Measuring function parameterization checked
2: Measuring function waits for stabilizing time
3: Measuring function recording (tracing)
4: Measuring function trace ended with error
5: Measuring function trace successfully completed

p4707 Measurement function configuration / Meas fct config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to configure the measurement function.

Value:
0: Standard
1: Free meas fct

Dependency: The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).

Note: This parameter involves the free measuring functions and is only active for p4810=6.

For value = 0:

The free measuring function is parameterized with master control.

For value = 1:

The free measuring function is parameterized without master control.

r4708[0...1] Trace memory space required / Trace mem required

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the required memory in bytes for the actual parameterization.

Index:
[0] = Trace 0
[1] = Trace 1

Dependency: Refer to: r4799

r4709[0...1] Trace memory space required for measuring functions / Trace mem required

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the required memory in bytes for the actual parameterization.
This applies, if the trace for the measurement functions is used.

Index:
[0] = Trace 0
[1] = Trace 1

Dependency: Refer to: r4799

p4710[0...1] Trace trigger condition / Trace Trig_cond

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
1	8	2

Description: Sets the trigger condition for the trace.

Value:
1: Immediate trace start
2: Positive edge
3: Negative edge
4: Entry to hysteresis band
5: Leaving hysteresis band
6: Trigger at bit mask
7: Start with function generator
8: Trigger at bit mask with edge

Index:
[0] = Trace 0
[1] = Trace 1

p4711[0...5] Trace trigger signal / Trace trig_signal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the trigger signal for the trace.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

Dependency: Only effective when p4710 does not equal 1.

Note: It only makes sense to trace the PINs using the commissioning software.

For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa.

Re index 0 ... 1:

Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format.

For trace with a physical address (p4789), the data type of the trigger signal is set here.

Re index 2 ...3:

The triggering PIN for trace 0 is entered here.

Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart

Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

Re index 4 ... 5:

The triggering PIN for trace 1 is entered here.

Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart

Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

p4712[0...1] Trace trigger threshold / Trace trig_thresh

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-340.28235E36	340.28235E36	0.00

Description: Sets the trigger threshold for the trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 2, 3.

p4713[0...1] Trace tolerance band trigger threshold 1 / Trace trig thr 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-340.28235E36	340.28235E36	0.00

Description: Sets the first trigger threshold for trigger via tolerance band.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4714[0...1] Trace tolerance band trigger threshold 2 / Trace trig thr 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-340.28235E36	340.28235E36	0.00

Description: Sets the second trigger threshold for trigger via tolerance band

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4715[0...1] Trace bit mask trigger, bit mask / Trace trig mask

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Sets the bit mask for the bit mask trigger.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 6.

p4716[0...1] Trace bit mask trigger trigger condition / Trace Trig_cond

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Sets the trigger condition for bit mask trigger.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 6.

p4717 Measuring function number of averaging operations / Meas fct avg qty

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the number of averaging operations for the measuring function.

p4718 Measuring function number of stabilizing periods / MeasFct StabPerQty

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the number of stabilizing periods for the measuring function.

r4719[0...1] Trace trigger index / Trace Trig_index

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trigger index in the trace buffer. The trigger event occurred at this point.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only valid when p4705 = 4.

p4720[0...1] Trace recording cycle / Trace record_cyc

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.000 [ms]	60000.000 [ms]	1.000 [ms]

Description: Sets the recording cycle for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4721[0...1] Trace recording time / Trace record_time

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.000 [ms]	3600000.000 [ms]	1000.000 [ms]

Description: Sets the recording time for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4722[0...1] Trace trigger delay / Trace trig_delay

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-3600000.000 [ms]	3600000.000 [ms]	0.000 [ms]

Description: Sets the trigger delay for the trace.

Trigger delay < 0:

Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs.

Trigger delay > 0:

Post trigger: Tracing does not start until the set time after the trigger event.

Index: [0] = Trace 0
[1] = Trace 1

p4723[0...1] Trace time slice cycle / Trace cycle

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.03125 [ms]	4.00000 [ms]	0.12500 [ms]

Description: Sets the time slice cycle in which the trace is called.

Index: [0] = Trace 0
[1] = Trace 1

p4724[0...1] Trace average in the time range / Trace average

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	0001 bin	0000 bin

Description: Sets the averaging in the time range for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

r4725[0...1] Trace data type 1 traced / Trace rec type 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 1 for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

r4726[0...1] Trace data type 2 traced / Trace rec type 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 2 for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

r4727[0...1] Trace data type 3 traced / Trace rec type 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 3 for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

r4728[0...1] Trace data type 4 traced / Trace rec type 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 4 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4729[0...1] Trace number of recorded values / Trace rec values

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of traced values for each signal.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only valid when p4705 = 4.

p4730[0...5] Trace record signal 0 / Trace record sig 0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the first signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4731[0...5] Trace record signal 1 / Trace record sig 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the second signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4732[0...5] Trace record signal 2 / Trace record sig 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the third signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id

[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4733[0...5] Trace record signal 3 / Trace record sig 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the fourth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4734[0...5] Trace record signal 4 / Trace record sig 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the fifth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4735[0...5] Trace record signal 5 / Trace record sig 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the sixth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4736[0...5]	**Trace record signal 6 / Trace record sig 6**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the seventh signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4737[0...5]	**Trace record signal 7 / Trace record sig 7**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the eighth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

r4740[0...16383]	**Trace 0 trace buffer signal 0 floating point / Trace 0 tr sig 0**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0.

The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks.

Example A:

The first 16384 values of signal 0, trace 0 are to be read out.

In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383].

Example B:

The values 16385 to 32768 from signal 0, trace 0 are to be read out.

In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].

Dependency: Refer to: p4795

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 tr sig 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: Refer to: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 tr sig 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 tr sig 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 tr sig 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 tr sig 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 tr sig 6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 tr sig 7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 trace sig0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace 1 tr sig 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace 1 tr sig 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace 1 tr sig 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace 1 tr sig 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace 1 tr sig 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace 1 tr sig 6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: Refer to: r4740, p4795

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace 1 tr sig 7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: Refer to: r4740, p4795

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 tr sig 0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number.

Note: For signals, data type I32 or U32, the trace buffer is assigned as follows:

r4760[0] = value 0

r4760[1] = value 1

...

r4760[8191] = value 8191

For signals, data type I16 or U16, the trace buffer is assigned as follows:

r4760[0] = value 1 (bit 31 ... 16) and value 0 (bit 15 ... 0)

r4760[1] = value 3 (bit 31 ... 16) and value 2 (bit 15 ... 0)

...

r4760[8191] = value 16383 (bit 31 ... 16) and value 16382 (bit 15 ... 0)

For signals, data type I8 or U8, the trace buffer is assigned as follows:

r4760[0] = value 3 (bit 31 ... 24) value 2 (bit 23 ... 16) value 1 (bit 15 ... 8) value 0 (bit 7 ... 0)

r4760[1] = value 7 (bit 31 ... 24) value 6 (bit 23 ... 16) value 5 (bit 15 ... 8) value 4 (bit 7 ... 0)

...

r4760[8191] = value 32767 (bit 31 ... 24) value 32766 (bit 23 ... 16) value 32765 (bit 15 ... 8) value 32764 (bit 7 ... 0)

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 tr sig 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: Refer to: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 tr sig 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 tr sig 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 tr sig 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 tr sig 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 tr sig 6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4760

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 tr sig 7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4760

r4770[0...16383] Trace 1 trace buffer signal 0 / Trace 1 trace sig0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4760

r4771[0...16383] Trace 1 trace buffer signal 1 / Trace 1 tr sig 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4760

r4772[0...16383] Trace 1 trace buffer signal 2 / Trace 1 tr sig 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4760

r4773[0...16383] Trace 1 trace buffer signal 3 / Trace 1 tr sig 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4760

r4774[0...16383] Trace 1 trace buffer signal 4 / Trace 1 tr sig 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4760

r4775[0...16383] Trace 1 trace buffer signal 5 / Trace 1 tr sig 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4760

r4776[0...16383] Trace 1 trace buffer signal 6 / Trace 1 tr sig 6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: Refer to: r4760

r4777[0...16383] Trace 1 trace buffer signal 7 / Trace 1 tr sig 7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: Refer to: r4760

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the first signal to be traced.
The data type is defined using p4730.

Index:
[0] = Trace 0
[1] = Trace 1

p4781[0...1] Trace physical address signal 1 / Trace PhyAddr Sig1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the second signal to be traced.
The data type is defined using p4731.

Index:
[0] = Trace 0
[1] = Trace 1

p4782[0...1] Trace physical address signal 2 / Trace PhyAddr Sig2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the third signal to be traced.

The data type is defined using p4732.

Index: [0] = Trace 0
[1] = Trace 1

p4783[0...1] Trace physical address signal 3 / Trace PhyAddr Sig3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the fourth signal to be traced.

The data type is defined using p4733.

Index: [0] = Trace 0
[1] = Trace 1

p4784[0...1] Trace physical address signal 4 / Trace PhyAddr Sig4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the fifth signal to be traced.

The data type is defined using p4734.

Index: [0] = Trace 0
[1] = Trace 1

p4785[0...1] Trace physical address signal 5 / Trace PhyAddr Sig5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the sixth signal to be traced.

The data type is defined using p4735.

Index: [0] = Trace 0
[1] = Trace 1

p4786[0...1] Trace physical address signal 6 / Trace PhyAddr Sig6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the seventh signal to be traced.

The data type is defined using p4736.

Index: [0] = Trace 0
[1] = Trace 1

p4787[0...1] Trace physical address signal 7 / Trace PhyAddr Sig7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the eighth signal to be traced.

The data type is defined using p4737.

Index: [0] = Trace 0
[1] = Trace 1

p4789[0...1] Trace physical address trigger signal / Trace PhyAddr Trig

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the physical address for the trigger signal.

The data type is defined by making the appropriate selection in p4711.

Index: [0] = Trace 0
[1] = Trace 1

r4790[0...1] Trace data type 5 traced / Trace rec type 5

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 5 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4791[0...1] Trace data type 6 traced / Trace rec type 6

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 6 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4792[0...1] Trace data type 7 traced / Trace rec type 7

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 7 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4793[0...1] Trace data type 8 traced / Trace rec type 8

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the recorded data type 8 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4795 Trace memory bank changeover / Trace mem changeov

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	500	0

Description: Changes over the memory bank to read out the contents of the trace buffer.

Dependency: Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753

r4797[0...1] Trace 0 trigger instant / Trace 0 t_trigger

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the instant in time for fulfilling the trigger condition for trace recorder 0.
The time comprises milliseconds (index 0) and days (index 1).

Index: [0] = Milliseconds
[1] = Days

Dependency: Refer to: r2114, r3102, r4719

Notice: The accuracy of the trigger instant depends on the accuracy of the underlying basis time.

For clarification:

The trigger instant is calculated with a µs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur.

When referred to r4719, the trigger instant can therefore deviate somewhat.

Note: If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4798[0...1] Trace 1 trigger instant / Trace 1 t_trigger

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the instant in time for fulfilling the trigger condition for trace recorder 1.

The time comprises milliseconds (index 0) and days (index 1).

Index: [0] = Milliseconds
[1] = Days

Dependency: Refer to: r2114, r3102, r4719

Notice: The accuracy of the trigger instant depends on the accuracy of the underlying basis time.

For clarification:

The trigger instant is calculated with a µs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur.

When referred to r4719, the trigger instant can therefore deviate somewhat.

Note: If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4799 Trace memory location free / Trace mem free

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the free memory for the trace in bytes.

Dependency: Refer to: r4708

p4800 Function generator control / FG control

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	3	0

Description: The function generator is started with p4800 = 1.

The signal is only generated for a 1 signal of binector input p4819.

Value:
0: Stop function generator
1: Start function generator
2: Check function generator parameterization
3: Start function generator without enable signals

Dependency: Refer to: p4819

r4805 Function generator status / FG status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: - | **Calculated:** - | **Access level:** 3
Data type: Integer16 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Trace and function generator | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min	Max	Factory setting
0	6	-

Description: Displays the actual status of the function generator.

Value:
0: Inactive
1: Generate accelerating ramp to offset
2: Generate parameterized signal shape
3: Generate braking ramp
4: Function generator stopped due to missing enable signals
5: Function generator waits for BI: p4819
6: Function generator parameterization has been checked

Dependency: Refer to: p4800, p4819

r4806.0 BO: Function generator status signal / FG status signal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: - | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Trace and function generator | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min	Max	Factory setting
-	-	-

Description: Displays the status of the function generator.

0 signal: Function generator inactive

1 signal: Function generator running

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-

p4810 Function generator mode / FG operating mode

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Integer16 | **Dyn. index:** - | **Func. diagram:** -
P-Group: Trace and function generator | **Units group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min	Max	Factory setting
0	99	0

Description: Sets the operating mode of the function generator.

Value:
0: Connection at connector output r4818
1: Connection at current setpoint after filter and r4818
2: Connection as disturbing torque and r4818
3: Connection at speed setpoint after filter and r4818
4: Connection at current setpoint before filter and r4818
5: Connection at speed setpoint before filter and r4818
6: Connection for free measurement function r4818 and r4834
99: Connection at physical address and r4818

p4812 — Function generator physical address / FG phys address

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Sets the physical address where the function generator is to be connected.

Dependency: Only effective when p4810 = 99.

p4813 — Function generator physical address reference value / FG phys addr ref

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
1.00	1000000.00	1.00

Description: Sets the reference value for 100 % for referred inputs.

Dependency: Only effective when p4810 = 99.

p4815[0...2] — Function generator drive number / FG drive number

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	65535	0

Description: Selects the required drive where the function generator is to be connected.

Index:
[0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

Dependency: Only effective when p4810 = 1, 2, 3, 4 or 5.

Note: For the function generator, only type SERVO, VECTOR or DC_CTRL type drives can be used.

p4816 — Function generator output signal integer number scaling / FG outp integ scal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147483648	2147483647	0

Description: Sets the scaling for the integer number of the output signal for the function generator.

Dependency: Refer to: r4805, r4817

Note: The parameter can only be changed in the following operating states:
r4805 = 0, 4, 6

r4817 CO: Function generator output signal integer number / FG outp integ no.

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output for the integer number of the output signal for the function generator.

Dependency: Refer to: p4816

Note: The value is output independent of the function generator operating mode.

r4818 CO: Function generator output signal / FG outp_sig

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 0
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the output signal for the function generator.

Dependency: Refer to: p4810

Note: The value is displayed independently of the function generator mode.

p4819 BI: Function generator control / FG control

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source to control the function generator.

When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0.

Dependency: Refer to: p4800

p4820 Function generator signal shape / FG signal shape

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
1	5	1

Description: Sets the signal to be generated for the function generator.

Value:
1: Square-wave
2: Staircase
3: Delta
4: Binary noise - PRBS (Pseudo Random Binary Signal)
5: Sine-wave

p4821	Function generator period / FG period duration		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0.00 [ms]	60000.00 [ms]	1000.00 [ms]

Description: Sets the period of the signal to be generated for the function generator.

Dependency: Ineffective when p4820 = 4 (PRBS).

p4822	Function generator pulse width / FG pulse width		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0.00 [ms]	60000.00 [ms]	500.00 [ms]

Description: Sets the pulse width for the signal to be generated for the function generator.

Dependency: Only effective when p4820 = 1 (square-wave).

p4823	Function generator bandwidth / FG bandwidth		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0.0025 [Hz]	16000.0000 [Hz]	4000.0000 [Hz]

Description: Sets the bandwidth for the signal to be generated for the function generator.

Dependency: Only effective when p4820 = 4 (PRBS).

Refer to: p4830

p4824	Function generator amplitude / FG amplitude		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-1600.00 [%]	1600.00 [%]	5.00 [%]

Description: Sets the amplitude for the signal to be generated for the function generator.

Dependency: Units are dependent on p4810.

If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).

If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4825	Function generator 2nd amplitude / FG 2nd amplitude		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-1600.00 [%]	1600.00 [%]	7.00 [%]

Description: Sets the second amplitude for the signal to be generated for the function generator.

Dependency: Only effective for p4820 = 2 (staircase).
Units are dependent on p4810.
If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).
If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4826 Function generator offset / FG offset

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-1600.00 [%]	1600.00 [%]	0.00 [%]

Description: Sets the offset (DC component) of the signal to be generated for the function generator.

Dependency: Units are dependent on p4810.
If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current).
If p4810 = 3, 5: The offset is referred to p2000 (reference speed).
If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.

p4827 Function generator ramp-up time to offset / FG ramp-up offset

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.00 [ms]	100000.00 [ms]	32.00 [ms]

Description: Sets the ramp-up time to the offset for the function generator.

p4828 Function generator lower limit / FG lower limit

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-10000.00 [%]	0.00 [%]	-100.00 [%]

Description: Sets the lower limit for the function generator.

Dependency: For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

p4829 Function generator upper limit / FG upper limit

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.00 [%]	10000.00 [%]	100.00 [%]

Description: Sets the upper limit for the function generator.

Dependency: For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

p4830 Function generator time slice cycle / FG time slice

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.03125 [ms]	2.00000 [ms]	0.12500 [ms]

Description: Sets the time slice cycle in which the function generator is called.

p4831 Function generator amplitude scaling / FG amplitude scal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0.00000 [%]	200.00000 [%]	100.00000 [%]

Description: Sets the scaling for the amplitude of the signal waveforms for all output channels.

The value can be changed while the function generator is running.

p4832[0...2] Function generator amplitude scaling / FG amplitude scal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-340.28235E36 [%]	340.28235E36 [%]	100.00000 [%]

Description: Sets the scaling for the amplitude of the signal waveforms separately for each output channel.

The value cannot be changed while the function generator is running.

Index:
[0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

p4833[0...2] Function generator offset scaling / FG offset scal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-340.28235E36 [%]	340.28235E36 [%]	100.00000 [%]

Description: Sets the scaling for the offset of the signal waveforms separately for each output channel.

The value cannot be changed while the function generator is running.

Index:
[0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

r4834[0...4] CO: Function generator free measurement output signal / FG fr MeasFct outp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 0
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the output signal for the free measurement function.

Index:
[0] = Signal 1
[1] = Signal 2
[2] = Signal 3
[3] = Signal 4
[4] = Signal 5

Dependency: Refer to: p4810

Note: The signals are only output in the "free measurement function" operating mode (p4810 = 6)

p4835[0...4] Function generator free measurement function scaling / FG fr MeasFct scal

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-200.00000 [%]	200.00000 [%]	100.00000 [%]

Description: Sets the scaling of the output signals for the free measurement function.

Index:
[0] = Signal 1
[1] = Signal 2
[2] = Signal 3
[3] = Signal 4
[4] = Signal 5

Note: The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).

p4840[0...1] MTrace cycle number setting / Cycle number

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Sets the number of cycles of a multiple trace.

The multiple trace is de-activated with a value = 0.

Index:
[0] = Trace 0
[1] = Trace 1

Dependency: Refer to: r4841, p4844

Notice: A multiple trace can have a negative impact on the total system performance.

From their inherent principle of operation, flash memory cards are subject to wear as a result of write operations. As a consequence, the lifetime of flash memory cards is reduced when using the multiple trace functionality.

r4841[0...1] MTrace cycle actual display / Cycle act display

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the currently running cycle (including deadtime) of the multiple trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Refer to: p4840, p4844

p4844[0...1] MTrace ring buffer files number / Ring buff file qty

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Trace and function generator	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
10	10	10

Description: Sets the number of ring buffer files for the measurement results of the multiple trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Refer to: p4840, r4841

r4950 OA DO-specific number / OA DO qty

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	-

Description: Displays the number of OA applications installed on this drive object.

Dependency: Refer to: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960

Note: DO: Drive Object
OA: Open Architecture (OA application)

r4951 OA DO-specific identifier total length / OA DO id tot_lgth

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	144	-

Description: Displays the total length of the identifiers of the OA applications installed on this drive object.

Dependency: Refer to: r4950, r4952, r4955, p4956, r4957, r4958, r4959, r4960

Note: The identifier of an OA application comprises a maximum of 8 characters plus separator.

r4952 — OA DO-specific GUID total length / OA DO GUID length

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	288	-

Description: Displays the total length of the GUIDs of the OA applications installed on this drive object.

Dependency: Refer to: r4950, r4951, r4955, p4956, r4957, r4958, r4959, r4960

Note: The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information.

GUID: Globally Unique IDentifier

r4955[0...n] — OA DO-specific identifier / OA DO ident

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4951	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the identifier of the OA applications installed on this drive object.

r4955[0...8]: Identifier of OA application 1

r4955[9...17]: Identifier of OA applications 2, ...

Dependency: Refer to: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

p4956[0...n] — OA DO-specific activation / OA DO act

All objects

Can be changed: C1, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** r4950	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to activate the OA applications installed on this drive object.

r4956[0]: Activates OA application 1

r4956[1]: Activates OA application 2, ...

Value:
0: OA application inactive
1: OA application active

Dependency: Refer to: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

r4957[0...n] — OA DO-specific version / OA DO version

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4950	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	-

Description: Displays the version of the OA applications installed on this drive object.

r4957[0]: Version of OA application 1

r4957[1]: Version of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

r4958[0...n] OA DO-specific interface version / OA DO interf_vers

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4950	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the interface version of OA applications installed on this drive object.

r4958[0]: Interface version of OA application 1

r4958[1]: Interface version of OA applications 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

r4959[0...n] OA DO-specific GUID / OA DO GUID

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4952	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the GUIDs of the OA applications installed on this drive object.

r4959[0...15]: GUID of OA application 1

r4959[16]: Major information of OA application 1

r4959[17]: Minor information of OA application 1

r4959[18...33]: GUID of OA application 2

r4959[34]: Major information of OA application 2

r4959[35]: Minor information of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960

Notice: If there is no OA application, then it is not possible to access an index.

r4960[0...n] OA DO-specific GUID drive object / OA DO GUID DO

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4952	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the GUIDs of this drive object of the OA applications installed on the memory card/device memory.

r4960[0...15]: GUID of this drive object of OA application 1

r4960[16]: Major information of this drive object of OA application 1

r4960[17]: Minor information of this drive object of OA application 1

r4960[18...33]: GUID of this drive object of OA application 2

r4960[34]: Major information of this drive object of OA application 2

r4960[35]: Minor information of this drive object of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959

Notice: If there is no OA application, then it is not possible to access an index.

p4961[0...n] OA DO-specific logbook module selection / OA DO log module

All objects	**Can be changed:** T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** r4950	**Func. diagram:** -
	P-Group: OEM range	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Only for service purposes.

r4975 OA invalid number / OA inv no.

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: OEM range	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the number of invalid OA applications installed on the memory card/device memory.

Dependency: Refer to: r4976, r4978, r4979

Note: OA: Open Architecture (OA application)

r4976 OA invalid identifier total length / OA inv ID tot_lgth

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: OEM range	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the total length of the IDs of all the invalid OA applications installed on the memory card/device memory.

Dependency: Refer to: r4975, r4978, r4979

Note: The identifier of an invalid OA application comprises a maximum of 8 characters plus separator.

r4978[0...n] OA invalid identifier / OA inv ID

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** r4976	**Func. diagram:** -
	P-Group: OEM range	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the IDs of all the invalid OA applications installed on the memory card/device memory.
r4978[0...8]: Identifier of invalid OA application 1
r4978[9...17]: Identifier of invalid OA application 2, ...

Dependency: Refer to: r4975, r4976, r4979

Notice: If there is no invalid OA application, then it is not possible to access an index.

r4979[0...n] OA invalid error code / OA inv error code

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4975	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the error code of the invalid OA applications installed on the memory card/device memory.

r4979[0]: Fault value of OA application 1

r4979[1]: Fault value of OA application 2, ...

Dependency: Refer to: r4975, r4976, r4978

Notice: If there is no invalid OA application, then it is not possible to access an index.

Note: The value in the error code must be interpreted in binary form. The bits have the following meaning:

Bit 0: Incompatible OA interface version.

Bit 1: OA application could not be loaded.

Bit 2: Incorrect description files.

Bit 3: OA application does not define a CPU type.

Bit 4: OA application for this device not supported (incorrect CPU type).

Bit 5: OA application for this device not supported (incorrect type ID).

Bit 6: Incorrect description files (Const/Startup incompatible).

r4985 OA number / OA no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	-

Description: Displays the number of OA applications installed on the memory card/device memory.

Dependency: Refer to: r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note: OA: Open Architecture (OA application)

r4986 OA identifier total length / OA id tot_length

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	144	-

Description: Displays the total length of the IDs of all the OA applications installed on the memory card/device memory.

Dependency: Refer to: r4985, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note: The identifier of an OA application comprises a maximum of 8 characters plus separator.

r4987 OA GUID total length / OA GUID tot_length

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	288	-

Description: Displays the total length of the GUIDs of all the OA applications installed on the memory card/device memory.

Dependency: Refer to: r4985, r4986, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note: The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information.
GUID: Globally Unique IDentifier

r4988[0...n] OA identifier / OA ID

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4986	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the IDs of all the OA applications installed on the memory card/device memory.
r4988[0...8]: Identifier of OA application 1
r4988[9...17]: Identifier of OA applications 2, ...

Dependency: Refer to: r4985, r4986, r4987, r4989, r4990, r4991, r4992, r4993, r4994

Notice: If there is no OA application, then it is not possible to access an index.

r4989[0...n] OA version / OA version

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of all the OA applications installed on the memory card/device memory.
r4989[0]: Version of OA application 1
r4989[1]: Version of OA application 2, ...

Dependency: Refer to: r4985, r4986, r4987, r4988, r4990, r4991, r4992, r4993, r4994

Notice: If there is no OA application, then it is not possible to access an index.

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4990[0...n] OA interface version / OA interf_vers

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the interface version of all the OA applications installed on the memory card/device memory.
r4990[0]: Interface version of OA application 1
r4990[1]: Interface version of OA applications 2, ...

Dependency: Refer to: r4985, r4986, r4987, r4988, r4989, r4991, r4992, r4993, r4994

Notice: If there is no OA application, then it is not possible to access an index.

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4991[0...n] OA GUID / OA GUID

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4987	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the GUID of all the OA applications installed on the memory card/device memory.

r4991[0...15]: GUID of OA application 1

r4991[16]: Major information of OA application 1

r4991[17]: Minor information of OA application 1

r4991[18...33]: GUID of OA application 2

r4991[34]: Major information of OA application 2

r4991[35]: Minor information of OA application 2, ...

Dependency: Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4992, r4993, r4994

Notice: If there is no OA application, then it is not possible to access an index.

r4992[0...n] OA GUID ES / OA GUID ES

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4987	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the GUID of all the OA applications installed on the memory card/device memory.

r4992[0...15]: GUID of OA application 1

r4992[16]: Major information of OA application 1

r4992[17]: Minor information of OA application 1

r4992[18...33]: GUID of OA application 2

r4992[34]: Major information of OA application 2

r4992[35]: Minor information of OA application 2, ...

Dependency: Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4993, r4994

Notice: If there is no OA application, then it is not possible to access an index.

r4993[0...n] OA activation status / OA act stat

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** r4985	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	-

Description: Displays the activation status of the OA applications installed on the memory card/device memory.

r4993[0]: Activates OA application 1

r4993[1]: Activates OA application 2, ...

Value:
0: OA application inactive
1: OA application active

Dependency: Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4994

Notice: If there is no OA application, then it is not possible to access an index.

r4994[0...n] OA properties / OA property

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Func. diagram:** -
P-Group: OEM range	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the properties of all the OA applications installed on the memory card/device memory.

r4994[0]: Version of OA application 1

r4994[1]: Version of OA application 2, ...

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Properties diagnostics bit 0	Yes	No	-
01	Properties diagnostics bit 1	Yes	No	-
02	Properties diagnostics bit 2	Yes	No	-
03	OEM	No	Yes	-
04	Properties diagnostics bit 4	Yes	No	-
05	Properties diagnostics bit 5	Yes	No	-

Dependency: Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993

Notice: If there is no OA application, then it is not possible to access an index.

Note: The parameter is only for internal Siemens diagnostics.

p5300[0...n] Autotuning selection / Autotuning select

VECTOR_G (J_estimator)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** 5045
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	2	0

Description: Sets activation/de-activation of the "auto tuning" function.

To permanently save the values that have been set, the parameters must be saved in a non-volatile memory (p0977 = 1).

The individual measuring steps can be configured in the following parameters:

p5301 for "One Button Tuning" (p5300=1) - this function is being prepared

p5302 for "Online Tuning" (p5300=2)

Sets activation/de-activation of the "onlinetuning" function. The following parameters are written to when online tuning is activated: p430, p1160, p1400, p1413 - p1426, p1428, p1429, p1433 - p1435, p1441, p1460 - p1465, p1498, p1513, p1656 - p1676, p2533 - p2539, p2567, p2572, p2573, p5280

Value:
-1: Reset (restore default values)
0: Inactive
1: One Button Tuning
2: Online Tuning

Dependency: The prerequisite for the "auto tuning" function is that the "Moment of inertia estimator" function module is activated (r0108.10).

Refer to: p5301, p5302

Warning: Only the motor measuring system is taken into account when optimizing the position controller. If an external measuring system is used for the position control, then this can result in an unstable controller setting.

Caution: For some drive trains, the "onlinetuning" function can result in unstable settings. (motor makes a whistling sound). This is especially the case for high load moments of inertia, which are coupled to the motor through a low-frequency connection/coupling. This case, parameter p5272 or p5273 must be reduced.

Note: If p5300 = -1:

Autotuning is deactivated, and p5300 is automatically set to 0. In addition, the default setting values for the speed and position controller are restored.

If p5300 = 0:

Online tuning is inactive. To permanently save the values determined for the speed and position controllers, the parameters must be saved in a non-volatile memory (p0977 = 1).

The results of the moment of inertia estimator can be reset using p5300 = 0. The moment of inertia and the tuning parameters must be redetermined after p5300>0.

If p5300 = 1:

One Button Tuning is active. The moment of inertia is determined once using a test signal. The controller parameters and current setpoint filters are additionally determined once using a noise signal as excitation source.

If p5300 = 2:

Onlinetuning is active. The moment of inertia is estimated. The controller parameters are recalculated if the moment of inertia noticeably changes.

p5301[0...n] One Button Tuning configuration / OBT config

VECTOR_G (J_estimator)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0111 bin

Description: Setting the functions for One Button Tuning (p5300 = 1).

As long as autotuning is still active (p5300 <> 0), it is not possible to change the configuration.

A test signal is required for some measuring steps. Parameters p5307 to p5309 must be observed for this purpose.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setting Kp	Yes	No	-
01	Setting current setpoint filter	Yes	No	-
02	Moment of inertia estimator	Yes	No	-
07	Synchronized axes	Yes	No	-

Dependency: Refer to: p5300

Note: Re bit 00:

The speed controller gain is determined and set using a noise signal.

Re bit 01:

Possibly required current setpoint filters are determined and set using a noise signal.

As a consequence, a higher dynamic performance can be achieved in the speed control loop.

Re bit 02:

Using this bit, the moment of inertia is determined using a test signal. If this bit is not set, then the load moment of inertia must be manually parameterized in parameter p1498. The test signal must have been previously set using parameters p5308 and p5309.

Re bit 07:

With this function, these axes are adapted to the dynamic response set in p5275. This is necessary for interpolating axes. The time in p5275 should be set according to the axis with the lowest dynamic response.

p5302[0...n] Online tuning configuration / OT config

VECTOR_G (J_estimator)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 1100 bin

Description: Setting the functions for online tuning (p5300 = 2).

As long as autotuning is still active (p5300 <> 0), it is not possible to change the configuration.

A noise signal is required for some measuring steps.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setting Kp	Yes	No	-
01	Setting current setpoint filter	Yes	No	-
02	Moment of inertia estimator	Yes	No	-
03	Moment of inertia estimator	Cyclic	Once	-
06	Current setpoint filter adaptation	Yes	No	-
07	Synchronized axes	Yes	No	-

Dependency: This parameter can only be changed if p5300=0 has been parameterized.

Refer to: p5300

Caution: Please note the general conditions of the moment of inertia estimator, online tuning and adaptive resonance filter. See Function Manual FH1.

Note: Re bit 00: being prepared

The speed controller gain is determined and set using a noise signal.

Re bit 01: being prepared

Possibly required current setpoint filters are determined and set using a noise signal.

As a consequence, a higher dynamic performance can be achieved in the speed control loop.

Re bit 02:

Using this bit, the moment of inertia is determined while traversing (moment of inertia estimator). If this bit is not set, then the load moment of inertia must be manually parameterized in parameter p1498.

Re bit 03:

If "once" has been parameterized, then after successfully determining the moment of inertia p1498 the moment of inertia estimator is deactivated.

If "Cyclic" has been parameterized, then the moment of inertia is continually determined and the controller parameters adapted. After the moment of inertia has been successfully determined (r1407.26=1), we recommend that the parameter is saved. This means that after power on, the controller does not have to re-stabilize.

Re bit 06:

The adaptation of a current setpoint filter can be set here. See p5280-p5285.

This adaptation may be necessary if a mechanical resonance frequency changes in operation. It can also be used to dampen a fixed resonance frequency. Once the control loop has stabilized, this bit should be deactivated and the determined parameters saved in a non-volatile fashion.

Re bit 07:

With this function, these axes are adapted to the dynamic response set in p5275. This is necessary for interpolating axes. The time in p5275 should be set according to the axis with the lowest dynamic response.

r5397 Mot_temp_mod 3 ambient temperature image p0613 / AmbTmp image p0613

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 8017
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the ambient temperature for motor temperature model 3.

This value is used to calculate the utilization display (p0034).

The parameter value is an image of p0613.

Dependency: Refer to: r0034

Note: Users cannot see and change parameter p0613 (only Siemens internal).

r5398[0...n] Mot_temp_mod 3 alarm threshold image p5390 / A thr image p5390

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the alarm threshold for monitoring the motor temperature for motor temperature model 3.
This value is used to calculate the utilization display (p0034).
The parameter value is an image of p5390.

Note: Users cannot see and change parameter p5390 (only Siemens internal).

r5399[0...n] Mot_temp_mod 3 fault threshold image p5391 / F thr image p5391

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** MDS, p0130	**Func. diagram:** 8017
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: ASM, REL, FEM	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Sets the fault threshold for monitoring the motor temperature for motor temperature model 3.
Fault F07011 is output after the fault threshold is exceeded.
The parameter value is an image of p5391.

Note: Users cannot see and change parameter p5391 (only Siemens internal).

r5600 Pe energy saving mode ID / Pe mode ID

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the PROFIenergy mode ID of the effective energy saving mode.

Value:
0: POWER OFF
2: Energy-saving mode 2
255: Ready

Note: Pe: PROFIenergy profiles

p5602[0...1] Pe energy-saving mode pause time minimal / Pe mod t_pause min

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2381
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
300000 [ms]	4294967295 [ms]	[0] 300000 [ms] [1] 480000 [ms]

Description: Sets the minimum possible pause time for the energy-saving mode.
The value is the sum of the following times:
- Energy-saving mode transition time
- Operating state transition time regular
- Energy-saving mode, dwell time minimal

Index:
[0] = Reserved
[1] = Mode 2

Note: It is not permissible that the value is less than the sum of the "energy-saving mode transition time" and the "operating state transition time" (system properties).
Pe: PROFIenergy profiles

p5606[0...1] Pe energy-saving mode dwell time maximum / Pe t_dwell max

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	4294967295 [ms]	4294967295 [ms]

Description: Sets the maximum dwell time for the energy-saving mode.

Index: [0] = Reserved
[1] = Mode 2

Note: Pe: PROFIenergy profiles

p5611 Pe energy-saving properties general / Pe properties gen

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the general properties for energy-saving.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Inhibit PROFIenergy control commands	Yes	No	-
01	Drive initiates OFF1 when transitioning to energy-saving mode	Yes	No	-
02	Trans into energy-saving mode from PROFIdrive state S4 poss	Yes	No	-

Note: Pe: PROFIenergy profiles
PROFIdrive state S4: operation

p5612[0...1] Pe energy-saving properties mode-dependent / Pe properties mod

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	[0] 0110 bin [1] 0000 bin

Description: Sets the mode-dependent properties for energy-saving.

Index: [0] = Reserved
[1] = Mode 2

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Reserved	Yes	No	-

Note: Pe: PROFIenergy profiles

r5613.0...1 CO/BO: Pe energy-saving active/inactive / Pe save act/inact

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output for the state display PROFIenergy energy saving active or inactive.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Pe active	Yes	No	-
01	Pe inactive	Yes	No	-

Note: Bit 0 and bit 1 are inverse of one another.

Pe: PROFIenergy profiles

p5614 BI: Pe set switch-on inhibit signal source / Pe sw on_inh s_src

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to set in the PROFIdrive state S1 "switching-on inhibit".

Dependency: Refer to: r5613

Note: Pe: PROFIenergy profiles

p6397 Motor module phase shift second system / MM ph_sh 2nd sys

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	0

Description: Sets the phase shift of the second system with respect to the first system for the motor module for a 12-pulse gating unit.

Value:
0: Shift by +30 °
1: Shift by -30 °
2: Shift by 0 °
3: Shift by +90 °
4: Shift by -90 °
5: Shift by +120 °
6: Shift by -120 °
7: Shift by +150 °
8: Shift by -150 °

Dependency: Refer to: p7003

Notice: The parameter is only evaluated if p7003 = 2.

Note: For p6397 = 0 the following applies: The second systems leads for a positive direction of rotation.

For p6397 = 1 the following applies: The second systems lags for a positive direction of rotation.

p6700[0...n] Voltage model angle smoothing / Volt_mod angle sm

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: ASM, PEM, REL	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	100 [ms]	0 [ms]

Description: Sets the smoothing of the flux orientation of the voltage model for a separately excited synchronous motor.

p6870[0...n] VSM offset voltage u1 - u2 / VSM offset u1 - u2

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100.000 [V]	100.000 [V]	0.000 [V]

Description: Offset voltage between phases L1 and L2 for the Voltage Sensing Module (VSM). The value is determined with the drive switched-off and stationary if p6903 is set. A fixed value can be entered here if p6903 is not set. This is overwritten as soon as p6903 is enabled.

Dependency: Refer to: p6903

p6871[0...n] VSM offset voltage u2 - u3 / VSM offset u2 - u3

VECTOR_G (n/M)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-100.000 [V]	100.000 [V]	0.000 [V]

Description: Offset voltage between phases L2 and L3 for the Voltage Sensing Module (VSM). The value is determined with the drive switched-off and stationary if p6903 is set. A fixed value can be entered here if p6903 is not set. This is overwritten as soon as p6903 is enabled.

Dependency: Refer to: p6903

p6903[0...n] Voltage actual values, offset mode / U_act_0 offsetMode

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** p0150	**Func. diagram:** -
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: Sets the offset mode for voltage actual value sensing.

When the mode is enabled (p6903 = 0), for a pulse inhibit for stator and excitation and zero speed, the offset calibration is automatically started.

Offset calibration is inhibited when the mode is inhibited (p6903 = 1). Values last determined in p3658 and p3659 can be saved. However, they can also be overridden.

Value:
0: Offset calculation enabled
1: Offset calculation inhibited

Dependency: Refer to: p6870, p6871

Note: Offset mode can only be set for actual value sensing functions that are available in the hardware.

r6991[0...4] Recorder settings display / Rec setting displ

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the values calculated for the recorder

Index:
[0] = Actual trace number
[1] = Actual trace duration
[2] = Actual pretrigger time
[3] = Actual post trigger time
[4] = Actual number of signals

Dependency: Refer to: p6999

r6992.0...14 CO/BO: Recorder status word / Rec ZSW

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status word of the recorder.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Internal activation	Set	Not set	-
01	External activation	Set	Not set	-
02	Internal trigger	Set	Not set	-
03	External trigger 1.1	Set	Not set	-
04	External trigger 1.2	Set	Not set	-
05	External trigger 1.3	Set	Not set	-
06	External trigger 1.4	Set	Not set	-
07	External trigger 2.1	Set	Not set	-
08	External trigger 2.2	Set	Not set	-
09	External trigger 2.3	Set	Not set	-
10	Hardware trigger	Set	Not set	-
11	Data buffering running	Yes	No	-
12	Post trigger time running	Yes	No	-
13	Data being stored	Yes	No	-
14	Data buffer full	Yes	No	-

Dependency: Refer to: p6993, p6994, r6997, p6998, p6999

p6993[0...2] Recorder trigger 2 bit mask / Rec trig 2 mask

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0001 hex

Description: Sets the bit mask for trigger signal 2 (p6994) of the recorder.

Trigger 2.1 is formed by ANDing the signal source in p6994[0] and the bit mask in p6993[0].

Trigger 2.2 is formed by ANDing the signal source in p6994[1] and the bit mask in p6993[1].

Trigger 2.3 is formed by ANDing the signal source in p6994[2] and the bit mask in p6993[2].

Index:
[0] = Trigger 2.1
[1] = Trigger 2.2
[2] = Trigger 2.3

Dependency: Refer to: p6994

p6994[0...2] CI: Recorder trigger 2 signal source / Rec trig 2 S_src

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for trigger 2 of the recorder.
Trigger 2.1 is formed by ANDing the signal source in p6994[0] and the bit mask in p6993[0].
Trigger 2.2 is formed by ANDing the signal source in p6994[1] and the bit mask in p6993[1].
Trigger 2.3 is formed by ANDing the signal source in p6994[2] and the bit mask in p6993[2].

Index:
[0] = Trigger 2.1
[1] = Trigger 2.2
[2] = Trigger 2.3

Dependency: Refer to: p6993

p6996[0...63] Recorder signals / Rec sig

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	996553699	0

Description: Setting to parameterize the signals for the recorder.

r6997 CO: Recorder sequencer state / Rec state

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: Closed-loop control	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	60	-

Description: Displays the state of the sequencer for the recorder.

Value:
0: Not active
10: Active
20: Post trigger time running
30: Prepare data save operation
40: Start data save
50: End data save
60: Configuration

p6998[0...4] BI: Recorder trigger 1 signal sources / Rec trig 1 S_src

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal sources to activate and trigger the recorder.

Index:
[0] = Activating
[1] = Trigger 1.1
[2] = Trigger 1.2
[3] = Trigger 1.3
[4] = Trigger 1.4

p6999[0...4] Recorder parameterization / Rec par

B_INF (Recorder), VECTOR_G (Recorder)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 8144
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2000	[0] 1 [1] 1000 [2] 900 [3] 0 [4] 0

Description: Setting to parameterize the recorder.

The recorder supplies up to 64 internal variables (depending on the parameterization). The maximum recording time is 2000 ms, the variables are acquired in the current controller sampling time – and a pretrigger can be set. The values can then be acyclically written to the memory card. The development and system test departments have the software necessary to decode the content.

Index:
[0] = Enable
[1] = Recording time
[2] = Pre-trigger time
[3] = Output message
[4] = Recording factor

Note: Re index [0]:

Enables or disables the function.

p6999[0] = 0 inhibit the function.

p6999[0] = 1 enable the function. A POWER ON is required after the enable.

Re index [1]:

Sets the recording time, [ms]. The value is discretized with the current controller sampling time.

Re index [2]:

Sets the pretrigger time, [ms]. This time is included in the recording time and cannot be longer than the recording time p6999[1]. The value is discretized with the current controller sampling time.

Re index [3]:

Enables or disables the output of message A49998 when the trigger event is triggered.

Re index [4]:

p6999[4] = n, n = 0 ...4

Recording with the factor, which extends the record time p6999[1] and the pre-trigger time p6999[2] 2^n times, and reduces the number of signals 2^n times.

Example:

p6999[1] = 2000, p6999[2] = 1000, p6999[4] = 4

--> recording time: 2000 ms * 2^4 = 32 s, pre-trigger time:1000 ms * 2^4 = 16 s, number of signals 128/16 = 8.

When setting p6999[4] to 0, the results are as follows:

--> recording time: 2000 ms , pre-trigger time:1000 ms, number signals 128. The maximum number of signals depends on the drive object.

r7000 CO: Par_circuit No. of active power units / Qty active PU

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the active power units for a parallel circuit configuration.

Dependency: Refer to: p7001

p7001[0...n]	Par_circuit power units enable / PU enable		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	1

Description: Enables the power units in the parallel circuit configuration.

Value:
0: Deactivated
1: Activated

Dependency: Refer to: r7000

Note: For motors with separate winding systems (p7003 = 1) it is not possible to inhibit an individual power unit.

p7001 is automatically reset if a power unit is de-activated via p0125 or p0895.

r7002[0...n]	CO: Par_circuit status power units / Status PU		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	-

Description: Display and connector output for the status of the power units in a parallel connection.

Value:
0: Pulses inhibited
1: Pulses enabled

Dependency: Refer to: r7000, p7001

p7003	Par_circuit winding system / Wind_sys		
VECTOR_G (Parallel)	**Can be changed:** C2(2)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Converter	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	2	0

Description: Specifies the motor winding system when power units are connected in parallel.

Value:
0: One-winding system
1: Several separate winding systems or motors
2: Two separate offset winding systems

Dependency: Re p7003 = 2:

In order to permit separate, offset winding systems, wobbulation must first be deactivated (p1810.2 = 0). The magnitude and direction of the offset is parameterized in p6397.

When exiting commissioning, the circulating current control is automatically deactivated (p7035 = 0), and the compensation of the valve interlocking times is replaced by the appropriate stator resistance adaptation (p1780.7 = 1).

Refer to: p1802, p6397

Note: Re p7003 = 0:

- the motor data identification routine (p1910) determines the stator resistance and the cable resistance. The cable resistance of an individual Motor Module is entered into p0352.

- the current symmetrizing is activated as standard after the motor data identification routine (p7035 = 1).

- individual Motor Modules can be activated and de-activated (p7001).

Re p7003 = 1, 2:

- the motor data identification routine (p1910) determines the total (overall) resistance. The cable resistance is not measured, but instead, entered as a component of the total resistance (refer to p0352).

- all Motor Modules are activated. It is not possible to de-activate a Motor Module.

p7010 Par_circuit current dissymmetry alarm threshold / i_dissym A thresh

VECTOR_G (Parallel)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
2 [%]	100 [%]	20 [%]

Description: Sets the alarm threshold to detect current dissymmetry in the parallel circuit configuration.

The deviation between the measured values and average value is evaluated.

The specified value is referred to the rated power unit current (p7251[0]).

Dependency: Refer to: r7251

p7011 Par_circuit DC link voltage dissymmetry alarm threshold / Vdc_dissym A thrsh

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
2 [%]	100 [%]	10 [%]

Description: Sets the alarm threshold to detect dissymmetry of the DC link voltages in the parallel circuit configuration.

The deviation between the measured values and average value is evaluated.

The specified value is referred to the rated link voltage.

p7015 Par_circuit holding brake power unit data set / Brake PDS

VECTOR_G (Parallel)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2701, 2814
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	99

Description: Sets the power unit data set for a parallel connection via which the holding brake is controlled.

Value:
0: Power unit data set 0
1: Power unit data set 1
2: Power unit data set 2
3: Power unit data set 3
4: Power unit data set 4
5: Power unit data set 5
6: Power unit data set 6
7: Power unit data set 7
99: No holding brake connected

Dependency: Refer to: p0120, p0121

Note: PDS: Power unit Data Set

Example:

3 power units are connected in parallel and the holding brake is connected to power unit 1.

p0120 = 3

p0121[0] = component number of power unit 0

p0121[1] = component number of power unit 1 (with holding brake)

p0121[2] = component number of power unit 2

--> p7015 = 1

r7020[0...n] CO: Par_circuit deviation current in phase U / Phase U curr dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the deviation between the measured current actual value of phase U and the average value as peak value.

The maximum deviation from the average value is displayed in r7025.

Dependency: Refer to: r7021, r7022, r7025

r7021[0...n] CO: Par_circuit deviation current in phase V / Phase V curr dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the deviation between the measured current actual value of phase V and the average value as peak value.

The maximum deviation from the average value is displayed in r7026.

Dependency: Refer to: r7020, r7022, r7026

r7022[0...n] CO: Par_circuit deviation current in phase W / Phase W curr dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the deviation between the measured current actual value of phase W and the average value as peak value.

The maximum deviation from the average value is displayed in r7027.

Dependency: Refer to: r7020, r7021, r7027

r7025 CO: Par_circuit max. deviation currents phase U / Phase U Max i_dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the maximum absolute deviation of the measured current actual values of phase U from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7020.

Dependency: Refer to: r7020, r7026, r7027

r7026 CO: Par_circuit max. deviation currents phase V / Phase V Max i_dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the maximum absolute deviation of the measured current actual values of phase V from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7021.

Dependency: Refer to: r7021, r7025, r7027

r7027 CO: Par_circuit max. deviation currents phase W / Phase W Max i_dev

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the maximum absolute deviation of the measured current actual values of phase W from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7022.

Dependency: Refer to: r7022, r7025, r7026

r7030[0...n] CO: Par_circuit DC link voltage deviation / Vdc deviation

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the deviation of the measured DC link voltage from the average value.

The maximum deviation from the average value is displayed in r7031.

Dependency: Refer to: r7031

r7031 CO: Par_circuit DC link voltage maximum deviation / Vdc deviation max.

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the maximum absolute deviation of the measured DC link voltage from the average value.

The deviation of the individual voltages from the average value is displayed in r7030.

Dependency: Refer to: r7030

p7035[0...n] Par_circuit circulating current control operating mode / I_cct_ctrl mode

VECTOR_G (Parallel)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	1

Description: Sets the operating mode of the circulating current control.
The circulating current control ensures symmetrical distribution of the total currents to the individual converters.

Value:
0: Circulating current control de-activated
1: Circulating current control activated

Dependency: Circulating current control is not possible for separate, offset motor winding systems (p7003 = 2).

p7036[0...n] Par_circuit circulating current control proportional gain / Circ_I Kp

VECTOR_G (Parallel)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00000 [ohm]	200.00000 [ohm]	0.00000 [ohm]

Description: Sets the proportional gain for the circulating current controller.
The parameter is pre-set to the cable resistance.

p7037[0...n] Par_circuit circulating current control integral time / I_circ Tn

VECTOR_G (Parallel)	**Can be changed:** U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	2.0	1000.0	4.0

Description: Sets the integral time of the circulating current controller.
The parameter is referred to the current controller sampling time (p0115[0]).

Dependency: Refer to: p0115

p7038[0...n] Par_circuit circulating current control limit / I_circ limit

VECTOR_G (Parallel)	**Can be changed:** U, T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Func. diagram:** -
	P-Group: Modulation	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1 [%]	100 [%]	50 [%]

Description: Sets the limit of the circulating current controller output values.
The parameter is, depending on the phase, referred to the valve lockout times (p1828, p1829, p1830).

p7040[0...n] Par_circuit correction valve lockout time phase U / Comp t_lockout U

VECTOR_G (Parallel)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase U (p1828).

The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.

Dependency: Refer to: p1828

p7042[0...n] Par_circuit correction valve lockout time phase V / Comp t_lockout V

VECTOR_G (Parallel)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase V (p1829).

The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.

Dependency: Refer to: p1829

p7044[0...n] Par_circuit correction valve lockout time phase W / Comp t_lockout W

VECTOR_G (Parallel)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Modulation	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1000000.00 [µs]	1000000.00 [µs]	0.00 [µs]

Description: For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase W (p1830).

The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.

Dependency: Refer to: p1830

r7050[0...n] Par_circuit circulating current phase U / Circ_I_phase U

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the circulating current of phase U as peak value.

r7051[0...n] Par_circuit circulating current phase V / Circ_I_phase V

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the circulating current of phase V as peak value.

r7052[0...n] Par_circuit circulating current phase W / Circ_I_phase W

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [A]	- [A]	- [A]

Description: Displays the circulating current of phase W as peak value.

r7100[0...99] Par_circuit ring buffer fault/alarm code / Fault/alarm code

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

Displays the fault/alarm code.

Dependency: Refer to: r7101, r7102, r7103

Note: The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7101[0...99] Par_circuit ring buffer data set number / Ring buffer Ds_no

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

p7101 < 100:

Displays the Power unit Data Set number (PDS).

p7101 >= 100:

Displays the Voltage Sensing Module Data Set number (VSMDS)

Dependency: Refer to: r7100, r7102, r7103

Note: The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7102[0...99] Par_circuit ring buffer fault/alarm received / F/A received

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

Displays the relative system runtime when the fault or alarm occurred.

Dependency: Refer to: r7100, r7101, r7103

Note: The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7103[0...99] Par_circuit ring buffer fault/alarm gone / F/A gone

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

Displays the relative system runtime when the fault or alarm was withdrawn.

Dependency: Refer to: r7100, r7101, r7102

Note: The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7200[0...n] Par_circuit power unit overload I2t / PU overload I2t

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the overload of the particular power unit in a parallel circuit configuration calculated using the I2t function.

The maximum value of all power units is displayed in r0036.

r7201[0...n] CO: Par_circuit power unit temperatures max. inverter / PU temp max inv

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the maximum inverter temperature in the power unit for a parallel circuit configuration.

The maximum value of all power units is displayed in r0037[0].

r7202[0...n] Par_circuit power unit temperatures max. depletion layer / PU TempMaxDepLayer

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the maximum depletion layer temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[1].

r7203[0...n] CO: Par_circuit power unit temperatures max. rectifier / PU temp max rect

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the maximum rectifier temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[2].

r7204[0...n] CO: Par_circuit power unit temperatures air intake / PU temp air intake

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the air intake temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[3].

r7205[0...n] Par_circuit power unit temperatures electronics / PU temp electr

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the temperature of the electronics module in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[4].

r7206[0...n] Par_circuit power unit temperatures inverter 1 / PU temp inv 1

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[5].

r7207[0...n] Par_circuit power unit temperatures inverter 2 / PU temp inv 2

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 2 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[6].

r7208[0...n] Par_circuit power unit temperatures inverter 3 / PU temp inv 3

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 3 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[7].

r7209[0...n] Par_circuit power unit temperatures inverter 4 / PU temp inv 4

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 4 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[8].

r7210[0...n] Par_circuit power unit temperatures inverter 5 / PU temp inv 5

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 5 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[9].

r7211[0...n] Par_circuit power unit temperatures inverter 6 / PU temp inv 6

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays the inverter temperature 6 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[10].

r7212[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp rect 1		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays rectifier temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[11].

r7213[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp rect 2		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays rectifier temperature 2 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[12].

r7214[0...n]	Par_circuit power unit temperatures depletion layer 1 / PU temp DepLayer 1		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[13].

r7215[0...n]	Par_circuit power unit temperatures depletion layer 2 / PU temp DepLayer 2		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 2 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[14].

r7216[0...n]	Par_circuit power unit temperatures depletion layer 3 / PU temp DepLayer 3		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 3 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[15].

r7217[0...n] Par_circuit power unit temperatures depletion layer 4 / PU temp DepLayer 4

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 4 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[16].

r7218[0...n] Par_circuit power unit temperatures depletion layer 5 / PU temp DepLayer 5

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 5 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[17].

r7219[0...n] Par_circuit power unit temperatures depletion layer 6 / PU temp DepLayer 6

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°C]	- [°C]	- [°C]

Description: Displays depletion layer temperature 6 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[18].

r7220[0...n] CO: Par_circuit drive output current maximum / Drv I_outp max

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum output current of the power unit.
The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067.

r7222[0...n] CO: Par_circuit absolute current actual value / I_act abs val

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 6_2	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays actual absolute current.
The summed value of all power units is displayed in r0068.

r7223[0...n]	**CO: Par_circuit phase current actual value phase U / I_phase U act val**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase U as peak value.
The summed value of all power units is displayed in r0069[0].

r7224[0...n]	**CO: Par_circuit phase current actual value phase V / I_phase V act val**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase V as peak value.
The summed value of all power units is displayed in r0069[1].

r7225[0...n]	**CO: Par_circuit phase current actual value phase W / I_phase W act val**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase W as peak value.
The summed value of all power units is displayed in r0069[2].

r7226[0...n]	**CO: Par_circuit phase current actual value phase U offset / I_phase U offset**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured offset of phase U as peak value.
The summed value of all power units is displayed in r0069[3].

r7227[0...n]	**CO: Par_circuit phase current actual value phase V offset / I_phase V offset**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured offset of phase V as peak value.
The summed value of all power units is displayed in r0069[4].

r7228[0...n]	**CO: Par_circuit phase current actual value phase W offset / I_phase W offset**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured offset of phase W as peak value.
The summed value of all power units is displayed in r0069[5].

r7229[0...n]	**CO: Par_circuit phase current actual value sum U, V, W / I_phase sum UVW**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 6_5	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [A]	- [A]	- [A]

Description: Displays the measured sum of the currents in phases U, V and W as instantaneous value.
The summed value of all power units is displayed in r0069[6].

r7230[0...n]	**CO: Par_circuit DC link voltage actual value / Vdc_act**		
B_INF (Parallel), VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 5_2	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the measured actual value of the DC link voltage.
The average value of all power units is displayed in r0070.

r7231[0...n]	**CO: Par_circuit phase voltage actual value phase U / U_phase U act val**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 5_3	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the actual voltage, phase U.
The average value of all power units is displayed in r0089[0].

r7232[0...n]	**CO: Par_circuit phase voltage actual value phase V / U_phase V act val**		
VECTOR_G (Parallel)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Displays, signals	**Units group:** 5_3	**Unit selection:** p0505
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [V]	- [V]	- [V]

Description: Displays the actual voltage, phase V.
The average value of all power units is displayed in r0089[1].

r7233[0...n] CO: Par_circuit phase voltage actual value phase W / U_phase W act val

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** 5_3	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min	**Max**	**Factory setting**
- [V]	- [V]	- [V]

Description: Displays the actual voltage, phase W.

The average value of all power units is displayed in r0089[2].

r7240[0...n] Par_circuit gating unit status word 1 / Gating unit ZSW1

VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: Displays, signals	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays status word 1 of the power unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault time-critical	ON	OFF	-
01	Gating unit mode bit 0	ON	OFF	-
02	Pulse enable	ON	OFF	-
03	Upper shutdown path	Inactive	Active	-
04	Lower shutdown path	Inactive	Active	-
05	Gating unit mode bit 1	ON	OFF	-
06	Gating unit mode bit 2	ON	OFF	-
07	Brake state	ON	OFF	-
08	Brake diagnostics	ON	OFF	-
09	Armature short-circuit braking	Active	Not active	-
10	Gating unit state bit 0	ON	OFF	-
11	Gating unit state bit 1	ON	OFF	-
12	Gating unit state bit 2	ON	OFF	-
13	Alarm status bit 0	ON	OFF	-
14	Alarm status bit 1	ON	OFF	-
15	Diagnostics 24 V	ON	OFF	-

r7250[0...4] Par_circuit power unit rated power / PU P_rated

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** 14_6	**Unit selection:** p0100
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [kW]	- [kW]	- [kW]

Description: Displays the rated power of the individual power units connected in parallel for various load duty cycles.

The sum of the rated powers of all power units connected in parallel is displayed in r0206.

Index:
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 cont duty cyc
[4] = S6 load duty cycle

Dependency: The value is displayed in [kW] or [hp].

Refer to: p0100, p0205

r7251[0...4] Par_circuit power unit rated current / PU PI_rated

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the rated current of the individual power units connected in parallel for various load duty cycles.

The sum of the rated currents of all power units connected in parallel is displayed in r0207.

Index:
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 cont duty cyc
[4] = S6 load duty cycle

Dependency: Refer to: p0205

r7252[0...4] Par_circuit maximum power unit current / PU I_max

B_INF (Parallel), VECTOR_G (Parallel)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum output current of the individual power units connected in parallel.

The sum of the maximum currents of all power units connected in parallel is displayed in r0209.

Index:
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = S1 cont duty cyc
[4] = S6 load duty cycle

Dependency: Refer to: p0205

r7740[0...n] IGBT power cycling counter valve 1 / IGBT load count 1

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 1.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 1:

1. Switch off the system and replace valve 1.

2. Switch on the system and acknowledge that valve 1 has been replaced (p7786.1 = 1).

--> the power cycling counter of valve 1 is reset (r7740 = 0).

3. Carry out a POWER ON (power off/on).

--> as a consequence p7786.1 is automatically set to 0.

r7741[0...n] IGBT power cycling counter valve 2 / IGBT load count 2

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 2.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 2:

1. Switch off the system and replace valve 2.
2. Switch on the system and acknowledge that valve 2 has been replaced (p7786.2 = 1).

--> the power cycling counter of valve 2 is reset (r7741 = 0).

3. Carry out a POWER ON (power off/on).

--> as a consequence p7786.2 is automatically set to 0.

r7742[0...n] IGBT power cycling counter valve 3 / IGBT load count 3

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 3.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 3:

1. Switch off the system and replace valve 3.
2. Switch on the system and acknowledge that valve 3 has been replaced (p7786.3 = 1).

--> the power cycling counter of valve 3 is reset (r7742 = 0).

3. Carry out a POWER ON (power off/on).

--> as a consequence p7786.3 is automatically set to 0.

r7743[0...n] IGBT power cycling counter valve 4 / IGBT load count 4

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 4.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 4:

1. Switch off the system and replace valve 4.
2. Switch on the system and acknowledge that valve 4 has been replaced (p7786.4 = 1).

--> the power cycling counter of valve 4 is reset (r7743 = 0).

3. Carry out a POWER ON (power off/on).

--> as a consequence p7786.4 is automatically set to 0.

r7744[0...n] IGBT power cycling counter valve 5 / IGBT load count 5

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 5.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 5:

1. Switch off the system and replace valve 5.
2. Switch on the system and acknowledge that valve 5 has been replaced (p7786.5 = 1).

--> the power cycling counter of valve 5 is reset (r7744 = 0).

3. Carry out a POWER ON (power off/on).

--> as a consequence p7786.5 is automatically set to 0.

r7745[0...n] IGBT power cycling counter valve 6 / IGBT load count 6

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of power cycling counter for valve 6.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: Refer to: p7786

Notice: After a valve has been replaced, the corresponding power cycling counter must be reset.

Note: The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 6:

1. Switch off the system and replace valve 6.
2. Switch on the system and acknowledge that valve 6 has been replaced (p7786.6 = 1).

--> the power cycling counter of valve 6 is reset (r7745 = 0).

3. Carry out a POWER ON (power off/on).
--> as a consequence p7786.6 is automatically set to 0.

r7758[0...19] KHP Control Unit serial number / KHP CU ser_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number of the Control Unit.

The individual characters of the serial number are displayed in the ASCII code in the indices.

For the commissioning software, the ASCII characters are displayed uncoded.

Dependency: Refer to: p7765, p7766, p7767, p7768

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: KHP: Know-How Protection

p7759[0...19] KHP Control Unit reference serial number / KHP CU ref ser_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the reference serial number for the Control Unit.

Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.

Dependency: Refer to: p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

- The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data".

- SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.

r7760 Write protection/know-how protection status / Wr_prot/KHP stat

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status for the write protection and know-how protection.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Write protection active	Yes	No	-
01	Know-how protection active	Yes	No	-
02	Know-how protection temporarily withdrawn	Yes	No	-
03	Know-how protection cannot be deactivated	Yes	No	-
04	Extended copy protection is active	Yes	No	-
05	Basic copy protection is active	Yes	No	-
06	Trace and measuring functions for diagnostic purposes active	Yes	No	-

Dependency: Refer to: p7761, p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

Re bit 00:

Write protection can be activated/deactivated via p7761 on the Control Unit.

Re bit 01:

The know-how protection can be activated by entering a password (p7766 ... p7768).

Re bit 02:

If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.

Re bit 03:

Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.

Re bit 04:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards/Control Units. This bit is only set if know-how protection is active and p7765 bit 00 is set.

Re bit 05:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and in p7765 bit 01 is set and not bit 00.

Re bit 06:

When know-how protection is activated, the drive data can be traced using the device trace function. This bit is only set if know-how protection is active and in p7765.2 is set.

p7761 Write protection / Write protection

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting for activating/de-activating the write protection for adjustable parameters.

Value:
0: Deactivate write protection
1: Activate write protection

Dependency: Refer to: r7760

Notice: While write protection is active, a download is prevented; however, it is still possible to restore the factory settings.

Note: Parameters with the "WRITE_NO_LOCK" attributes are excluded from the write protection.

A product-specific list of these parameters is also available in the corresponding List Manual.

p7762 Write protection multi-master fieldbus system access behavior / Fieldbus acc_behav

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet).

Value:
0: Write access independent of p7761
1: Write access dependent on p7761

Dependency: Refer to: r7760, p7761

p7763	**KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764**		
All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	500	1

Description: Sets the number of parameters for the OEM exception list (p7764[0...n]).
p7764[0...n], with n = p7763 - 1

Dependency: Refer to: p7764

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7764[0...n]	**KHP OEM exception list / KHP OEM excep list**		
B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** p7763	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection.
p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.
Refer to: p7763

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7764[0...n]	**KHP OEM exception list / KHP OEM excep list**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** p7763	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	[0] 7766 [1...499] 0

Description: OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection.
p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.
Refer to: p7763

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7765	**KHP configuration / KHP config**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0000 bin

Description: Configuration settings for know-how protection.

Re bit 00, 01:

When KHP is activated, this means that the OEM can define whether the parameters and DCC data encrypted on the memory card should be protected before using on other memory cards/Control Units.

Re bit 02:

This means that the OEM can define whether it is possible or not to trace the drive data using the device trace function although KHP is activated.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Extended copy protection - linked to the memory card and CU	Yes	No	-
01	Basic copy protection - linked to the memory card	Yes	No	-
02	Permit trace and measuring functions for diagnostic purposes	Yes	No	-

Dependency: Refer to: p7766, p7767, p7768

Note: KHP: Know-How Protection

For copy protection, the serial numbers of the memory card and/or Control Unit are checked.

The memory card copy protection and preventing data to be traced are only effective when the know-how protection has been activated.

Re bit 00, 01:

If both bits are inadvertently set to 1 (e.g. at the BOP), then the setting of bit 0 applies.

There is no copy protection if both bits are set to 0.

p7766[0...29] KHP password input / KHP passw input

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the password for know-how protection.

Example of a password:

123aBc = 49 50 51 97 66 99 dec (ASCII characters)

[0] = character 1 (e.g. 49 dec)

[1] = character 2 (e.g. 50 dec)

...

[5] = character 6 (e.g. 99 dec)

[29] = 0 dec (completes the entry)

Dependency: Refer to: p7767, p7768

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

When using the STARTER commissioning software, the password should be entered using the associated dialogs.

The following rules apply when entering the password:

- Password entry must start with p7766[0].
- No gaps are permissible in the password.
- Entering a password is completed when writing to p7766[29] (p7766[29] = 0 for passwords less than 30 characters).

Note: KHP: Know-How Protection

When reading, p7766[0...29] = 42 dec (ASCII character = "*") is displayed.

Parameters with the "KHP_WRITE_NO_LOCK" attribute are not involved in the know-how protection.

Parameters with the "KHP_ACTIVE_READ" attribute can be read even when know-how protection is activated.

A product-specific list of these parameters is also available in the corresponding List Manual.

p7767[0...29] KHP password new / KHP passw new

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the new password for know-how protection.

Dependency: Refer to: p7766, p7768

Note: KHP: Know-How Protection

When reading, p7767[0...29] = 42 dec (ASCII character = "*") is displayed.

p7768[0...29] KHP password confirmation / KHP passw confirm

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Confirms the new password for know-how protection.

Dependency: Refer to: p7766, p7767

Note: KHP: Know-How Protection

When reading, p7768[0...29] = 42 dec (ASCII character = "*") is displayed.

p7769[0...20] KHP memory card reference serial number / KHP mem ref ser_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the reference serial number for the memory card.

Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.

Dependency: Refer to: p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

- The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data".
- SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.

p7770 NVRAM action / NVRAM action

B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the action to be executed for NVRAM data.

At the end of the action the value is automatically set to 0.

Value:
0: Inactive
1: Load NVRAM data to parameters
2: Load parameters to NVRAM
3: Reset

Notice: After action p7770 = 1 no more pulses may be enabled.

After action p7770 = 2, it is essential that parameters are backed up (p0977 = 1) and that a warm restart is then performed (p0009 = 30, p0976 = 2, 3). This will apply the values written.

Note: If value = 1:

This action loads the NVRAM data to the parameters.

If value = 2:

This action loads the parameters to the NVRAM.

If value = 3:

This action sets parameters p7771 ... p7774 to the factory setting.

It is recommended to avoid placing unnecessary load on the subsequent upload/download operation.

p7775 NVRAM data backup/import/delete / NVRAM backup

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	17	0

Description: Setting to backup/import/delete NVRAM data.

NVRAM data are non-volatile data in the device (e.g. fault buffer).

For NVRAM data actions, the following data are excluded:

- Crash diagnostics
- CU operating hours counter
- CU temperature
- Safety logbook

Value:
0: Inactive
1: NVRAM data backup to memory card
2: Import NVRAM data from the memory card
3: Delete NVRAM data in the device
10: Error when clearing
11: Error when backing up, memory card not available
12: Error when backing up, insufficient memory space
13: Error when backing up
14: Error when importing, memory card not available
15: Error when importing, checksum error
16: Error when importing, no NVRAM data available
17: Error when importing

Notice: Re value = 2, 3:

These actions are only possible when pulses are inhibited.

Note: After the action has been successfully completed, the parameter is automatically set to zero.

The actions importing and deleting NVRAM data immediately initiate a warm restart.

If the procedure was not successfully completed, then an appropriate fault value is displayed (p7775 >= 10).

p7786[0...n] Service report / Service report

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS, p0120	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Service parameter to internally document repairs.

After a component has been replaced, this must be confirmed using p7786.x = 0/1.

When acknowledging a replacement, the "Generate report" function is automatically executed.
p7786.x is automatically set to 0 after POWER ON.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Control Interface Module (CIM) replaced	Yes	No	-
01	Valve 1 replaced	Yes	No	-
02	Valve 2 replaced	Yes	No	-
03	Valve 3 replaced	Yes	No	-
04	Valve 4 replaced	Yes	No	-
05	Valve 5 replaced	Yes	No	-
06	Valve 6 replaced	Yes	No	-
15	Generate log	Yes	No	-

Notice: This write process can take several minutes.

Note: The power unit involved can be assigned the correct P index using p0124 (power unit detection via LED).

p7788 Power unit sign-of-life monitoring tolerance window / PU SoL monit tol

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	1000	10

Description: Setting of the tolerance window for the sign of life monitoring for communication to the power unit.

Note: An active window is generated by means of DRIVE-CLiQ telegrams.
If more than one sign-of-life error appears in the window, then A30853 is output.
The lower the value in p7788, the greater the monitoring tolerance.

p7789 Power unit sign-of-life monitoring fault threshold / PU SoL monit F_thr

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1000	1

Description: Sets the number of consecutive sign-of-life errors that are tolerated for communication to the power unit.

Note: F30008 is output in the case of a fault.
The higher the value in the parameter, the higher the monitoring tolerance.

p7790[0...15] Component trace signal / Comp trace sig

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	9	[0] 2 [1] 3 [2] 4 [3] 7 [4] 8 [5] 9 [6] 5 [7] 0 [8] 6 [9] 1 [10...15] 0

Description: Sets the individual signals for the component trace.

For p7790[0...15] = 0, the component trace is deactivated.

Re index 0 ... 7:

The signals are set in p7790[0...7], whose characteristic is to be recorded over time.

If "No signal" is set for a trace channel, then the recording duration of the other time characteristics is increased.

Re index 8 ... 15:

The signals are set in p7790[8...15], whose instantaneous value is to be recorded.

Value:
0: No signal
1: Pulse frequency
2: Phase current U
3: Phase current V
4: Phase current W
5: IGBT chip temperature
6: Heat sink temperature
7: DC link voltage
8: Modulat_depth
9: Angle

Index:
[0] = Trace channel 0
[1] = Trace channel 1
[2] = Trace channel 2
[3] = Trace channel 3
[4] = Trace channel 4
[5] = Trace channel 5
[6] = Trace channel 6
[7] = Trace channel 7
[8] = Trace channel 8
[9] = Trace channel 9
[10] = Trace channel 10
[11] = Trace channel 11
[12] = Trace channel 12
[13] = Trace channel 13
[14] = Trace channel 14
[15] = Trace channel 15

Dependency: Refer to: p7791, p7792

Note: In the operation state, when a trigger event occurs, the trace data of the signals are saved in the component. The oldest trace data are overwritten after more than 5 trigger events.

The trigger event can be set in p7791.

By activating p7792, the trace data of the component is written to files on the non-volatile storage medium (memory card). Experts can then evaluate this data.

p7791 Component trace trigger / Comp trace trigger

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the trigger event for the component trace.

Value:
0: Overcurrent, overvoltage, ground fault, Uce
1: Time-critical message
2: Uce

Dependency: Refer to: p7790, p7792

Note: When the power unit detects an overcurrent condition, then A30001 is output.

When the power unit detects an overvoltage condition in the DC link, then A30002 is output.

When the power unit detects a ground fault, then A30021 is output.

When the power unit detects a Uce fault, then A30022 is output.

p7792 Upload component trace data / Upload comp trace

B_INF, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Converter	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting to upload and save the trace data of the component trace.

Experts can then evaluate this data.

For p7792 = 1, the trace data of the component is written to files on the memory card in a non-volatile fashion.

The parameter is then automatically set to zero.

Value:
0: Inactive
1: Upload and save active

Dependency: Refer to: p7790, p7791

Notice: Trace files of this component already available on the non-volatile storage medium are overwritten after backup has been activated.

p7820 DRIVE-CLiQ component component number / DQ compo_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.

Dependency: Refer to: p7821, p7822, r7823

p7821 DRIVE-CLiQ component parameter number / DQ para_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the parameter number to access a parameter of a DRIVE-CLiQ component.

Dependency: Refer to: p7820, p7822, r7823

p7822 DRIVE-CLiQ component parameter index / DQ para_index

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the parameter index to access a parameter of a DRIVE-CLiQ component.

Dependency: Refer to: p7820, p7821, r7823

r7823 DRIVE-CLiQ component read parameter value / Read DQ value

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the parameter value read from the DRIVE-CLiQ component.

Dependency: Refer to: p7820, p7821, p7822

r7825[0...6] DRIVE-CLiQ component versions / DQ comp version

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the firmware and EEPROM versions of the DRIVE-CLiQ component selected using p7828[1].

Index:
[0] = Reference firmware version
[1] = Actual firmware version
[2] = EEPROM0 version
[3] = EEPROM1 version
[4] = EEPROM2 version
[5] = EEPROM3 version
[6] = EEPROM4 version

Dependency: Refer to: p7828

Note: Re index 0:

Firmware version on the memory card/device memory.

Re index 1:

Actual firmware version of the DRIVE-CLiQ component.

Re index 2 ... 6:

Actual EEPROM version of the DRIVE-CLiQ component.

p7826 Firmware update automatic / FW update auto

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components.

Value:
0: Deactivated
1: Upgrade and downgrade
2: Upgrade

Notice: If this parameter is changed, it only becomes effective the next time that the drive system boots.

Note: The firmware is automatically updated when the system boots. The boot can take several minutes.

After the update has been completed, it is necessary to carry out a new POWER ON (power-down/power-up) for the components involved.

The firmware update procedure is displayed as follows:

Control Unit (LED RDY):

Flashes yellow with 0.5 Hz --> firmware is being updated.

Flashing yellow with 2 Hz --> POWER ON is required for the components involved.

Components involved:

Flashing red/green with 0.5 Hz --> firmware is being updated.

Flashing red/green with 2 Hz --> POWER ON of the components is required.

Only components from firmware version 2.5 support the red/green flashing at 2 Hz.

r7827 Firmware update progress display / FW update progress

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the progress when updating the firmware of the DRIVE-CLiQ components.

p7828[0...1] Firmware download component number / FW downl comp_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	399	0

Description: Sets the component number for the required DRIVE-CLiQ component.

Index 0:

Component number of the DRIVE-CLiQ component for which a firmware download is to be made.

Index 1:

Component number of the DRIVE-CLiQ component for which the reference firmware version, saved in r7825 on the memory card/device memory, is to be displayed.

Index: [0] = Firmware download
[1] = Reference firmware version

Dependency: Refer to: p0121, p0141, p0151, p7829

Note: For p7828[0] = 399, the firmware for all of the existing components is downloaded.

The firmware download is started with p7829 = 1.

p7829 Activate firmware download / FW download act

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	999	0

Description: Activating the firmware download for the DRIVE-CLiQ components specified in p7828.

1: Activate download.

-1: activate the download and carry out a reset.

0: Download successfully completed.

> 1: Fault code

011: DRIVE-CLiQ component has detected a checksum error.

015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.

018: Firmware version is too old and is not accepted by the component.

019: Firmware version is not suitable for the hardware release of the component.

101: After several communication attempts, no response from the DRIVE-CLiQ component.

140: Firmware file for the DRIVE-CLiQ component not available on the memory card/device memory.

143: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.

144: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card/device memory is defective.

145: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.

156: Component with the specified component number is not available.

Additional values:

Only for internal Siemens troubleshooting.

Dependency: Refer to: p7828

Note: p7829 is automatically set to 0 after the firmware has been successfully downloaded.

The new firmware only becomes active at the next system run-up.

p7830 Telegram diagnostics selection / Telegr diag sel

ENC, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Selects a telegram whose contents should be shown in r7831 ... r7836.

Value:
0: Reserved
1: First cyclic receive telegram sensor 1
2: First cyclic receive telegram sensor 2
3: First cyclic receive telegram sensor 3

Dependency: Refer to: r7831, r7832, r7833, r7834, r7835, r7836

r7831[0...23] Telegram diagnostics signals / Telegr diag sig

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	15157	-

Description: Displays the signals contained in the selected telegram (p7830).

Value:
0: UNUSED
1: UNKNOWN
102: SAPAR_ID_DSA_ALARM
110: SAPAR_ALARMBITS_FLOAT_0
111: SAPAR_ALARMBITS_FLOAT_1
112: SAPAR_ALARMBITS_FLOAT_2
113: SAPAR_ALARMBITS_FLOAT_3
114: SAPAR_ALARMBITS_FLOAT_4
115: SAPAR_ALARMBITS_FLOAT_5
10500: ENC_ID_TIME_PRETRIGGER
10501: ENC_ID_TIME_SEND_TELEG_1
10502: ENC_ID_TIME_CYCLE_FINISHED
10503: ENC_ID_TIME_DELTA_FUNMAN
10504: ENC_ID_SUBTRACE_CALCTIMES
10505: ENC_ID_SYNO_PERIOD
10516: ENC_ID_ADC_TRACK_A
10517: ENC_ID_ADC_TRACK_B
10518: ENC_ID_ADC_TRACK_C
10519: ENC_ID_ADC_TRACK_D
10520: ENC_ID_ADC_TRACK_A_SAFETY
10521: ENC_ID_ADC_TRACK_B_SAFETY
10523: ENC_ID_ADC_TEMP_1
10524: ENC_ID_SUBTRACE_TRACK_A
10525: ENC_ID_SUBTRACE_TRACK_B
10526: ENC_ID_ADC_TRACK_R
10532: ENC_ID_TRACK_AB_X
10533: ENC_ID_TRACK_AB_Y

10534: ENC_ID_OFFSET_CORR_AB_X
10535: ENC_ID_OFFSET_CORR_AB_Y
10536: ENC_ID_AB_ABS_VALUE
10537: ENC_ID_TRACK_CD_X
10538: ENC_ID_TRACK_CD_Y
10539: ENC_ID_TRACK_CD_ABS
10542: ENC_ID_AB_RAND_X
10543: ENC_ID_AB_RAND_Y
10544: ENC_ID_AB_RAND_ABS_VALUE
10545: ENC_ID_SUBTRACE_ABS_ARRAY
10546: ENC_ID_PROC_OFFSET_0
10547: ENC_ID_PROC_OFFSET_4
10550: ENC_ID_SUBTRACE_AMPL
10563: ENC_ID_ENCODER_TEMP
10564: ENC_SELFTEMP_ACT
10565: ENC_ID_MOTOR_TEMP_TOP
10566: ENC_ID_MOTOR_TEMP_1
10567: ENC_ID_MOTOR_TEMP_1_COD
10569: ENC_ID_MOTOR_TEMP_2_COD
10571: ENC_ID_MOTOR_TEMP_3_COD
10580: ENC_ID_RESISTANCE_1
10590: ENC_ID_ANA_CHAN_A
10591: ENC_ID_ANA_CHAN_B
10592: ENC_ID_ANA_CHAN_X
10593: ENC_ID_ANA_CHAN_Y
10596: ENC_ID_AB_ANGLE
10597: ENC_ID_CD_ANGLE
10598: ENC_ID_MECH_ANGLE_HI
10599: ENC_ID_RM_POS_PHI_COMMU
10600: ENC_ID_PHI_COMMU
10601: ENC_ID_SUBTRACE_ANGLE
10612: ENC_ID_DIFF_CD_INC
10613: ENC_ID_RM_POS_PHI_COMMU_RFG
10628: ENC_ID_MECH_ANGLE
10629: ENC_ID_MECH_RM_POS
10644: ENC_ID_INIT_VECTOR
10645: FEAT_INIT_VECTOR
10660: ENC_ID_SENSOR_STATE
10661: ENC_ID_BASIC_SYSTEM
10662: ENC_ID_REFMARK_STATUS
10663: ENC_ID_DSA_STATUS1_SENSOR
10664: ENC_ID_DSA_RMSTAT_HANDSHAKE
10665: ENC_ID_DSA_CONTROL1_SENSOR
10667: ENC_ID_SAFETY
10669: ENC_ID_SUB_STATE
10676: ENC_ID_COUNTCORR_SAW_VALUE
10677: ENC_ID_COUNTCORR_ABS_VALUE
10678: ENC_ID_SAWTOOTH_CORR
10680: ENC_ID_SM_XIST1_CORRECTED_QUADRANTS
10692: ENC_ID_RESISTANCE_CALIB_INSTANT
10693: ENC_ID_SERPROT_POS
10700: ENC_ID_AB_VIOL_COUNT
10723: ENC_ID_ACT_STATEMACHINE_FUNCTION
10724: ENC_ID_ACT_FUNMAN_FUNCTION
10725: ENC_ID_SAFETY_COUNTER_CRC
10728: ENC_ID_SUBTRACE_AREA
10740: ENC_ID_POS_ABSOLUTE
10741: ENC_ID_POS_REFMARK
10742: ENC_ID_SAWTOOTH
10743: ENC_ID_SAFETY_PULSE_COUNTER
10745: ENC_ID_EIU_ZEROCTRL
10756: ENC_ID_DSA_ACTUAL_SPEED
10757: ENC_ID_SPEED_DEV_ABS
10772: ENC_ID_DSA_POS_XIST1
10788: ENC_ID_AB_CROSS_CORR
10789: ENC_ID_AB_GAIN_Y_CORR

10790: ENC_ID_AB_PEAK_CORR
11825: ENC_ID_RES_TRANSITION_RATIO
11826: ENC_ID_RES_PHASE_SHIFT
15150: ENC_ID_SPINDLE_S1_RAW
15151: ENC_ID_SPINDLE_S4_RAW
15152: ENC_ID_SPINDLE_S5_RAW
15155: ENC_ID_SPINDLE_S1_CAL
15156: ENC_ID_SPINDLE_S4_CAL
15157: ENC_ID_SPINDLE_S5_CAL

r7832[0...23] Telegram diagnostics numerical format / Telegr diag format

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	14	-

Description: Displays the original numerical format of the signals contained in the telegram.
The associated signal number is represented in the appropriate index of r7831.

Value:
-1: Unknown
0: Boolean
1: Signed 1 byte
2: Signed 2 byte
3: Signed 4 byte
4: Signed 8 byte
5: Unsigned 1 byte
6: Unsigned 2 byte
7: Unsigned 4 byte
8: Unsigned 8 byte
9: Float 4 byte
10: Double 8 byte
11: mm dd yy HH MM SS MS DOW
12: ASCII string
13: SINUMERIK frame type
14: SINUMERIK axis type

Dependency: Refer to: r7831

r7833[0...23] Telegram diagnostics unsigned / Telegr diag unsign

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Parameter to display a DSA signal in the unsigned-integer format.
The associated signal number is represented at the appropriate index in r7831.

r7834[0...23] Telegram diagnostics signed / Telegr diag sign

ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Parameter to display a DSA signal in the signed-integer format.
The associated signal number is represented at the appropriate index in r7831.

r7835[0...23]	Telegram diagnostics real / Telegr diag real		
ENC, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Parameter to display a DSA signal in the float format.
The associated signal number is represented at the appropriate index in r7831.

r7836[0...23]	Telegram diagnostics unit / Telegr diag unit		
ENC, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1	147	-

Description: Displays the units of a DSA signal.
The associated signal number is represented at the appropriate index in r7831.

Value:
-1: Unknown
0: None
1: Millimeter or degrees
2: Millimeter
3: Degrees
4: mm/min or RPM
5: Millimeter / min
6: Revolutions / min
7: m/sec^2 or U/sec^2
8: m/sec^2
9: U/sec^2
10: m/sec^3 or U/sec^3
11: m/sec^3
12: U/sec^3
13: sec
14: 16.667 / sec
15: mm/revolution
16: ACX_UNIT_COMPENSATION_CORR
18: Newton
19: Kilogram
20: Kilogram meter^2
21: Percent
22: Hertz
23: Volt peak-to-peak
24: Amps peak-to-peak
25: Degrees Celsius
26: Degrees
28: Millimeter or degrees
29: Meters / minute
30: Meters / second
31: ohm
32: Millihenry
33: Newton meter
34: Newton meter/Ampere
35: Volt/Ampere
36: Newton meter second / rad
38: 31.25 microseconds
39: Microseconds
40: Milliseconds
42: Kilowatt
43: Micro amps peak-to-peak

44: Volt seconds
45: Microvolt seconds
46: Micro newton meters
47: Amps / volt seconds
48: Per mille
49: Hertz / second
53: Micrometer or millidegrees
54: Micrometer
55: Millidegrees
59: Nanometer
61: Newton/Amps
62: Volt seconds/meter
63: Newton seconds/meter
64: Micronewton
65: Liters / minute
66: Bar
67: Cubic centimeters
68: Millimeter / volt minute
69: Newton/Volt
80: Millivolts peak-to-peak
81: Volt rms
82: Millivolts rms
83: Amps rms
84: Micro amps rms
85: Micrometers / revolution
90: Tenths of a second
91: Hundredths of a second
92: 10 microseconds
93: Pulses
94: 256 pulses
95: Tenths of a pulse
96: Revolutions
97: 100 revolutions / minute
98: 10 revolutions / minute
99: 0.1 revolutions / minute
100: Thousandth revolution / minute
101: Pulses / second
102: 100 pulses / second
103: 10 revolutions / (minute x seconds)
104: 10000 pulses/second^2
105: 0.1 Hertz
106: 0.01 Hertz
107: 0.1 / seconds
108: Factor 0.1
109: Factor 0.01
110: Factor 0.001
111: Factor 0.0001
112: 0.1 Volt peak-to-peak
113: 0.1 Volt peak-to-peak
114: 0.1 amps peak-to-peak
115: Watt
116: 100 Watt
117: 10 Watt
118: 0.01 percent
119: 1/second^3
120: 0.01 percent/millisecond
121: Pulses / revolution
122: Microfarads
123: Milliohm
124: 0.01 Newton meter
125: Kilogram millimeter^2
126: Rad / (seconds newton meter)
127: Henry
128: Kelvin
129: Hours
130: Kilohertz

131: Milliamperes peak-to-peak
132: Millifarads
133: Meter
135: Kilowatt hours
136: Percent
137: Amps / Volt
138: Volt
139: Millivolts
140: Microvolts
141: Amps
142: Milliamperes
143: Micro amps
144: Milliamperes rms
145: Millimeter
146: Nanometer
147: Joules

r7843[0...20] Memory card serial number / Mem_card ser.no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual serial number of the memory card.
The individual characters of the serial number are displayed in the ASCII code in the indices.

Dependency: Refer to: p9920, p9921

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: Example: displaying the serial number for a memory card:
r7843[0] = 49 dec --> ASCII characters = "1" --> serial number, character 1
r7843[1] = 49 dec --> ASCII characters = "1" --> serial number, character 2
r7843[2] = 49 dec --> ASCII characters = "1" --> serial number, character 3
r7843[3] = 57 dec --> ASCII characters = "9" --> serial number, character 4
r7843[4] = 50 dec --> ASCII characters = "2" --> serial number, character 5
r7843[5] = 51 dec --> ASCII characters = "3" --> serial number, character 6
r7843[6] = 69 dec --> ASCII characters = "E" --> serial number, character 7
r7843[7] = 0 dec --> ASCII characters = " " --> serial number, character 8
...
r7843[19] = 0 dec --> ASCII characters = " " --> serial number, character 20
r7843[20] = 0 dec
Serial number = 111923E

r7844[0...2] Memory card/device memory firmware version / Mem_crd/dev_mem FW

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the version of the firmware stored on the memory medium of the drive device.
Depending on the drive device being used, the memory medium is a memory card, or an internal non-volatile device memory.

Index: [0] = Internal
[1] = External
[2] = Parameter backup

Note: Re index 0:
Displays the internal firmware version (e.g. 04402315).
This firmware version is the version of the memory card/device memory and not the CU firmware (r0018), however, normally they have the same versions.
Re index 1:
Displays the external firmware version (e.g. 04040000 -> 4.4).
For automation systems with SINAMICS Integrated this is the runtime version of the automation system.
Re index 2:
Displays the internal firmware version of the parameter backup.
With this CU firmware version, the parameter backup was saved, which was used when powering up.

r7850[0...n] Drive object operational/not operational / DO ready for oper

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-32786	32767	-

Description: Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed).
0: Drive object not ready for operation
1: Drive object ready for operation

p7852 Number of indices for r7853 / Qty indices r7853

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	200	1

Description: Displays the number of indices for r7853[0...n].
This corresponds to the number of DRIVE-CLiQ components that are in the target topology.

Dependency: Refer to: r7853

Note: The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.

r7853[0...n] Component available/not available / Comp present

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** p7852	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF hex	-

Description: Displays the component and whether this component is currently present.
High byte: Component number
Low byte: 0/1 (not available/available)

Dependency: Refer to: p7852

Note: The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.

p7857	Sub-boot mode / Sub-boot mode		
B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	1

Description: Sets the mode for the sub-boot.

Value:
0: Sub-boot manual
1: Sub-boot automatic

Note: For p7857 = 0 (manual sub-boot) the following applies:
The parameter should be set to 1 to start the sub-boot.

p7859[0...199]	Component number global / Comp_no global		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-32786	32767	0

Description: Sets the global and unique component number in a drive system with several Control Units.
Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit.
The indices are allocated to the global component numbers as follows:
p7859[0]: Not used
p7859[1]: Sets the global component number for the local component number 1
p7859[2]: Sets the global component number for the local component number 2
...
p7859[199]: Sets the global component number for the local component number 199

Notice: This parameter is preferably set via suitable commissioning software (e.g. UpdateAgent, STARTER, SCOUT).
Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting.

Note: The parameter is not influenced by setting the factory setting.

r7867	Status/configuration changes global / Changes global		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays status and configuration changes of all of the drive objects in the complete unit.
When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.

Dependency: Refer to: r7868, r7869, r7870

r7868[0...24] **Configuration changes drive object reference / Config_chng DO ref**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Reference to the drive objects whose configuration has changed.

Index 0:

When changing one of the following indices, then the value in this index is increased.

Index 1...n:

The drive object with object number in p0101[n-1] has changed its configuration.

Example:

r7868[3] was incremented since the last time it was read.

--> the configuration of the drive object with object number in p0101[2] was changed.

Index:
[0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]
[17] = Object number in p0101[16]
[18] = Object number in p0101[17]
[19] = Object number in p0101[18]
[20] = Object number in p0101[19]
[21] = Object number in p0101[20]
[22] = Object number in p0101[21]
[23] = Object number in p0101[22]
[24] = Object number in p0101[23]

Dependency: Refer to: p0101, r7867, r7871

r7869[0...24] **Status changes drive object reference / Status_chng DO ref**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Reference to the drive objects whose status has changed.

Index 0:

When changing one of the following indices, then the value in this index is increased.

Index 1...n:

The drive object with object number in p0101[n-1] has changed its status.

Example:

r7868[3] was incremented since the last time it was read.

--> the status of the drive object with object number in p0101[2] was changed.

Index: [0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]
[17] = Object number in p0101[16]
[18] = Object number in p0101[17]
[19] = Object number in p0101[18]
[20] = Object number in p0101[19]
[21] = Object number in p0101[20]
[22] = Object number in p0101[21]
[23] = Object number in p0101[22]
[24] = Object number in p0101[23]

Dependency: Refer to: p0101, r7867, r7872

r7870[0...7] Configuration changes global / Config_chng global

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index: [0] = Sum of the following indices
[1] = r7871[0] of a drive object
[2] = p0101 or r0102
[3] = PROFIBUS configuration (p0978)
[4] = DRIVE-CLiQ actual topology (r9900 or r9901)
[5] = DRIVE-CLiQ target topology (r9902 or r9903)
[6] = DRIVE-CLiQ sockets (p0109)
[7] = OA applications

Dependency: Refer to: r7867, r7871

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.

Re index 2:

Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.

Re index 3:

PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.

Re index 4:

DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.

Re index 5:

DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.

Re index 6:

DRIVE-CLiQ sockets. When changing p0109, the value in this index is incremented.

Re index 7:

OA applications. When changing OA applications, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

B_INF	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dyn. index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Activate/de-activate component
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 7:

Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7871[0...15] **Configuration changes drive object / Config_chng DO**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0107, p0108, p0171, p0172 or p0173
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Reserved
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

ENC	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dyn. index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108, p0171, p0172 or p0173
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Activate/de-activate component
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108, p0171, p0172 or p0173
[11] = p0530 or p0531
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Enc type (p0400)

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object configuration. When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 15:

Encoder configuration. When changing p0400, the value in this index is incremented.

r7871[0...15]	Configuration changes drive object / Config_chng DO		
HUB, TB30, TM150, TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Reserved
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

Re index 12:

Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

TM54F_MA, TM54F_SL			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Reserved
[6] = Data backup required
[7] = Reserved
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

VECTOR_G	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dyn. index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108, p0171, p0172 or p0173
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Activate/de-activate component
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108, p0171, p0172 or p0173
[11] = p0530 or p0531
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = SERVO or VECTOR (e.g. p0300)

Dependency: Refer to: r7868, r7870

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 7:

Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 11:

Drive object bearing. When changing p0530 or p0531, the value in this index is incremented.

Re index 12:

Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

Re index 15:

SERVO/VECTOR configuration. When changing p0300, p0301 or p0400, the value in this index is incremented.

r7872[0...3] Drive object status changes / DO stat_chng

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = Faults (r0944)
[2] = Alarms (r2121)
[3] = Safety messages (r9744)

Dependency: Refer to: r7869

Note: Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object faults. When changing r0944, the value in this index is incremented.

Re index 2:

Drive object alarms. When changing r2121, the value in this index is incremented.

Re index 3:

Drive object safety messages. When changing r9744, the value in this index is incremented.

p7900[0...23] Drive objects priority / DO priority

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the priority for processing the existing drive objects in the system.

The parameter enables a free sequence to be set for processing the drive objects. For this purpose all the drive object numbers existing in the system have to be written in the desired sequence into the corresponding indices of the parameter. After re-booting this sequence will be effective without a plausibility check.

With the factory setting the following priorities regarding processing are applicable:

- The drive objects are pre-sorted according to their type as follows: CONTROL UNIT, INFEED, SERVO, VECTOR, TM, HUB, CU_LINK

- If they are of the same type, they are sorted in ascending order according to their drive object number, i.e. the lower the number, the higher the priority for processing.

Index:
[0] = Drive object number Control Unit
[1] = Drive object number object 1
[2] = Drive object number object 2
[3] = Drive object number object 3
[4] = Drive object number object 4
[5] = Drive object number object 5
[6] = Drive object number object 6
[7] = Drive object number object 7
[8] = Drive object number object 8
[9] = Drive object number object 9
[10] = Drive object number object 10
[11] = Drive object number object 11
[12] = Drive object number object 12

[13] = Drive object number object 13
[14] = Drive object number object 14
[15] = Drive object number object 15
[16] = Drive object number object 16
[17] = Drive object number object 17
[18] = Drive object number object 18
[19] = Drive object number object 19
[20] = Drive object number object 20
[21] = Drive object number object 21
[22] = Drive object number object 22
[23] = Drive object number object 23

Notice: This parameter may only be used by qualified service personnel.

Note: If the same drive object numbers are used and if the existing drive object numbers in the system are entered incompletely, the content of this parameter is ignored entirely. The behavior as with factory setting will then become effective.

r7901[0...81] Sampling times / t_sample

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [µs]	- [µs]	- [µs]

Description: Displays the sampling times currently present on the drive unit.

r7901[0...63]: sampling times of hardware time slices.

r7901[64...82]: sampling times of software time slices.

r7901[x] = 0 means that in the associated time slice, no methods have been registered.

Note: The basis for the software time slices is T_NRK = p7901[15].

r7903 Hardware sampling times still assignable / HW t_samp free

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of hardware sampling times that can still be assigned.

These free sampling times can be used by OA applications such as DCC or FBLOCKS.

Note: OA: Open Architecture

p8500[0...7] BI: Input signal bit-serially 0 / Input_sig bit 0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bit-serial input signals.

These signals are available in binector output r8510.0 ... 7 for further interconnection.

Index:
[0] = To BO: r8510.0
[1] = To BO: r8510.1
[2] = To BO: r8510.2
[3] = To BO: r8510.3
[4] = To BO: r8510.4
[5] = To BO: r8510.5
[6] = To BO: r8510.6
[7] = To BO: r8510.7

Dependency: Refer to: r8510

p8501[0...21] BI: Input signal bit-serially 1 / Input_sig bit 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bit-serial input signals.
These signals are available in binector output r8511.0 ... 21 for further interconnection.

Index:
[0] = To BO: r8511.0
[1] = To BO: r8511.1
[2] = To BO: r8511.2
[3] = To BO: r8511.3
[4] = To BO: r8511.4
[5] = To BO: r8511.5
[6] = To BO: r8511.6
[7] = To BO: r8511.7
[8] = To BO: r8511.8
[9] = To BO: r8511.9
[10] = To BO: r8511.10
[11] = To BO: r8511.11
[12] = To BO: r8511.12
[13] = To BO: r8511.13
[14] = To BO: r8511.14
[15] = To BO: r8511.15
[16] = To BO: r8511.16
[17] = To BO: r8511.17
[18] = To BO: r8511.18
[19] = To BO: r8511.19
[20] = To BO: r8511.20
[21] = To BO: r8511.21

Dependency: Refer to: r8511

p8502 CI: Input signal word-serially 0 / Input_sig word 0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8512 for further interconnection.

Dependency: Refer to: r8512

p8503 CI: Input signal word-serially 1 / Input_sig word 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8513 for further interconnection.

Dependency: Refer to: r8513

p8504	CI: Input signal word-serially 2 / Input_sig word 2		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2195
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8514 for further interconnection.

Dependency: Refer to: r8514

p8505	CI: Input signal word-serially 3 / Input_sig word 3		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2195
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8515 for further interconnection.

Dependency: Refer to: r8515

r8510.0...7	BO: Output signal bit-serially 0 / Outp_sig bit 0		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2195
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and binector output for the signal interconnected via binector input p8500[0...7].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	From BI: p8500[0]	ON	OFF	-
01	From BI: p8500[1]	ON	OFF	-
02	From BI: p8500[2]	ON	OFF	-
03	From BI: p8500[3]	ON	OFF	-
04	From BI: p8500[4]	ON	OFF	-
05	From BI: p8500[5]	ON	OFF	-
06	From BI: p8500[6]	ON	OFF	-
07	From BI: p8500[7]	ON	OFF	-

Dependency: Refer to: p8500

r8511.0...21	BO: Output signal bit-serially 1 / Outp_sig bit 1		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2195
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and binector output for the signal interconnected via binector input p8501[0...21].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	From BI: p8501[0]	ON	OFF	-
01	From BI: p8501[1]	ON	OFF	-
02	From BI: p8501[2]	ON	OFF	-
03	From BI: p8501[3]	ON	OFF	-
04	From BI: p8501[4]	ON	OFF	-
05	From BI: p8501[5]	ON	OFF	-
06	From BI: p8501[6]	ON	OFF	-
07	From BI: p8501[7]	ON	OFF	-
08	From BI: p8501[8]	ON	OFF	-
09	From BI: p8501[9]	ON	OFF	-
10	From BI: p8501[10]	ON	OFF	-
11	From BI: p8501[11]	ON	OFF	-
12	From BI: p8501[12]	ON	OFF	-
13	From BI: p8501[13]	ON	OFF	-
14	From BI: p8501[14]	ON	OFF	-
15	From BI: p8501[15]	ON	OFF	-
16	From BI: p8501[16]	ON	OFF	-
17	From BI: p8501[17]	ON	OFF	-
18	From BI: p8501[18]	ON	OFF	-
19	From BI: p8501[19]	ON	OFF	-
20	From BI: p8501[20]	ON	OFF	-
21	From BI: p8501[21]	ON	OFF	-

Dependency: Refer to: p8501

r8512 CO: Output signal wordwise 0 / Outp_sig word 0

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8502.

Dependency: Refer to: p8502

r8513 CO: Output signal wordwise 1 / Outp_sig word 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8503.

Dependency: Refer to: p8503

r8514 CO: Output signal wordwise 2 / Outp_sig word 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8504.

Dependency: Refer to: p8504

r8515 CO: Output signal wordwise 3 / Outp_sig word 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2195
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8505.

Dependency: Refer to: p8505

p8550 AOP LOCAL/REMOTE / AOP LOCAL/REMOTE

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 1001 bin

Description: Setting for saving the actual configuration of the Advanced Operator Panel (AOP).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	LOCAL save	Yes	No	-
01	Start in LOCAL	Yes	No	-
02	Change in oper	Yes	No	-
03	OFF acts like OFF1	Yes	No	-
04	OFF acts like OFF2	Yes	No	-
05	OFF acts like OFF3	Yes	No	-
06	Reserved	Yes	No	-
07	CW/CCW active	Yes	No	-
08	Jog active	Yes	No	-
09	Save speed setpoint	Yes	No	-
14	Inhibit operation	Yes	No	-
15	Inhibit parameterization	Yes	No	-

r8570[0...39] Macro drive object / Macro DO

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the macro file saved in the appropriate directory on the memory card/device memory.

Dependency: Refer to: p0015

Note: For a value = 9999999, the following applies: The read operation is still running.

r8571[0...39] Macro Binector Input (BI) / Macro BI

B_INF, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: Refer to: p0700

Note: For a value = 9999999, the following applies: The read operation is still running.

r8572[0...39]	**Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set**		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: Refer to: p1000

Note: For a value = 9999999, the following applies: The read operation is still running.

r8573[0...39]	**Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set**		
B_INF, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: Refer to: p1500

Note: For a value = 9999999, the following applies: The read operation is still running.

r8585	**Macro execution actual / Macro executed**		
B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, TB30, TM150, TM31, VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the macro currently being executed on the drive object.

Dependency: Refer to: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573

r8600	**CAN device type / Device type**		
CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays all of the devices connected to the CAN bus after run-up.

r8600

= 00000000 hex: No drive recognized.

= FFFF0192 hex: Several drives - drive 1 is an Active Line Module, servo drive or vector drive

= FFFF0191 hex: Several drives - 1st drive is a Terminal Module

= 02010192 hex: 1 Vector drive

= 00020192 hex: 1 Servo drive

= 01000192 hex: 1 Active Line Module

= 00080191 hex: 1 Terminal Module

Note: Corresponds to the CANopen object 1000 hex.

For each detected drive, the device type is displayed in object 67FF hex + 800 hex * x (x: Drive number 0 ... 7).

r8601 CAN error register / Error register

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the error register for CANopen.

Bit 0: Generic error.

0 signal: No error present.

1 signal: Generic error present.

Bit 1 ... 3: Not supported (always a 0 signal).

Bit 4: Communications error.

0 signal: There is no message in the range 8700 ... 8799.

1 signal: There is at least one message (fault or alarm) in the range 8700 ... 8799.

Bit 5 ... 6: Not supported (always a 0 signal).

Bit 7:; Fault outside the range 8700 ... 8799.

0 signal: There is no fault outside the range 8700 ... 8799.

1 signal: There is at least one fault outside the range 8700 ... 8799.

Note: Corresponds to the CANopen object 1001 hex.

p8602 CAN SYNC object / SYNC object

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0080 hex

Description: Sets the SYNC object parameter for the following CANopen objects:

- 1005 hex: COB-ID

Note: SINAMICS operates as SYNC load.

COB-ID: CAN object identification

p8603 CAN COB-ID Emergency Message / COB-ID EMCY Msg

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the COB-ID for the emergency message (error telegram).

It corresponds to the CANopen objects:

- 1014 hex: COB-ID

Note: If, when downloading, the pre-set value 0 is downloaded, then the CANopen pre-set value 80 hex + Node-ID is automatically set.

Online, the value 0 is rejected as, according to the CANopen Standard, COB-ID 0 is not permitted here.

The changeover of the node ID using the hardware switch at the Control Unit or per software has no effect on the COB-ID EMCY. The saved value remains effective.

p8604[0...1] CAN life guarding / Life guarding

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the life guarding parameter for the following CANopen objects:

- 100C hex: Guard Time

- 100D hex: Life Time Factor

The life time is derived by multiplying guard time by the life time factor.

Index: [0] = Time interval [ms] for the life time
[1] = Factor for the lifetime

Dependency: Refer to: p8606

Note: For p8604[0] = 0 and/or p8604[1] = 0, the life guarding event service (monitoring the node guarding, fault F08700 with fault value = 2) is deactivated.

The node guarding protocol is active without the life guarding event service, if the heartbeat protocol is deactivated (p8606 = 0).

p8606 CAN Producer Heartbeat Time / Prod Heartb Time

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0 [ms]	65535 [ms]	0 [ms]

Description: Sets the time [ms] to cyclically send heartbeat telegrams.

The smallest cycle is 100 ms.

For p8606 = 0, heartbeat telegrams are not sent.

Dependency: Refer to: p8604

Note: Corresponds to the CANopen object 1017 hex.

Activating the heartbeat protocol automatically deactivates the node guarding.

r8607[0...3] CAN Identity Object / Identity object

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: General device information display.

Index: [0] = Vendor ID
[1] = Product code
[2] = Revision number
[3] = Serial number

Note: Corresponds to the CANopen object 1018 hex.

Re index 3:

The SINAMICS serial number comprises 60 bits.

Of these bits, the following are displayed in this index:

Bits 0 ... 19: Consecutive number

Bits 20 ... 23: Production ID

- 0 hex: Development

- 1 hex: P1 unique number

- 2 hex: P2 unique number
- 3 hex: WA unique number
- 9 hex: Pattern
- F hex: All others

Bits 24 ... 27: Month of manufacture (0 means January, B means December)

Bits 28 ... 31: Year of manufacture (0 means 2002)

p8608[0...1] CAN Clear Bus Off Error / Clear bus off err

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: As a result of a Bus Off error, the CAN controller is set into the initialization state.

Index 0:

The CAN controller is manually started after resolving the cause of the error with p8608[0] = 1.

Index 1:

The automatic CAN bus start function is activated using p8608[1] = 1.

At 2 second intervals, the CAN controller is automatically restarted until the cause of the error has been resolved and a CAN connection has been established.

Value:
0: Inactive
1: Start CAN controller

Index:
[0] = Manual controller start function
[1] = Activating the automatic controller start function

Note: Re index 0:

This parameter is automatically reset to 0 after start.

p8609[0...1] CAN Error Behavior / Error behavior

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	1

Description: Sets the behavior of the CAN node referred to the communications error or equipment fault.

Value:
0: Pre-operational
1: No change
2: Stopped

Index:
[0] = Behavior for communication errors
[1] = Behavior for device faults

Note: Corresponds to the CANopen object 1029 hex.

r8610[0...1] CAN First Server SDO / First server SDO

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the identifier (client/server and server/client) of the SDO channel.

Index:
[0] = COB-ID from the client to the server
[1] = COB-ID from the server to the client

Dependency: Refer to: p8612

Note: Corresponds to the CANopen object 1200 hex.
SDO: Service Data Object

p8611[0...82] CAN Pre-defined Error Field / Pre_def err field

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF 1000 hex	0000 hex

Description: Displays the Pre-defined Error Field of the CAN node.

It includes the number of all errors that have occurred, the number of errors that have occurred for each drive and the errors according to their history.

The first 16 bits represent the CANopen error code and the second 16 bits the SINAMICS error code.

Index 1 has the same structure - however, the drive object ID is in the second 16 bits instead of the SINAMICS error code.

CANopen error code:

0000 hex: No error present.

8110 hex: Alarm A08751 present.

8120 hex: Alarm A08752 present.

8130 hex: Alarm A08700(F) with alarm value = 2 present.

1000 hex: Generic error 1 present (there is at least one fault outside the range 8700 ... 8799)

1001 hex: Generic error 2 present (there is at least one alarm in the range 8700 ... 8799 with the exception of A08751, A08752, A08700)

All drive objects are acknowledged by writing the value 0 to index 0. As soon as a fault has been acknowledged or an alarm cleared, then it is also cleared from the fault list.

Index:
[0] = Number of all faults in the drive unit
[1] = Most recent drive number / fault number
[2] = Number of faults drive 1
[3] = Fault 1/ drive 1
[4] = Fault 2/ drive 1
[5] = Fault 3/ drive 1
[6] = Fault 4/ drive 1
[7] = Fault 5/ drive 1
[8] = Fault 6/ drive 1
[9] = Fault 7/ drive 1
[10] = Fault 8/ drive 1
[11] = Number of faults drive 2
[12] = Fault 1/ drive 2
[13] = Fault 2/ drive 2
[14] = Fault 3/ drive 2
[15] = Fault 4/ drive 2
[16] = Fault 5/ drive 2
[17] = Fault 6/ drive 2
[18] = Fault 7/ drive 2
[19] = Fault 8/ drive 2
[20] = Number of faults drive 3
[21] = Fault 1/ drive 3
[22] = Fault 2/ drive 3
[23] = Fault 3/ drive 3
[24] = Fault 4/ drive 3
[25] = Fault 5/ drive 3
[26] = Fault 6/ drive 3
[27] = Fault 7/ drive 3
[28] = Fault 8/ drive 3
[29] = Number of faults drive 4
[30] = Fault 1/ drive 4
[31] = Fault 2/ drive 4
[32] = Fault 3/ drive 4
[33] = Fault 4/ drive 4
[34] = Fault 5/ drive 4
[35] = Fault 6/ drive 4
[36] = Fault 7/ drive 4
[37] = Fault 8/ drive 4
[38] = Number of faults drive 5
[39] = Fault 1/ drive 5
[40] = Fault 2/ drive 5
[41] = Fault 3/ drive 5
[42] = Fault 4/ drive 5
[43] = Fault 5/ drive 5
[44] = Fault 6/ drive 5
[45] = Fault 7/ drive 5
[46] = Fault 8/ drive 5
[47] = Number of faults drive 6
[48] = Fault 1/ drive 6
[49] = Fault 2/ drive 6
[50] = Fault 3/ drive 6
[51] = Fault 4/ drive 6
[52] = Fault 5/ drive 6
[53] = Fault 6/ drive 6
[54] = Fault 7/ drive 6
[55] = Fault 8/ drive 6
[56] = Number of faults drive 7
[57] = Fault 1/ drive 7
[58] = Fault 2/ drive 7
[59] = Fault 3/ drive 7
[60] = Fault 4/ drive 7
[61] = Fault 5/ drive 7
[62] = Fault 6/ drive 7
[63] = Fault 7/ drive 7
[64] = Fault 8/ drive 7

[65] = Number of faults drive 8
[66] = Fault 1/ drive 8
[67] = Fault 2/ drive 8
[68] = Fault 3/ drive 8
[69] = Fault 4/ drive 8
[70] = Fault 5/ drive 8
[71] = Fault 6/ drive 8
[72] = Fault 7/ drive 8
[73] = Fault 8/ drive 8
[74] = Number of faults Control Unit
[75] = Fault 1/Control Unit
[76] = Fault 2/Control Unit
[77] = Fault 3/Control Unit
[78] = Fault 4/Control Unit
[79] = Fault 5/Control Unit
[80] = Fault 6/Control Unit
[81] = Fault 7/Control Unit
[82] = Fault 8/Control Unit

Note: Corresponds to the CANopen object 1003 hex.

p8612[0...1] CAN drive object server SDO / DO server SDO

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN), VECTOR_G (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0581 hex	8000 067F hex	8000 0000 hex

Description: Sets the identifier (client/server and server/client) of the additional SDO server.

Using these SDO servers, it is possible to access manufacturer-specific CANopen objects of the supported drive objects.

Index: [0] = COB-ID drive object from the client to the server
[1] = COB-ID drive object from the server to the client

Dependency: Refer to: r8610

Note: SDO: Service Data Object

Regarding the drive object Control Unit:

- Corresponds to the CANopen object 1201 hex

Regarding the drive object with closed-loop control functions:

- Corresponds to the CANopen object 1202 hex + 1 * x (x: Drive number 0 ... 7)

p8620 CAN Node-ID / Node ID

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	127	126

Description: Display or setting of the CANopen Node ID.

The Node ID can be set as follows:

1) Using the address switch on the Control Unit.

--> p8620 can then only be read and displays the selected Node ID.

--> A change only becomes effective after a POWER ON.

--> CANopen Node ID and PROFIBUS address are identical.

2) Using p8620

--> Only if address 0 is set using the address switch.

--> the Node ID is set as standard to 126.

--> A change only becomes effective after save and POWER ON.

Dependency: Refer to: r8621

Note: Every node ID change only becomes effective after a POWER ON.
The active node ID is displayed in r8621.
The parameter is not influenced by setting the factory setting.
It is only possible to independently set CANopen node ID and the PROFIBUS address using p0918 and p8620 (prerequisite: the address 0 is set for the address switch).

r8621 CAN Node-ID active / Node ID active

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the active CANopen Node ID.

Dependency: Refer to: p8620

p8622 CAN bit rate / Bit rate

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	7	6

Description: Setting the bit rate for the CAN bus.
The appropriate bit timings are selected that are defined in p8623 in the associated sub-index.
Example:
Bit rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6].

Value:
0: 1 Mbit/s
1: 800 kbit/s
2: 500 kbit/s
3: 250 kbit/s
4: 125 kbit/s
5: 50 kbit/s
6: 20 kbit/s
7: 10 kbit/s

Dependency: Refer to: p8623

Note: The parameter is not influenced by setting the factory setting.

p8623[0...7] CAN Bit Timing selection / Bit timing select

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	000F 7FFF hex	[0] 1405 hex [1] 1605 hex [2] 1C05 hex [3] 1C0B hex [4] 1C17 hex [5] 1C3B hex [6] 0002 1C15 hex [7] 0004 1C2B hex

Description: Sets the bit timing for the C_CAN controller to the associated and selected bit rate (p8622).
Bits are distributed to the following parameters of the C_CAN controller in p8623[0...7]:

Bit 0 ... 5: BRP (Baud Rate Prescaler)

Bit 6 ... 7: SJW (Synchronization Jump Width)

Bit 8 ... 11: TSEG1 (Time Segment 1, before the sampling point)

Bit 12 ... 14: TSEG2 (Time Segment 2, after the sampling point)

Bit 15: Reserved

Bit 16 ... 19: BRPE (Baud Rate Prescaler Extension)

Bit 20 ... 31: Reserved

Example:

Bit rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6] --> 0001 2FB6

Recommend.: Use the factory setting when setting the bit timing.

Index:
[0] = 1 Mbit/s
[1] = 800 kbit/s
[2] = 500 kbit/s
[3] = 250 kbit/s
[4] = 125 kbit/s
[5] = 50 kbit/s
[6] = 20 kbit/s
[7] = 10 kbit/s

Dependency: Refer to: p8622

Note: The parameter is not influenced by setting the factory setting.

p8630[0...2] CAN virtual objects / Virtual objects

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the drive object selection (index 0), the sub-index area (index 1) and the parameter area (index 2) when using virtual objects.

This means that it is possible to access all SINAMICS parameters via CAN.

Index 0 (drive object number):

0: Not possible to access virtual CANopen objects

1: Device

2 ... 65535: drive object number of drive 1 ... 8

Index 1 (sub-index area):

0: 0 ... 255

1: 256 ... 511

2: 512 ... 767

3: 768 ... 1023

Index 2 (parameter area):

0: 1 ... 9999

1: 10000 ... 19999

2: 20000 ... 29999

3: 30000 ... 39999

Index:
[0] = Drive object number
[1] = Sub-index range
[2] = Parameter range

p8641	CAN Abort Connection Option Code / Abort con opt code		
VECTOR_G (CAN)	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	3	3

Description: Sets the drive behavior if a CAN communication error occurs.

Value:
0: No response
1: OFF1
2: OFF2
3: OFF3

r8680[0...36]	CAN Diagnosis Hardware / Diagnostics HW		
CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the register of the CAN controller C_CAN:
Register, Message Interface Register and Message Handler Register - referred to the CAN protocol.

Index:
[0] = Control register
[1] = Status register
[2] = Error counter
[3] = Bit timing register
[4] = Interrupt register
[5] = Test register
[6] = Baud rate prescaler extension register
[7] = Interface 1 command request register
[8] = Interface 1 command mask register
[9] = Interface 1 mask 1 register
[10] = Interface 1 mask 2 register
[11] = Interface 1 arbitration 1 register
[12] = Interface 1 arbitration 2 register
[13] = Interface 1 message control register
[14] = Interface 1 data A1 register
[15] = Interface 1 data A2 register
[16] = Interface 1 data B1 register
[17] = Interface 1 data B2 register
[18] = Interface 2 command request register
[19] = Interface 2 command mask register
[20] = Interface 2 mask 1 register
[21] = Interface 2 mask 2 register
[22] = Interface 2 arbitration 1 register
[23] = Interface 2 arbitration 2 register
[24] = Interface 2 message control register
[25] = Interface 2 data A1 register
[26] = Interface 2 data A2 register
[27] = Interface 2 data B1 register
[28] = Interface 2 data B2 register
[29] = Transmission request 1 register
[30] = Transmission request 2 register
[31] = New data 1 register
[32] = New data 2 register
[33] = Interrupt pending 1 register
[34] = Interrupt pending 2 register
[35] = Message valid 1 register
[36] = Message valid 2 register

Note: A description of the individual registers of the C_CAN controller can be taken from "C_CAN User's Manual".

p8684 CAN NMT state after booting / NMT state aft boot

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
4	127	127

Description: Sets the CANopen NMT state that is effective after booting.

Value:
4: Stopped
5: Operational
127: Pre-operational

Dependency: Refer to: p8685

Note: Booting in the NMT state pre-operational corresponds to the CANopen standard

p8685 CAN NMT states / NMT states

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	129	127

Description: Sets and displays the CANopen NMT state.

Value:
0: Initialization
4: Stopped
5: Operational
127: Pre-operational
128: Reset node
129: Reset Communication

Note: The value 0 (initialization) is only displayed and cannot be set.

p8699 CAN: RPDO monitoring time / RPDO t_monit

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	65535000 [ms]	0 [ms]

Description: Sets the monitoring time for the process data received via the CAN bus.

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

If no process data is received within this time, then fault F08702 is output.

Dependency: Refer to: p8848

Note: Value = 0: Monitoring is de-activated.

p8848: CANopen sampling time

p8700[0...1] CAN Receive PDO 1 / Receive PDO 1

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 1 (RPDO 1).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1400 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8701[0...1] CAN Receive PDO 2 / Receive PDO 2

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 2 (RPDO 2).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1401 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8702[0...1] CAN Receive PDO 3 / Receive PDO 3

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 3 (RPDO 3).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1402 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8703[0...1] CAN Receive PDO 4 / Receive PDO 4

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 4 (RPDO 4).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1403 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8704[0...1]	CAN Receive PDO 5 / Receive PDO 5		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 5 (RPDO 5).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1404 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8705[0...1]	CAN Receive PDO 6 / Receive PDO 6		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 6 (RPDO 6).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1405 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8706[0...1]	CAN Receive PDO 7 / Receive PDO 7		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 7 (RPDO 7).

Index: [0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1406 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1, FE and FF can be set.
PDO: Process Data Object

p8707[0...1] CAN Receive PDO 8 / Receive PDO 8

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex

Description: Sets the communication parameters for CANopen Receive Process Data Object 8 (RPDO 8).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Note: Corresponds to the CANopen object 1407 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process Data Object

p8710[0...3] CAN Receive Mapping for RPDO 1 / Mapping RPDO 1

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 1 (RPDO 1).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1600 hex + 40 hex * x (x: Drive number 0 ... 7).

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8711[0...3] CAN Receive Mapping for RPDO 2 / Mapping RPDO 2

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 2 (RPDO 2).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1601 hex + 40 hex * x (x: Drive number 0 ... 7).

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8712[0...3] CAN Receive Mapping for RPDO 3 / Mapping RPDO 3

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 3 (RPDO 3).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1602 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8713[0...3] CAN Receive Mapping for RPDO 4 / Mapping RPDO 4

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 4 (RPDO 4).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1603 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8714[0...3] CAN Receive Mapping for RPDO 5 / Mapping RPDO 5

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 5 (RPDO 5).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1604 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8715[0...3] CAN Receive Mapping for RPDO 6 / Mapping RPDO 6

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 6 (RPDO 6).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1605 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8716[0...3] CAN Receive Mapping for RPDO 7 / Mapping RPDO 7

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 7 (RPDO 7).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1606 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8717[0...3] CAN Receive Mapping for RPDO 8 / Mapping RPDO 8

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9204
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 8 (RPDO 8).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1607 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8720[0...4] CAN Transmit PDO 1 / Transmit PDO 1

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 1 (TPDO 1).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1800 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8721[0...4] CAN Transmit PDO 2 / Transmit PDO 2

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1801 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8722[0...4] CAN Transmit PDO 3 / Transmit PDO 3

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1802 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
p8848: CANopen sampling time
PDO: Process Data Object

p8723[0...4] CAN Transmit PDO 4 / Transmit PDO 4

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 4 (TPDO 4).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1803 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
p8848: CANopen sampling time
PDO: Process Data Object

p8724[0...4] CAN Transmit PDO 5 / Transmit PDO 5

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 5 (TPDO 5).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1804 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8725[0...4] CAN Transmit PDO 6 / Transmit PDO 6

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 6 (TPDO 6).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1805 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8726[0...4] CAN Transmit PDO 7 / Transmit PDO 7

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1806 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8727[0...4] CAN Transmit PDO 8 / Transmit PDO 8

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	C000 06DF hex	[0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and event timer, the following apply:

A value that is not a multiple integer of the CANopen sampling time is rounded-off.

Note: Corresponds to the CANopen object 1807 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

p8848: CANopen sampling time

PDO: Process Data Object

p8730[0...3]	CAN Transmit Mapping for TPDO 1 / Mapping TPDO 1		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 1 (TPDO 1).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A00 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8731[0...3]	CAN Transmit Mapping for TPDO 2 / Mapping TPDO 2		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A01 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8732[0...3]	CAN Transmit Mapping for TPDO 3 / Mapping TPDO 3		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A02 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8733[0...3]	CAN Transmit Mapping for TPDO 4 / Mapping TPDO 4		
VECTOR_G (CAN)	**Can be changed:** C1(3), T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 4 (TPDO 4).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A03 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8734[0...3] CAN Transmit Mapping for TPDO 5 / Mapping TPDO 5

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 5 (TPDO 5).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A04 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8735[0...3] CAN Transmit Mapping for TPDO 6 / Mapping TPDO 6

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 6 (TPDO 6).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A05 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8736[0...3] CAN Transmit Mapping for TPDO 7 / Mapping TPDO 7

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A06 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8737[0...3] CAN Transmit Mapping for TPDO 8 / Mapping TPDO 8

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 9208
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A07 hex + 40 hex * x (x: Drive number 0 ... 7).

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

r8742[0...1] CAN PDO available number / PDO available no.

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the RPDO or TPDO channels that are still available.

Index:
[0] = RPDO
[1] = TPDO

Note: RPDO: Receive Process Data Object

TPDO: Transmit Process Data Object

r8743[0...7] CAN assignment drive/drive ID / Drive ID

CU_G130_DP (CAN), CU_G130_PN (CAN), CU_G150_DP (CAN), CU_G150_PN (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the drive ID associated with each drive.

Index:
[0] = Drive ID for 1st drive
[1] = Drive ID for 2nd drive
[2] = Drive ID for 3rd drive
[3] = Drive ID for 4th drive
[4] = Drive ID for 5th drive
[5] = Drive ID for 6th drive
[6] = Drive ID for 7th drive
[7] = Drive ID for 8th drive

p8744 CAN PDO mapping configuration / PDO Mapping config

VECTOR_G (CAN)

Can be changed: C2, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 9204, 9206, 9208, 9210
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	2

Description: Selector switch for the PDO mapping.

Value: 1: Predefined Connection Set
2: Free PDO Mapping

r8745[0...15] CO: CAN free PZD receive objects 16 bit / Free PZD recv 16

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Access to free PZD receive objects 16 bit using the SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = PZD object 0
[1] = PZD object 1
[2] = PZD object 2
[3] = PZD object 3
[4] = PZD object 4
[5] = PZD object 5
[6] = PZD object 6
[7] = PZD object 7
[8] = PZD object 8
[9] = PZD object 9
[10] = PZD object 10
[11] = PZD object 11
[12] = PZD object 12
[13] = PZD object 13
[14] = PZD object 14
[15] = PZD object 15

Note: Index 0 corresponds to the CANopen object 5800 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 1 corresponds to the CANopen object 5801 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 2 corresponds to the CANopen object 5802 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 3 corresponds to the CANopen object 5803 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 4 corresponds to the CANopen object 5804 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 5 corresponds to the CANopen object 5805 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 6 corresponds to the CANopen object 5806 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 7 corresponds to the CANopen object 5807 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 8 corresponds to the CANopen object 5808 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 9 corresponds to the CANopen object 5809 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 10 corresponds to the CANopen object 580A hex + 80 hex * x (x: Drive number 0 ... 7).

Index 11 corresponds to the CANopen object 580B hex + 80 hex * x (x: Drive number 0 ... 7).

Index 12 corresponds to the CANopen object 580C hex + 80 hex * x (x: Drive number 0 ... 7).

Index 13 corresponds to the CANopen object 580D hex + 80 hex * x (x: Drive number 0 ... 7).

Index 14 corresponds to the CANopen object 580E hex + 80 hex * x (x: Drive number 0 ... 7).

Index 15 corresponds to the CANopen object 580F hex + 80 hex * x (x: Drive number 0 ... 7).

p8746[0...15] CI: CAN free PZD send objects 16 bit / Free PZD send 16

VECTOR_G (CAN)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for free PZD send objects 16 bit for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = PZD object 0
[1] = PZD object 1
[2] = PZD object 2

[3] = PZD object 3
[4] = PZD object 4
[5] = PZD object 5
[6] = PZD object 6
[7] = PZD object 7
[8] = PZD object 8
[9] = PZD object 9
[10] = PZD object 10
[11] = PZD object 11
[12] = PZD object 12
[13] = PZD object 13
[14] = PZD object 14
[15] = PZD object 15

Note: Index 0 corresponds to the CANopen object 5810 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 1 corresponds to the CANopen object 5811 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 2 corresponds to the CANopen object 5812 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 3 corresponds to the CANopen object 5813 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 4 corresponds to the CANopen object 5814 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 5 corresponds to the CANopen object 5815 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 6 corresponds to the CANopen object 5816 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 7 corresponds to the CANopen object 5817 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 8 corresponds to the CANopen object 5818 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 9 corresponds to the CANopen object 5819 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 10 corresponds to the CANopen object 581A hex + 80 hex * x (x: Drive number 0 ... 7).
Index 11 corresponds to the CANopen object 581B hex + 80 hex * x (x: Drive number 0 ... 7).
Index 12 corresponds to the CANopen object 581C hex + 80 hex * x (x: Drive number 0 ... 7).
Index 13 corresponds to the CANopen object 581D hex + 80 hex * x (x: Drive number 0 ... 7).
Index 14 corresponds to the CANopen object 581E hex + 80 hex * x (x: Drive number 0 ... 7).
Index 15 corresponds to the CANopen object 581F hex + 80 hex * x (x: Drive number 0 ... 7).

r8747[0...7] CO: CAN free PZD receive objects 32 bit / Free PZD recv 32

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Access to free PZD receive objects 32 bit using the SDO transfer.
An index can only be used, if the corresponding object has not been mapped in a PDO.

Index:
[0] = PZD object 0
[1] = PZD object 1
[2] = PZD object 2
[3] = PZD object 3
[4] = PZD object 4
[5] = PZD object 5
[6] = PZD object 6
[7] = PZD object 7

Note: Index 0 corresponds to the CANopen object 5820 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 1 corresponds to the CANopen object 5821 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 2 corresponds to the CANopen object 5822 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 3 corresponds to the CANopen object 5823 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 4 corresponds to the CANopen object 5824 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 5 corresponds to the CANopen object 5825 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 6 corresponds to the CANopen object 5826 hex + 80 hex * x (x: Drive number 0 ... 7).
Index 7 corresponds to the CANopen object 5827 hex + 80 hex * x (x: Drive number 0 ... 7).

p8748[0...7] CI: CAN free PZD send objects 32 bit / Free PZD send 32

VECTOR_G (CAN)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dyn. index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal source for free PZD send objects 32 bit for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index:
[0] = PZD object 0
[1] = PZD object 1
[2] = PZD object 2
[3] = PZD object 3
[4] = PZD object 4
[5] = PZD object 5
[6] = PZD object 6
[7] = PZD object 7

Note: Index 0 corresponds to the CANopen object 5830 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 1 corresponds to the CANopen object 5831 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 2 corresponds to the CANopen object 5832 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 3 corresponds to the CANopen object 5833 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 4 corresponds to the CANopen object 5834 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 5 corresponds to the CANopen object 5835 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 6 corresponds to the CANopen object 5836 hex + 80 hex * x (x: Drive number 0 ... 7).

Index 7 corresponds to the CANopen object 5837 hex + 80 hex * x (x: Drive number 0 ... 7).

r8750[0...15] CAN mapped 16-bit receive objects / RPDO 16 mapped

VECTOR_G (CAN)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dyn. index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the mapped 16-bit receive CANopen objects in the process data buffer.

Example:

If, e.g. the control word is mapped in an RPDO, then r8750 indicates the position of the control word in the process data buffer.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

r8751[0...15] CAN mapped 16-bit transmit objects / TPDO 16 mapped

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays mapped 16-bit transmit CANopen objects in the process data buffer.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: r8750

r8760[0...14] CAN mapped 32-bit receive objects / RPDO 32 mapped

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the mapped 32-bit receive CANopen objects in the process data buffer.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16

r8761[0...14] CAN mapped 32-bit transmit objects / TPDO 32 mapped

VECTOR_G (CAN)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays mapped 32-bit transmit CANopen objects in the process data buffer.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16

r8762 CO: CAN operating mode display / Op mode display

VECTOR_G (CAN)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the currently effective CANopen operating mode.
To send the CANopen object 0x6061 mapped in a TPDO, this parameter can be correspondingly interconnected in the PZD interface.

r8784 CO: CAN status word / Status word

VECTOR_G (CAN)			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 9226
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Display and connector output for the CANopen status word

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Rdy for switch on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
03	Fault present	Yes	No	-
04	No coasting active	Yes	No	-
05	No Quick Stop active	Yes	No	-
06	Switching on inhibited active	Yes	No	-
07	Alarm present	Yes	No	-
08	Can be freely interconnected (BI: p8785)	Yes	No	-
09	Control request	Yes	No	-
10	Target reached	Yes	No	-
11	Torque limit reached	Yes	No	-
12	Velocity equal to zero	Yes	No	-

14	Can be freely interconnected (BI: p8786)	Yes	No	-
15	Can be freely interconnected (BI: p8787)	Yes	No	-

Note: Corresponds to the CANopen object 6041 hex + 800 hex * x (x: Drive number 0 ... 7).

Re bit 10:

When the ramp-function generator is activated, the interconnection from CI: p2151 = r1119 can be changed, so that to evaluate bit 10, the setpoint can be retrieved (taken) from in front of the ramp-function generator.

Re bit 10, 12:

When braking, the two bits must indicate the same state. This is the reason that the following parameters must be set the same:

p2161 (speed threshold value 3, for r2199.0) = p2163 (speed threshold value 4, for r2197.7)

p2150 (hysteresis speed 3, for r2199.0) = p2164 (hysteresis speed 4, for r2197.7)

p8785 BI: CAN status word bit 8 / Status word bit 8

VECTOR_G (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9226
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bit 8 of the CANopen status word.

Dependency: Refer to: r8784

p8786 BI: CAN status word bit 14 / Status word bit 14

VECTOR_G (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9226
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bit 14 of the CANopen status word.

Dependency: Refer to: r8784

p8787 BI: CAN status word bit 15 / Status word bit 15

VECTOR_G (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 9226
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bit 15 of the CANopen status word.

Dependency: Refer to: r8784

p8790 CAN control word - auto interconnection / STW interc auto

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the automatic BICO interconnection of the CANopen control word.

Value:
0: No interconn
1: Interconnection

Dependency: Refer to: r2050, r2090, r2091, r2092, r2093, r8750, r8795, r8850, r8890, r8891, r8892, r8893

Note: The following BICO interconnections are automatically established if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

For SINAMICS S120 with CBC10, the PZD interface IF2 is used:

BI: p0840.0 = r889x.0

BI: p0844.0 = r889x.1

BI: p0848.0 = r889x.2

BI: p0852.0 = r889x.3

BI: p2103.0 = r889x.7

For SINAMICS S110, the PZD interface IF1 is used:

BI: p0840.0 = r209x.0

BI: p0844.0 = r209x.1

BI: p0848.0 = r209x.2

BI: p0852.0 = r209x.3

BI: p2103.0 = r209x.7

The write access is rejected if a CANopen control word is not mapped at one of these locations.

This also causes the project download of the commissioning software to be canceled.

p8791 CAN stop option code / Stop opt_code

VECTOR_G (CAN)

Can be changed: C1(3), T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	3	-1

Description: Setting for the CANopen control word bit 8 "Stop" (CANopen STW.8).

Value:
-1: No interconn
1: Interconnection CANopen STW.8 with p1142
3: Interconnection CANopen STW.8 with p1140

Dependency: Refer to: r8750, r8795, r8850

Note: Corresponds to the CANopen object 605D hex + 800 hex * x (x: drive number 0 ... 7).

The BICO interconnection is established, if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

r8792[0] CO: CAN velocity mode I16 setpoint / Vel mod I16 set

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output to interconnect standardized I16 setpoint CANopen objects of the velocity mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = VL Target Velocity

Note: Re index 0:

Corresponds to the CANopen object 6042 hex + 800 hex * x (x: Drive number 0 ... 7).

The displayed parameter value is scaled via the reference speed p2000:

4000 hex corresponds to p2000

r8795.0...15 CO/BO: CAN control word / Control word

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Access to the CANopen control word using SDO transfer.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	Do not activate coast down	Yes	No	-
02	Do not activate a Quick Stop	Yes	No	-
03	Operation enable	Yes	No	-
04	Ramp-function generator enable	Yes	No	-
05	Continue ramp-function generator	Yes	No (freeze)	-
06	Speed setpoint enable	Yes	No	-
07	Acknowledge fault	Yes	No	-
08	Stop	Yes	No	-
11	Freely interconn	Yes	No	-
12	Freely interconn	Yes	No	-
13	Freely interconn	Yes	No	-
14	Freely interconn	Yes	No	-
15	Freely interconn	Yes	No	-

Dependency: Refer to: p8790

Note: Corresponds to the CANopen object 6040 hex + 800 hex * x (x: Drive number 0 ... 7).

r8796[0] CO: CAN profile velocity mode I32 setpoints / Pr vel mo I32 set

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output to interconnect standardized I32 setpoint CANopen objects of the profile velocity mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = Target velocity

Note: Re index 0:

Corresponds to the CANopen object 60FF hex + 800 hex * x (x: Drive number 0 ... 7).

The displayed parameter value is scaled via the reference speed p2000:

4000 0000 hex corresponds to p2000

r8797[0] CO: CAN profile torque mode I16 setpoints / Pr Tq mod I16 set

VECTOR_G (CAN)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and connector output to interconnect standardized I16 setpoint CANopen objects of the profile torque mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = Target torque

Note: Re index 0:
Corresponds to the CANopen object 6071 hex + 800 hex * x (x: Drive number 0 ... 7).
The displayed parameter value is scaled via the reference torque p2003:
4000 hex corresponds to p2003

p8798[0...1] CAN speed conversion factor / n_conv_factor

VECTOR_G (CAN)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	4294967295	1

Description: The factor converts the required velocity units into the internal velocity units (U/s).
With the factory setting, for CANopen, the velocity units are increments/second.
The parameter corresponds to the CANopen object 6094 hex.
The internal velocity is calculated as follows:
n_set_internal = object 6094.1 / object 6094.2 * 1/(p0408 * 2^p0418) * n_set_bus

Index: [0] = Counter
[1] = Denominator

p8805 Identification and maintenance 4 configuration / I&M 4 config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the configuration for the content of identification and maintenance 4 (I&M 4, p8809).

Value:
0: Standard value for I&M 4 (p8809)
1: User value for I&M 4 (p8809)

Dependency: For p8805 = 0, if the user writes at least one value in p8809[0...53], then p8805 is automatically set to = 1.
When p8805 is reset = 0, then the content of the factory setting is set in p8809.

Note: Re p8805 = 0:
PROFINET I&M 4 (p8809) contains the information for the SI change tracking.
Re p8805 = 1:
PROFINET I&M 4 (p8809) contains the values written by the user.

p8806[0...53] Identification and Maintenance 1 / I&M 1

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 1" (I&M 1).
This information is known as "System identifier" and "Location identifier".

Dependency: Refer to: p8807, p8808

Notice: Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec).

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8806[0...31]:
System identifier.
Re p8806[32...53]:
Location identifier.

p8807[0...15] Identification and Maintenance 2 / I&M 2

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 2" (I&M 2).
This information is known as "Installation date".

Dependency: Refer to: p8806, p8808

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8807[0...15]:
Dates of installation or first commissioning of the (ASCII) device with the following format options.
YYYY-MM-DD
or
YYYY-MM-DD hh:mm
- YYYY: year
- MM: month 01 ... 12
- DD: day 01 ... 31
- hh: hours 00 ... 23
- mm: minutes 00 ... 59
Separators must be placed between the individual data, i.e. a hyphen '-', space ' ' and colon ':'.

p8808[0...53] Identification and Maintenance 3 / I&M 3

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 3" (I&M 3).
This information is known as "Supplementary information".

Dependency: Refer to: p8806, p8807

Notice: Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec).

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8808[0...53]:
Any supplementary information and comments (ASCII).

p8809[0...53] Identification and Maintenance 4 / I&M 4

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 bin	1111 1111 bin	0000 bin

Description: Parameters for the PROFINET data set "Identification and Maintenance 4" (I&M 4).
This information is known as "Signature".

Dependency: This parameter is preassigned as standard (see note).
After writing information to p8809, p8805 is automatically set to = 1.
Refer to: p8805

Note: For p8805 = 0 (factory setting) the following applies:
Parameter p8809 contains the information described below.
Re p8809[0...3]:
Contains the value from r9781[0] "SI change tracking checksum functional".
Re p8809[4...7]:
Contains the value from r9782[0] "SI change tracking time stamp checksum functional".
Re p8809[8...53]:
Reserved.

p8811 SINAMICS Link project selection / SINAMICS Link proj

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2198
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
16	64	64

Description: Project selection for SINAMICS Link.

Value:
16: SINAMICS Link project 16 participants
64: SINAMICS Link project 64 participants

Note: SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).
The parameter must be set the same for all participants.
A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.

p8812[0...1] SINAMICS Link settings / SINAMICS Link cl c

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2198
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2000	[0] 1 [1] 2000

Description: Sets the clock cycle for SINAMICS Link.
Re index 0:
0 = clock synchronous mode not activated, 1 = clock synchronous mode activated
Re index 1:
Possible values: 500, 1000, 2000 µs

Index:
[0] = Activate isochronous mode
[1] = Bus CC [µs]

Dependency: Refer to: p8811

Note: SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).
A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.
Re index 0:
Is applicable for the synchronization of the application. The SINAMICS Link itself is always synchronous.
Re index 1:
The value must be set the same for all participants.
When newly selecting the project p8811, p8812[1] is set to the factory setting.
For p8811 = 16, the following applies:
Min/max/factory setting: 500/500/500 µs
For p8811 = 64, the following applies:
Min/max/factory setting: 1000/2000/2000 µs

p8815[0...1]	**IF1/IF2 PZD functionality selection / IF1/IF2 PZD fct**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(1)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	2	1

Description: Selects the PZD interface for the clock cycle synchronization functionality and PROFIsafe.

Value:
1: Interface 1 (IF1)
2: Interface 2 (IF2)

Index:
[0] = Isochronous mode
[1] = PROFIsafe

Dependency: Refer to: p8839

Note: A change only becomes effective after POWER ON, reset or project download.

Example:

p8815[0] = 1: IF1 supports the isochronous mode.

p8815[1] = 2: IF2 supports PROFIsafe.

p8829	**CBE2x remote controller number / CBE2x rem ctrl num**		
CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)	**Can be changed:** C1(1)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	2	1

Description: Sets the number of remote controllers expected for PROFINET CBE20/CBE25.

The "Shared Device" functionality is activated with a value = 2.

The drive is being accessed by two PROFINET controllers simultaneously:

- automation controller (SIMOTION or SIMATIC A-CPU).

- safety controller (SIMATIC F-CPU).

Value:
1: Automation or Safety
2: Automation and Safety

Notice: The F CPU may only use PROFIsafe telegrams.

The A CPU must be connected to enable the F CPU to gain access.

Set the value = 1 to commission the F CPU individually.

Note: A change only becomes effective after a POWER ON.

p8835	**CBE20 firmware selection / CBE20 FW sel**		
CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)	**Can be changed:** C1(1)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2198
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	99	1

Description: Selects the firmware version for the CBE20.

Value:
1: PROFINET Device
2: PN gate
3: SINAMICS Link
4: EtherNet/IP
99: Customer-specific from the OEM directory

Note: A change only becomes effective after a POWER ON.

The parameter is not influenced by setting the factory setting.

CBE20: Communication Board Ethernet 20

p8836 SINAMICS Link address / SINAMICS Link add

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2198
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	64	0

Description: Selects the node address for the SINAMICS Link on the Communication Board Ethernet 20 (CBE20).

p8836 = 0: SINAMICS Link de-activated

p8836 = 1 ... 64: SINAMICS Link node address

Dependency: Refer to: p8835

Note: SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).

A change only becomes effective after a POWER ON.

The parameter is not influenced by setting the factory setting.

p8837 IF2 STW1.10 = 0 mode / IF2 STW1.10=0

B_INF, ENC, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	2

Description: Sets the processing mode for PROFIdrive STW1.10 "master control by PLC".

Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.

Value:
0: Freeze setpoints and continue to process sign-of-life
1: Freeze setpoints and sign-of-life
2: Do not freeze setpoints

Recommend.: Do not change the setting p2037 = 0.

Note: If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.

p8839[0...1] PZD interface hardware assignment / PZD IF HW assign

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2198
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	99

Description: Assignment of the hardware for cyclic communications via PZD interface 1 (IF1) and interface 2 (IF2).

Value:
0: Inactive
1: Control Unit onboard
2: COMM BOARD
99: Automatic

Index:
[0] = Interface 1
[1] = Interface 2

Dependency: Refer to: p2030, p8815

Note: For value = 99 (automatic) the following applies:

- if a COMM BOARD is not inserted, then the onboard interface (PROFIBUS/PROFINET/USS) communicates via IF1.

- if a CBE20 is inserted, then the following applies:

-- CU320-2 DP: PROFINET CBE20 communicates via IF1 and PROFIBUS/USS via IF2.

-- CU320-2 PN: PROFINET onboard communicates via IF1 and PROFINET CBE20 via IF2.

- CAN CBC10 always communicates via IF2.
For a value not equal to 99 (automatic) the following applies:
- both indices must be set to a number not equal to 99 (automatic).
A change only becomes effective after POWER ON, reset or download.

p8840 COMM BOARD monitoring time / CB t_monit

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [ms]	65535000 [ms]	20 [ms]

Description: Sets the monitoring time to monitor the process data received via COMM BOARD.
If, during this time, the Control Unit does not receive any process data from the COMM BOARD, then an appropriate message is output.

Note: This monitoring function only monitors the connection between the Control Unit and COMM BOARD and not the data traffic on the fieldbus.
Value = 0: Monitoring is de-activated.

p8841[0...239] COMM BOARD send configuration data / CB s config_dat

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Sets the send configuration data for the COMM BOARD.
The setting is activated with p8842.

Dependency: Refer to: p8842

Note: The configuration data are specific to the inserted COMM BOARD.
For CBE20, the configuration data are not relevant.

p8842 Activate COMM BOARD send configuration / CB s config act

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activate a modified send configuration for COMM BOARD.
With p8842 = 1, the values in p8841 are transferred to the COMM BOARD and activated. After this, p8842 is automatically set to zero.

Dependency: Refer to: p8841

Note: For CBE20, certain SINAMICS parameters are newly evaluated and activated. An existing, cyclic bus connection is interrupted.

r8843.0...2 BO: IF2 PZD state / IF2 PZD state

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIdrive PZD state.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint failure	Yes	No	-
01	Clock cycle synchronous operation active	Yes	No	-
02	Fieldbus oper	Yes	No	-

Dependency: Refer to: p2044

Note: When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p8844 IF2 fault delay / IF2 F delay

B_INF, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [s]	100 [s]	0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.

The time until the fault is initiated can be used by the application. This means that is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

Dependency: Refer to: r2043

p8848 IF2 PZD sampling time / IF2 PZD t_sample

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the cyclic interface 2 (IF2).

Note: The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.

For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r8849[0...139] COMM BOARD receive configuration data / CB r config_dat

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the receive configuration data for the COMM BOARD.

r8850[0...9] CO: IF2 PZD receive word / IF2 PZD recv word

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF2: Interface 2

PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...19] CO: IF2 PZD receive word / IF2 PZD recv word

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15

[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note: IF2: Interface 2

PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...3] CO: IF2 PZD receive word / IF2 PZD recv word

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Dependency: Refer to: r8860, r8890, r8891, r8892, r8893

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

Note: IF2: Interface 2

PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

r8850[0...4] CO: IF2 PZD receive word / IF2 PZD recv word

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF2: Interface 2

PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...31] CO: IF2 PZD receive word / IF2 PZD recv word

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3

[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: Refer to: r8860, r8890, r8891, r8892, r8893

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

Note: IF2: Interface 2

PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

p8851[0...9] CI: IF2 PZD send word / IF2 PZD send word

B_INF	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2493, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Note: IF2: Interface 2

p8851[0...24]	CI: IF2 PZD send word / IF2 PZD send word		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2493, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Note: IF2: Interface 2

p8851[0...11]	CI: IF2 PZD send word / IF2 PZD send word		
ENC	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2487, 9208
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Dependency: Refer to: p8861

Note: IF2: Interface 2

p8851[0...4]	**CI: IF2 PZD send word / IF2 PZD send word**		
TB30, TM150, TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2493, 9210
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF2: Interface 2

p8851[0...31]	**CI: IF2 PZD send word / IF2 PZD send word**		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2487, 9208
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: Refer to: p8861

Note: IF2: Interface 2

r8853[0...9] IF2 diagnostics PZD send / IF2 diag PZD send

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2493
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF2: Interface 2

r8853[0...24] IF2 diagnostics PZD send / IF2 diag PZD send

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2493
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14

[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF2: Interface 2

r8853[0...11] IF2 diagnostics PZD send / IF2 diag PZD send

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2487, 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-

10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p8851, p8861

Note: IF2: Interface 2

r8853[0...4] IF2 diagnostics PZD send / IF2 diag PZD send

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2493
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF2: Interface 2

r8853[0...31] IF2 diagnostics PZD send / IF2 diag PZD send

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2487, 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9

[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p8851, p8861

Note: IF2: Interface 2

r8854 COMM BOARD state / CB state

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Status display for COMM BOARD.

Value:
0: No initialization
1: Fatal fault
2: Initialization
3: Send configuration
4: Receive configuration
5: Non-cyclic communication

6: Cyclic communications but no setpoints (stop/no clock cycle)
255: Cyclic communication

r8858[0...39] COMM BOARD read diagnostics channel / CB diag_chan read

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the COMM BOARD diagnostics data.

Note: The display depends on the COMM BOARD being used.

Example for CBE20:

r8858[0] = 4201 --> Siemens CBE20

r8858[1] = 1 --> firmware type = PROFINET device (see p8835)

r8858[2] = x --> state of cyclic communication

r8858[3] = y --> state of the IP configuration

r8858[4] = 1281 --> device ID 0501 hex = SINAMICS S120/S150

r8858[5 ... 39] --> only for internal Siemens diagnostics.

r8859[0...7] COMM BOARD identification data / CB ident data

CU_G130_DP (COMM BOARD, PROFINET CBE20), CU_G130_PN (COMM BOARD, PROFINET CBE20), CU_G150_DP (COMM BOARD, PROFINET CBE20), CU_G150_PN (COMM BOARD, PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the COMM BOARD identification data

Index:
[0] = Version interface structure
[1] = Version interface driver
[2] = Company (Siemens = 42)
[3] = CB type
[4] = Firmware version
[5] = Firmware date (year)
[6] = Firmware date (day/month)
[7] = Firmware patch/hot fix

Note: Example for CBE20:

r8859[0] = 100 --> version of the interface structure V1.00

r8859[1] = 111 --> version of the interface driver V1.11

r8859[2] = 42 --> SIEMENS

r8859[3] = 0 --> CBE20

r8859[4] = 1200 --> first part, firmware version V12.00 (second part, see index 7)

r8859[5] = 2010 --> year 2010

r8859[6] = 2306 --> 23rd June

r8859[7] = 1300 --> second part, firmware version (complete version: V12.00.13.00)

r8860[0...2] CO: IF2 PZD receive double word / IF2 PZD recv DW

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4

Dependency: Refer to: r8850

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

Note: IF2: Interface 2

r8860[0...30] CO: IF2 PZD receive double word / IF2 PZD recv DW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Dependency: Refer to: r8850

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r8850 or r8860.
A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

p8861[0...10] CI: IF2 PZD send double word / IF2 PZD send DW

ENC

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2487, 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12

Dependency: Refer to: p8851

Notice: A BICO interconnection for a single PZD can only take place either on p8851 or p8861.

Note: IF2: Interface 2

p8861[0...30] CI: IF2 PZD send double word / IF2 PZD send DW

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Func. diagram:** 2487, 9208, 9210
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21

[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Dependency: Refer to: p8851

Notice: A BICO interconnection for a single PZD can only take place either on p8851 or p8861.

Note: IF2: Interface 2

r8863[0...10] IF2 diagnostics PZD send double word / IF2 diag send DW

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2487
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-

27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

r8863[0...30] IF2 diagnostics PZD send double word / IF2 diag send DW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2487
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-

14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

r8867[0...1] IF2 PZD maximum interconnected / IF2 PZDmaxIntercon

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display for the maximum interconnected PZD in the receive/send direction
Index 0: receive (r8850, r8860)
Index 1: send (p8851, p8861)

p8870[0...15] SINAMICS Link receive telegram word PZD / Recv link word

B_INF (PROFINET CBE20), CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20), ENC (PROFINET CBE20), TB30 (PROFINET CBE20), TM150 (PROFINET CBE20), TM31 (PROFINET CBE20), VECTOR_G (PROFINET CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	0

Description: Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram.
For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:
- PZD p2050[index] is assigned by means of p8870[index], p8872[index].
For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:
- PZD p8850[index] is assigned by means of p8870[index], p8872[index].

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: p8872

Note: Value range:

0: Not used

1 ... 16: Telegram word

A pair of values p8870[index], p8872[index] may only be used once in single a device.

A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8871[0...15] SINAMICS Link send telegram word PZD / Send link word

B_INF (PROFINET CBE20), CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20), ENC (PROFINET CBE20), TB30 (PROFINET CBE20), TM150 (PROFINET CBE20), TM31 (PROFINET CBE20), VECTOR_G (PROFINET CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	0

Description: Assigns a PZD to a telegram word in the SINAMICS Link send telegram.

For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:

- p8871[index] assigns PZD p2051[index].

For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:

- p8871[index] assigns PZD p8851[index].

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: p2051, p8851

Note: Value range:

0: Not used

1 ... 16: Send telegram word

A specific telegram word send may only be used once within a single device.

A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8872[0...15] SINAMICS Link address receive PZD / Link addr recv

B_INF (PROFINET CBE20), CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20), ENC (PROFINET CBE20), TB30 (PROFINET CBE20), TM150 (PROFINET CBE20), TM31 (PROFINET CBE20), VECTOR_G (PROFINET CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	64	0

Description: Selects the address of the SINAMICS Link sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: p8870

Note: Value range:

0: Not used

1 ... 64: Address

A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

r8874[0...9] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

r8874[0...19] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

r8874[0...3] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

ENC

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Note: IF2: Interface 2

Value range:

0 - 125: Bus address of the sender

255: Not assigned

r8874[0...4] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

r8874[0...31] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF2: Interface 2

Value range:

0 - 125: Bus address of the sender

255: Not assigned

r8875[0...9]	**IF2 diagnostics telegram offset PZD receive / IF diag offs recv**		
B_INF	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

r8875[0...19]	**IF2 diagnostics telegram offset PZD receive / IF diag offs recv**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

r8875[0...3]	**IF2 diagnostics telegram offset PZD receive / IF diag offs recv**		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4

Note: IF2: Interface 2

Value range:

0 - 242: Byte offset

255: Not assigned

r8875[0...4] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

TB30, TM150, TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

r8875[0...31] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29

[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF2: Interface 2

Value range:

0 - 242: Byte offset

255: Not assigned

r8876[0...9] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

B_INF

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

r8876[0...24] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

r8876[0...11]	**IF2 diagnostics telegram offset PZD send / IF2 diag offs send**		
ENC	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12

Note: IF2: Interface 2

Value range:

0 - 242: Byte offset

255: Not assigned

r8876[0...4]	**IF2 diagnostics telegram offset PZD send / IF2 diag offs send**		
TB30, TM150, TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

r8876[0...31]	**IF2 diagnostics telegram offset PZD send / IF2 diag offs send**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Communications	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10

[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Note: IF2: Interface 2

Value range:

0 - 242: Byte offset

255: Not assigned

p8880[0...15] BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent via interface 2.

The individual bits are combined to form status word 1.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

p8881[0...15] BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent via interface 2.

The individual bits are combined to form status word 2.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

p8882[0...15] BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent via interface 2.

The individual bits are combined to form free status word 3.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

p8883[0...15] BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent via interface 2.

The individual bits are combined to form free status word 4.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

p8884[0...15] BI: IF2 binector-connector converter status word 5 / Bin/con ZSW5

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Selects bits to be sent via interface 2.

The individual bits are combined to form free status word 5.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

p8888[0...4] IF2 invert binector-connector converter status word / Bin/con ZSW inv

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2489
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: p8880, p8881, p8882, p8883, p8884, r8889

r8889[0...4] CO: IF2 send binector-connector converter status word / Bin/con ZSW send

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-

Bit	Signal name	1 signal	0 signal	FP
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p8851, p8880, p8881, p8882, p8883, p8884, p8888

Note: r8889 together with p8880 to p8884 forms five binector-connector converters.

r8890.0...15 BO: IF2 PZD1 receive bit-serial / IF2 PZD1 recv bitw

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 2491, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8891.0...15 BO: IF2 PZD2 receive bit-serial / IF2 PZD2 recv bitw

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 2491, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD2 received via interface 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-

14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8892.0...15 BO: IF2 PZD3 receive bit-serial / IF2 PZD3 recv bitw

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received via interface 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8893.0...15 BO: IF2 PZD4 receive bit-serial / IF2 PZD4 recv bitw

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 9204, 9206
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-

14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8894.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[0].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p8899

r8895.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[1].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: Refer to: p8898, p8899

p8898[0...1] IF2 invert connector-binector converter binector output / Con/bin outp inv

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2485, 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.

Using p8898[0], the signals of CI: p8899[0] are influenced.

Using p8898[1], the signals of CI: p8899[1] are influenced.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: r8894, r8895, p8899

p8899[0...1] CI: IF2 connector-binector converter signal source / Con/bin S_src

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2485, 2491
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the connector-binector converter.

A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r8850, r8894, r8895, p8898

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.

p8899[0...1] together with r8894.0...15 and r8895.0...15 forms two connector-binector converters:

Connector input p8899[0] to binector output in r8894.0...15

Connector input p8899[1] to binector output in r8895.0...15

p8900[0...239] IE Name of Station / IE Name Stat

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the station name for the Industrial Ethernet interface (X127) on the Control Unit.

The active station name is displayed in r8910.

Dependency: Refer to: p8905, r8910

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
The interface configuration (p8900 and following) is activated with p8905 = 1.
The parameter is not influenced by setting the factory setting.
IE: Industrial Ethernet

p8901[0...3] IE IP Address of Station / IE IP of Stat

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the IP address for the Industrial Ethernet interface (X127) on the Control Unit.
The active IP address is displayed in r8911.

Dependency: Refer to: p8905, r8911

Note: The interface configuration (p8900 and following) is activated with p8905 = 1.
The parameter is not influenced by setting the factory setting.

p8902[0...3] IE Default Gateway of Station / IE Def Gateway

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the default gateway for the Industrial Ethernet interface (X127) on the Control Unit.
The active default gateway is displayed in r8912.

Dependency: Refer to: p8905, r8912

Note: The interface configuration (p8900 and following) is activated with p8905 = 1.
The parameter is not influenced by setting the factory setting.

p8903[0...3] IE Subnet Mask of Station / IE Subnet Mask

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the subnet mask for the Industrial Ethernet interface (X127) on the Control Unit.
The active subnet mask is displayed in r8913.

Dependency: Refer to: p8905, r8913

Note: The interface configuration (p8900 and following) is activated with p8905 = 1.
The parameter is not influenced by setting the factory setting.

p8904 IE DHCP mode / IE DHCP mode

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the DHCP mode for the Industrial Ethernet interface (X127) on the Control Unit.

Note: The interface configuration (p8900 and following) is activated with p8905.

The active DHCP mode is displayed in parameter r8914.

The parameter is not influenced by setting the factory setting.

If value = 0:

DHCP deactivated.

If value = 1:

Reserved.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

p8905 IE Interface configuration / IE IF config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Setting to activate the interface configuration for the Industrial Ethernet interface (X127) on the Control Unit.

p8905 is automatically set to 0 at the end of an operation.

Value:
0: No function
1: Activate configuration
2: Activate and save configuration
3: Delete configuration

Dependency: Refer to: p8900, p8901, p8902, p8903

Note: Re p8905 = 1:

The interface configuration (p8900 and following) is activated.

Re p8905 = 2:

The interface configuration (p8900 and following) is activated and saved to non-volatile memory.

Re p8905 = 3:

The interface configuration is reset to the factory setting at all points.

The factory settings for the interface configuration are loaded on activation (p8905 = 1) or at the next POWER ON.

p8908 Activate FTP / Act FTP

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activation of the FTP server.

Permits the FTP access to the /INSTALL/SINAMICS directory of the memory card.

Value:
0: No
1: Yes

Note: Activation of the FTP server becomes effective immediately.

Deactivation only becomes effective after POWER ON of the Control Unit.

Before commissioning the system for the first time, the FTP server is activated independent of the parameter setting.

r8909 PN device ID / PN device ID

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFINET Device ID.

Every SINAMICS device type has its own PROFINET Device ID and its own PROFINET GSD.

Note: List of the SINAMICS Device IDs:

0501 hex: S120/S150
0504 hex: G130/G150
050A hex: DC MASTER
050C hex: MV
050F hex: G120P
0510 hex: G120C
0511 hex: G120 CU240E-2
0512 hex: G120D
0513 hex: G120 CU250S-2 Vector
0514 hex: G110M

r8910[0...239] IE Name of Station active / IE Name Stat act

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the active station name for the Industrial Ethernet interface (X127) on the Control Unit.

r8911[0...3] IE IP Address of Station active / IE IP of Stat act

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active IP address for the Industrial Ethernet interface (X127) on the Control Unit.

r8912[0...3] IE Default Gateway of Station active / IE Def Gateway act

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active default gateway for the Industrial Ethernet interface (X127) on the Control Unit.

r8913[0...3]	IE Subnet Mask of Station active / IE Subnet Mask act		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active subnet mask for the Industrial Ethernet interface (X127) on the Control Unit.

r8914	IE DHCP mode of station active / IE DHCP mode act		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active DHCP mode for the Industrial Ethernet interface (X127) on the Control Unit.

Note: If value = 0:

DHCP deactivated.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

r8915[0...5]	IE MAC Address of Station / IE MAC of Station		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00FF hex	-

Description: Displays the MAC address for the Industrial Ethernet interface (X127) on the Control Unit.

p8920[0...239]	PN Name of Station / PN Name Stat		
CU_G130_PN, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Sets the station name for the onboard PROFINET interface on the Control Unit.

The active station name is displayed in r8930.

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

The interface configuration (p8920 and following) is activated with p8925.

The parameter is not influenced by setting the factory setting.

PN: PROFINET

p8921[0...3] PN IP address of station / PN IP of stat

CU_G130_PN, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the IP address for the onboard PROFINET interface on the Control Unit.

The active IP address is displayed in r8931.

Note: The interface configuration (p8920 and following) is activated with p8925.

The parameter is not influenced by setting the factory setting.

p8922[0...3] PN Default Gateway of Station / PN Def Gateway

CU_G130_PN, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the default gateway for the onboard PROFINET interface on the Control Unit.

The active default gateway is displayed in r8932.

Note: The interface configuration (p8920 and following) is activated with p8925.

The parameter is not influenced by setting the factory setting.

p8923[0...3] PN Subnet Mask of Station / PN Subnet Mask

CU_G130_PN, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the subnet mask for the onboard PROFINET interface on the Control Unit.

The active subnet mask is displayed in r8933.

Note: The interface configuration (p8920 and following) is activated with p8925.

The parameter is not influenced by setting the factory setting.

p8924 PN DHCP Mode / PN DHCP Mode

CU_G130_PN, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the DHCP mode for the onboard PROFINET interface on the Control Unit.

The active DHCP mode is displayed in r8934.

Notice: When the DHCP mode is active (p8924 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: The interface configuration (p8920 and following) is activated with p8925.

The active DHCP mode is displayed in parameter r8934.

The parameter is not influenced by setting the factory setting.

If value = 0:

DHCP deactivated.

If value = 1:

Reserved.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

p8925 PN interface configuration / PN IF config

CU_G130_PN, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Setting to activate the interface configuration for the onboard PROFINET interface on the Control Unit.

p8925 is automatically set to 0 at the end of the operation.

Value:
0: No function
1: Activate configuration
2: Activate and save configuration
3: Delete configuration

Notice: When the DHCP mode is active (p8924 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: Re p8925 = 1:

The interface configuration (p8920 and following) is activated.

Re p8925 = 2:

The interface configuration (p8920 and following) is activated and saved to non-volatile memory.

Re p8925 = 3:

Restores all memory locations for the interface configuration to the factory settings.

The factory settings for the interface configuration are loaded on activation (p8925 = 1) or at the next POWER ON.

p8929 PN remote controller number / PN rem ctrl num

CU_G130_PN, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2	1

Description: Sets the number of remote controllers expected for PROFINET onboard.

The "Shared Device" functionality is activated with a value = 2.

The drive is being accessed by two PROFINET controllers simultaneously:

- automation controller (SIMOTION or SIMATIC A-CPU).

- safety controller (SIMATIC F-CPU).

Value:
1: Automation or Safety
2: Automation and Safety

Notice: The F CPU may only use PROFIsafe telegrams.

Note: A change only becomes effective after POWER ON, reset or download.

r8930[0...239]	PN Name of Station active / PN Name Stat act		
CU_G130_PN, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the active station name for the onboard PROFINET interface on the Control Unit.

r8931[0...3]	PN IP Address of Station active / PN IP of Stat act		
CU_G130_PN, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active IP address for the onboard PROFINET interface on the Control Unit.

r8932[0...3]	PN Default Gateway of Station active / PN Def Gateway act		
CU_G130_PN, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active default gateway for the onboard PROFINET interface on the Control Unit.

r8933[0...3]	PN Subnet Mask of Station active / PN Subnet Mask act		
CU_G130_PN, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active subnet mask for the onboard PROFINET interface on the Control Unit.

r8934	PN DHCP Mode active / PN DHCP Mode act		
CU_G130_PN, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	-

Description: Displays the active DHCP mode for the onboard PROFINET interface on the Control Unit.

Notice: When the DHCP mode is active (parameter value greater than 0), PROFINET communication via this interface is no longer possible! However, the interface can be used for commissioning tool such as STARTER or SCOUT.

Note: If value = 0:

DHCP deactivated.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

r8935[0...5] PN MAC Address of Station / PN MAC of Station

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00FF hex	-

Description: Displays the MAC address for the onboard PROFINET interface on the Control Unit.

r8936[0...1] PN state cyclic connections / PN stat cyc conn

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	13	-

Description: Displays the state of the cyclic PROFINET connections.

For two connections (Shared Device) the display in the index depends on the sequence in which the connections are established.

Value:
0: Interrupted
1: Not connected
2: Connection starts to be established
3: Module information expected
4: Module information received
5: Module address expected
6: Module address received
7: Parameterization data expected
8: Parameterization data received
9: Evaluate parameterization data
10: Connection being established completion expected
11: Configured controller RUN expected
12: Configured controller STOP
13: Configured controller RUN

Dependency: Refer to: p8929

Note: If value = 10:

If the connection remains in this state, then when using PROFINET IRT the following can apply:

- topology error (incorrect port assignment).

- synchronization missing.

r8937[0...5] PN diagnostics / PN diag

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display to diagnose the cyclic PROFINET connections.

Index:
[0] = Number of cyclic connections
[1] = Number of send subslots of all connections
[2] = Number of send net data (bytes) of all connections
[3] = Number of receive subslots of all connections
[4] = Number of receive net data (bytes) of all connections
[5] = Connection type (RT, IRT)

Dependency: Refer to: p8929

Note: Re index 5:
Bit 0 = 1: there is at least one RT connection.
Bit 1 = 1: there is an IRT connection.

r8939 PN DAP ID / PN DAP ID

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFINET Device Access Point ID (DAP ID) for the onboard PROFINET interface.
The combination of device ID (r8909) and DAP ID uniquely identifies a PROFINET access point.

Note: List of the SINAMICS DAP IDs:
20007 hex: CBE20 V4.5
20008 hex: CBE20 V4.6
20107 hex: CU310-2 PN V4.5
20108 hex: CU310-2 PN V4.6
20307 hex: CU320-2 PN V4.5
20308 hex: CU320-2 PN V4.6
20407 hex: CU230P-2 PN /CU240x-2 PN V4.5
20408 hex: CU230P-2 PN /CU240x-2 PN /CU250S-2 PN /G110M PN V4.6
20507 hex: CU250D-2 PN V4.5
20508 hex: CU250D-2 PN V4.6

p8940[0...239] CBE2x Name of Station / CBE2x Name Stat

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Sets the station name for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8941, p8942, p8943, p8944, p8945

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8941[0...3] CBE2x IP Address of Station / CBE2x IP of Stat

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8940, p8942, p8943, p8944, p8945

Note: The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8942[0...3] CBE2x Default Gateway of Station / CBE2x Def Gateway

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8940, p8941, p8943, p8944, p8945

Note: The interface configuration (p8940 and following) is activated with p8945.

The parameter is not influenced by setting the factory setting.

p8943[0...3] CBE2x Subnet Mask of Station / CBE2x Subnet Mask

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8940, p8941, p8942, p8944, p8945

Note: The interface configuration (p8940 and following) is activated with p8945.

The parameter is not influenced by setting the factory setting.

p8944 CBE2x DHCP Mode / CBE2x DHCP Mode

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8940, p8941, p8942, p8943, p8945

Notice: When the DHCP mode is active (p8944 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: The active DHCP mode is displayed in parameter r8954.

The interface configuration (p8940 and following) is activated with p8945.

The parameter is not influenced by setting the factory setting.

If value = 0:

DHCP deactivated.

If value = 1:

Reserved.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

p8945 CBE2x interface configuration / CBE2x int config

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the activation of the interface configuration for the Communication Board Ethernet 20/25 (CBE20/CBE25).

p8945 is automatically set to 0 at the end of an operation.

Value:
0: No function
2: Save and activate configuration
3: Delete configuration

Dependency: Refer to: p8940, p8941, p8942, p8943, p8944

Notice: When the DHCP mode is active (p8944 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: For CBE20, the parameter is only valid for firmware version "PROFINET Device" (p8835 = 1) or "Ethernet/IP" (p8835 = 4). Otherwise, it is locked.

This restriction is not applicable for the CBE25.

Re p8945 = 2:

The interface configuration (p8940 and following) is saved and activated after the next POWER ON.

Re p8945 = 3:

The factory setting of the interface configuration is loaded after the next POWER ON.

r8950[0...239] CBE2x Name of Station active / CBE2x Name act

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the active station name for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8951[0...3] CBE2x IP Address of Station active / CBE2x IP act

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8952[0...3] CBE2x Default Gateway of Station active / CBE2x def GW act

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8953[0...3] CBE2x Subnet Mask of Station active / CBE2x Sub Mask act

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8954 CBE2x DHCP Mode active / CBE2x DHCP act

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the active DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Notice: When the DHCP mode is active (parameter value greater than 0), PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: If value = 0:

DHCP deactivated.

If value = 2:

DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:

DHCP activated. The station name of this interface is used for client identification.

r8955[0...5] CBE2x MAC Address of Station / CBE2x MAC Addr

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00FF hex	-

Description: Displays the MAC address for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8959 CBE2x DAP ID / CBE2x DAP ID

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	-

Description: Displays the DAP ID for PROFINET via the Communication Board Ethernet 20/25 (CBE20/CBE25).

The combination of device ID (r8909) and DAP ID (r8959) uniquely identifies a PROFINET access point.

Note: DAP ID: Device Access Point ID

DAP ID = 20007 hex: SINAMICS CBE20 V4.5

DAP ID = 20008 hex: SINAMICS CBE20 V4.6

DAP ID = 20009 hex: SINAMICS CBE20 V4.7

DAP ID = 20209 hex: SINAMICS CBE25 V4.7

r8960[0...2] PN subslot controller assignment / PN subslot assign

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	-

Description: Displays the controller assignment of a PROFINET subslot on the actual drive object.

Index:
[0] = Subslot 2 PROFIsafe
[1] = Subslot 3 PZD telegram
[2] = Subslot 4 PZD supplementary data

Dependency: Refer to: r8961, r8962

Note: Example:

If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

r8961[0...3] PN IP Address Remote Controller 1 / IP Addr Rem Ctrl1

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the IP address of the first PROFINET controller connected with the device via PN onboard.

r8962[0...3] PN IP Address Remote Controller 2 / IP Addr Rem Ctrl2

CU_G130_PN, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the IP address of the second PROFINET controller connected with the device via PN onboard.

p8969 PROFIsafe wait for clock synchronization / PS wait sync

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting for the behavior of a PROFIsafe communication connection depending on another isochronous communication connection.

Value:
0: No
1: Yes

Recommend.: A value of 1 is recommended, if problems are encountered with the PROFIsafe connection when synchronizing.

Note: If value = 1:

A PROFIsafe connection is only accepted if an isochronous connection exists.

Relevant, if PROFIsafe and isochronous operation are configured via various communication connections (e.g. PROFINET Shared Device).

r8970[0...2] CBE2x subslot controller assignment / CBE2x subslot

B_INF (PROFINET CBE20), CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20), ENC (PROFINET CBE20), TB30 (PROFINET CBE20), TM150 (PROFINET CBE20), TM31 (PROFINET CBE20), VECTOR_G (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	8	-

Description: Displays the controller assignment of a PROFINET subslot on the actual drive object.

Index:
[0] = Subslot 2 PROFIsafe
[1] = Subslot 3 PZD telegram
[2] = Subslot 4 PZD supplementary data

Dependency: Refer to: r8971, r8972

Note: Example:

If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

r8971[0...3] CBE2x IP Address Remote Controller 1 / CBE2x IP Rem Ctrl1

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the IP address of the first PROFINET controller connected with the device via CBE20/CBE25.

r8972[0...3] CBE2x IP Address Remote Controller 2 / CBE2x IP Rem Ctrl2

CU_G130_DP (PROFINET CBE20), CU_G130_PN (PROFINET CBE20), CU_G150_DP (PROFINET CBE20), CU_G150_PN (PROFINET CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	-

Description: Displays the IP address of the second PROFINET controller connected with the device via CBE20/CBE25.

p8986 Web server configuration / Web serv config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0101 bin

Description: Setting to activate and configure the "Web server" function in the drive.

It is possible to access the web server via the integrated Ethernet and PROFINET interfaces of the drive. The addressing is realized via the set IP address.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Activating	Yes	No	-
01	Only permit access via https	Yes	No	-
02	Enable "SINAMICS" user	Yes	No	-
03	Enable "Administrator" user	Yes	No	-

p8987[0...1] Web server port assignment / WebServ PortAssign

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	32767	[0] 80 [1] 443

Description: This parameter allows the port setting for the web server to be changed.

Index:
[0] = Port for standard transfer (http)
[1] = Port for secure transfer (https)

p9206[0...2] Topology direct access / Topo access

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Data setting to read topology properties.

The result is displayed depending on the property in r9207 or r9208.

Re index 0:

0: actual topology, 1: target topology

Re index 1:

Sets the component number of the component involved.

Re index 2:

7: Name (r9208)

8: Component type (r9207)

9: Number of DRIVE-CLiQ connections (r9207)

11: Manufacturer (upper byte) and version (lower byte) (r9207)

12: Serial number (r9208)

13: Index (r9207)

15: Comparison level (r9207)

23: Order number (r9207)

24: Hardware serial number (r9208)

25: Collective order number (r9207)

28: Firmware version (r9207)

29: EEPROM version (r9207)

30: Hardware version (r9207)

1000: Name of DRIVE-CLiQ connection 0 (r9208)

1001: Name of DRIVE-CLiQ connection 1 (r9208)

...

1015: Name of DRIVE-CLiQ connection 15 (r9208)

Index:
[0] = Actual topology/target topology
[1] = Component number
[2] = Identifier/property

Dependency: Refer to: r9207, r9208

r9207	Topology direct access integer value / Topo access int		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the value for the property set in p9206.
A value is only displayed for integer type properties.

Dependency: Refer to: p9206, r9208

r9208[0...50]	Topology direct access string / Topo access string		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the value for the property set in p9206.
A value is only displayed for string type properties.

Dependency: Refer to: p9206, r9207

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

p9210	Flashing component number / Flash comp_no		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	499	0

Description: Sets the component number for a component to get its status LED to flash.

Dependency: Refer to: p9211

p9211	Flash function / Flash fct.		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1	1	-1

Description: Sets the function for the component selected in p9210.
After initiating a function, the parameter is automatically reset again.
Example:
- Set the component number (p9210).
- Select the "flashing on" function (set p9211 = 1).

Value:
-1: Select function
0: Flashing off
1: Flashing on

Dependency: Refer to: p9210

Notice: If a task cannot be executed (e.g. the component number in p9210 does not exist), the following applies:
- There is no negative feedback signal.
- The value is reset anyway.

r9220	**Statistic number of entries / Statistic size**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Supplies the number of entries in p9222.

Dependency: In p9221, the component Id is set whose statistic entries are to be displayed.

Refer to: p9221

p9221	**Statistic components Id / Statistic compId**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00FF hex	0002 hex

Description: Selects the component Id whose statistics are to be displayed in p9222.

r9222[0...n]	**Statistic Drive-CLiQ acyclic communication / Statistic**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** r9220	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Represents the statistic of acyclic Drive-CLiQ communication.

The component is preset in p9221.

The entry comprises the following elements:

Index 0: Parameter Id
Index 1: Number of messages sent.
Index 2: Minimum time of all acyclic requests referred to the parameter Id (index 0).
Index 3: Maximum time of all acyclic requests referred to the parameter Id (index 0).
Index 4: Average of all acyclic requests referred to the parameter Id (index 0).

The time unit is 10us.

Dependency: The number of statistic entries is displayed in p9220.

In p9221, the component Id can be set whose statistic is to be displayed.

Refer to: r9220, p9221

Note: As a statistic entry comprises 5 data, when calling the entries via the terminal, a size that represents a multiple of 5 must be specified.

Example: the 2nd entry must be called:

rdp 1 9222 5 5
or
rdpa 1 9222 5 5.

p9300 SI Motion monitoring clock cycle (Motor Module) / SI Mtn clock MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
500.00 [µs]	25000.00 [µs]	12000.00 [µs]

Description: Sets the monitoring clock cycle for safe motion monitoring.

Dependency: Refer to: p9500, p9511

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The monitoring clock cycle must be a multiple of the actual value sensing clock cycle in p9311 or of the DP clock cycle.

A change only becomes effective after a POWER ON.

p9301 SI Motion enable safety functions (Motor Module) / SI Mtn enable MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the enable signals for the safe motion monitoring.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable SOS/SLS	Enable	Inhibit	-
01	Enable SLP	Enable	Inhibit	-
02	Enable absolute position	Enable	Inhibit	-
03	Enable actual value synchronization	Enable	Inhibit	-
16	Enable SSM hysteresis and filtering	Enable	Inhibit	2823
17	Enable SDI	Enable	Inhibit	2824
24	Enable transfer SLS limit value via PROFIsafe	Enable	Inhibit	-
25	Enable transfer safe position via PROFIsafe	Enable	Inhibit	-
26	Enable safe gearbox switchover	Enable	Inhibit	-
27	Enable referencing via SCC	Enable	Inhibit	-

Dependency: Refer to: p9501

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

SDI: Safe Direction (safe motion direction)

SLP: Safely-Limited Position

SLS: Safely-Limited Speed

SOS: Safe Operating Stop

SP: Safe Position

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9302 SI Motion axis type (Motor Module) / SI Mtn AxisType MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the axis type (linear axis or rotary axis/spindle).

Value:

0: Linear axis

1: Rot axis/spindle

Dependency: Refer to: p9502

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.

A change only becomes effective after a POWER ON.

p9305 SI Motion SP modulo value (Motor Module) / SI mtn SP mod MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [°]	737280 [°]	0 [°]

Description: Sets the modulo value in degrees for rotary axes of the "Safe position" function.

This modulo value is taken into account when safely referencing as well as when transferring the safe position via PROFIsafe when the absolute position is enabled.

The value should be set, so that it is precisely at 2^n revolutions, so that when the range that can be represented (+/-2048) overflows, this does not cause the position actual value to jump.

The modulo function is deactivated for a value = 0.

Notice: When the "SLP" function is activated, the modulo function must be deactivated as otherwise fault F30681 will be output.

If the absolute position is not enabled, then the parameterized modulo value is not taken into account.

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SLP: Safely-Limited Position

SP: Safe Position

p9306 SI Motion function specification (Motor Module) / SI Mtn fct_spc MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the function specification for the safe motion monitoring.

Value:
0: Safety with encoder and accel_monitoring(SAM) / delay time
1: Safety without encoder and braking ramp(SBR)
3: Safety without encoder with accel_monitoring(SAM) / delay time

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9307 SI Motion function configuration MM / SI mtn config MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the function configuration for the safe motion monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Extended message acknowledgement	Yes	No	-
01	Setpoint velocity limit for STOP F	No	Yes	-
02	Actual value sensing sensorless motor type	Synchronous motor	Induction motor	-
03	SS1 with OFF3 (brake response)	SS1E external stop	SS1 with OFF3	-
05	Actual value sensing sensorless edge modulation	Yes	No	-
06	Configuration test stop motion monitoring functions	Test automatic	Test manual	-

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: Re bit 00:

When the function is activated, a safety-relevant acknowledgement (internal event acknowledge) can be performed by selecting/deselecting STO.

Re bit 01:

When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

Re bit 02:

This bit defines the type of motor, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for an induction motor.

For bit = 1, the actual velocity is calculated for a synchronous motor. This value depends on the setting in p0300.

Bit = 0 should be set if no motor is defined (p0300 = 0).

Re bit 03:

When the bit is activated – when selecting function SS1 or activating a STOP B – an SS1E or a STOP B with Stop, which should be externally initiated, is triggered instead of SS1 with a drive-based braking response. As a consequence, brake monitoring (SBR, SAM) is deactivated.

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

Re bit 05:

This bit defines the type of modulation, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for space vector modulation.

For bit = 1, the actual velocity is calculated for edge modulation. This value depends on the setting in p1802.

p9309 SI Motion behavior during pulse suppression (Motor Module) / SI Mtn behav IL MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 1111 1111 bin

Description: Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Re bit 00:

If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.

Note: SDI: Safe Direction (safe motion direction)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

Re bit 00:

For bit = 1 and with the SSM safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.

For bit = 0 and with the SSM safety function activated, the following applies:

- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.

Re bit 08:

For bit = 1 and with the SDI safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the status signal indicates inactive.

For bit = 0 and with the SDI safety function activated, the following applies:

- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

p9311 SI Motion actual value sensing clock cycle (Motor Module) / SI Mtn act clk MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0000 [µs]	25000.0000 [µs]	0.0000 [µs]

Description: Sets the clock cycle time of the actual value sensing for safe motion monitoring.

Setting criteria if the motion monitoring functions are executed with an encoder.

- A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing.
- The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730.
- The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used.

Setting criteria if the motion monitoring functions are executed without an encoder:

- The actual value sensing clock cycle must be set to the same value as the current controller clock cycle (p0115).

Dependency: Refer to: p0115, p9300, p9511

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The parameter is only active for drive-based motion monitoring functions (p9801.2 = 1).

The monitoring clock cycle from p9300 must be an integer multiple of this parameter.

In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended.

The clock cycle time of the actual value sensing should not be set to more than 8 ms.

A change only becomes effective after a POWER ON.

p9312 Select SI Motion safety functions without selection (MM) / SI Mtn w/o sel MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0001 0000 bin

Description: Sets the safety functions without selection.

The safety functions without selection are enabled with p9601.5/p9801.5.

Using this parameter, the individual motion monitoring functions can then be selected (e.g. SLS, SDI positive, SDI negative), which should then be permanently selected.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	SLS static (MM)	Statically active	Statically inact	-
12	SDI positive static (MM)	Statically active	Statically inact	-
13	SDI negative static (MM)	Statically active	Statically inact	-

Dependency: Refer to: p9601, p9801

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change becomes immediately effective after exiting the safety commissioning mode.

SDI: Safe Direction (safe motion direction).

SLS: Safely-Limited Speed

p9313 SI Motion non safety-relevant measuring steps POS1 (MM) / nsrPOS1 MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	22000

Description: Sets the non safety-relevant measuring steps of position value POS1.

The encoder that is used for the safe motion monitoring functions on processor 2, must be parameterized in this parameter.

Dependency: Refer to: p9513

p9314 SI Motion absolute encoder linear measuring steps (MM) / EncLinMeasStep MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [nm]	4294967295 [nm]	100 [nm]

Description: Sets the resolution of the absolute position for a linear absolute encoder.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p9514

p9315 SI Motion coarse position value configuration (Motor Module) / SI Mtn s config MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the encoder configuration for the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-
16	DRIVE-CLiQ encoder	Yes	No	-
17	EnDat-2.2 converter	Yes	No	-

Dependency: Refer to: r0474, p9515

p9316 SI Motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for the encoder and position actual value.

The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder rotating/linear	Linear	Rotating	-
01	Position actual value sign change	Yes	No	-

Dependency: Refer to: p0404, p0410, p9516

p9317 SI Motion linear scale grid division (Motor Module) / SI Mtn grid MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [nm]	250000000.00 [nm]	10000.00 [nm]

Description: Sets the grid division for a linear encoder.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p0407, p9316

p9318 SI Motion encoder pulses per revolution (Motor Module) / SI Mtn p/rev MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16777215	2048

Description: Sets the number of encoder pulses per revolution for rotary encoders.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p0408, p9316

p9319 SI Motion fine resolution G1_XIST1 (Motor Module) / SI Mtn G1_XIST1 MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2	18	11

Description: Sets the fine resolution for G1_XIST1 in bits.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p0418

Note: For safety functions that have not been enabled (p9301 = 0), the following applies: When booting, p9319 is automatically set the same as p0418.

For safety functions that are enabled (p9301 > 0), the following applies: p9319 is checked for agreement with p0418.

G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)

p9320 **SI Motion spindle pitch (Motor Module) / SI Mtn sp_pitch MM**

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1000 [mm]	8388.0000 [mm]	10.0000 [mm]

Description: Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p9520

Notice: The fourth decimal point can be rounded-off depending on the size of the entered number (from 3 places before the decimal point).

p9321[0...7] **SI Motion gearbox encoder (motor)/load denom (Motor Module) / SI Mtn gearDenomMM**

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2147000000	1

Description: Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9322

p9322[0...7] **SI Motion gearbox encoder (motor)/load numerator (Motor Module) / SI Mtn gear num MM**

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2147000000	1

Description: Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9321

Note: In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.
Example:
Gearbox ratio 1:4, pole pair number (r0313) = 2
--> p9321 = 1, p9322 = 8 (4 x 2)

p9323 SI Motion red. coarse position value valid bits (Motor Module) / Valid bits MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	9

Description: Sets the number of valid bits of the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: r0470, p9523

p9324 SI Motion redundant coarse pos. value fine resolution bits (MM) / SI Mtn fine bit MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-16	16	-2

Description: Sets the number of valid bits for the fine resolution of the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: r0471, p9524

p9325 SI Motion redundant coarse pos. value relevant bits (MM) / Relevant bits MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	16

Description: Sets the number of relevant bits for the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p0414, r0472, p9525

p9326 SI Motion encoder assignment (Motor Module) / SI Mtn encoder MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	3	1

Description: Sets the number of the encoder, which is used on the Motor Module for safe motion monitoring functions.

Dependency: For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1).
Refer to: p0187, p0188, p0189, p0430, p9526

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.
For p9326 = 1, the following applies:
Motor Module uses an encoder for closed-loop speed control, it involves a 1-encoder system.

p9328[0...11] SI Motion Sensor Module Node Identifier (Motor Module) / SI Mtn SM Ident MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00FF hex	0000 hex

Description: Sets the node identifier of the Sensor Module that is used by the Motor Module/Hydraulic Module for the motion monitoring functions.

Dependency: Refer to: r9881

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9329 SI Motion Gx_XIST1 coarse pos safe most significant bit (MM) / Gx_XIST1 MSB MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	31	14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: Refer to: p0415, r0475, p9529

Note: MSB: Most Significant Bit

p9330 SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [mm]	100.000 [mm]	1.000 [mm]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Dependency: Refer to: p9530

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SOS: Safe Operating Stop

p9330 SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.000 [°]	100.000 [°]	1.000 [°]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Dependency: Refer to: p9530

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SOS: Safe Operating Stop

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [mm/min]	1000000.00 [mm/min]	2000.00 [mm/min]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).

Index:
[0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9363, p9531

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SLS: Safely-Limited Speed

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	1000000.00 [rpm]	2000.00 [rpm]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).

Index:
[0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9363, p9531

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SLS: Safely-Limited Speed

p9334[0...1]	SI Motion SLP upper limit values (Motor Module) / SI Mtn SLP uplimMM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-2147000.000 [mm]	2147000.000 [mm]	100000.000 [mm]

Description: Sets the upper limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9535, p9562

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The following applies to the setting of these limits:

- p9334[x] > p9335[x]
- p9334[x] must lie in the valid traversing range (-737280 ... 737280).

SLP: Safely-Limited Position / SE: Safe software limit switches

p9334[0...1] SI Motion SLP upper limit values (Motor Module) / SI Mtn SLP uplimMM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	100000.000 [°]

Description: Sets the upper limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9535, p9562

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The following applies to the setting of these limits:
- p9334[x] > p9335[x]
- p9334[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9335[0...1] SI Motion SLP lower limit values (Motor Module) / SI Mtn SLPlowLimMM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [mm]	2147000.000 [mm]	-100000.000 [mm]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The following applies to the setting of these limits:
- p9334[x] > p9335[x]
- p9335[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9335[0...1] SI Motion SLP lower limit values (Motor Module) / SI Mtn SLPlowLimMM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	-100000.000 [°]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The following applies to the setting of these limits:
- p9334[x] > p9335[x]
- p9335[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9339[0...7] SI Motion gearbox direction of rotation reversal (Motor Module) / SI Mtn grbx rev MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the direction of rotation reversal for the gearbox.

0: No direction of rotation reversal

1: Direction of rotation reversal

The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9321

p9341 SI Motion encoder comparison algorithm (Motor Module) / Enc comp algo MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	255

Description: Sets the comparison algorithm for the encoder position monitoring functions.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Value:
0: SMx20 safety algorithm
10: DQL binary safety algorithm
11: DQL linear non-binary safety algorithm
12: SMC30 safety algorithm
255: Safety algorithm unknown

Dependency: Refer to: p9541

p9342 SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [mm]	360.0000 [mm]	0.1000 [mm]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.

For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Dependency: Refer to: p9542

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For a linear axis, the tolerance is internally limited to 10 mm.

For a "linear axis with rotating motor" and factory setting of p9320, p9321 and p9322, the factory setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.

p9342 SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0010 [°]	360.0000 [°]	0.1000 [°]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.

For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Dependency: Refer to: p9542

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For a linear axis, the tolerance is internally limited to 10 mm.

For a "linear axis with rotating motor" and factory setting of p9320, p9321 and p9322, the factory setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.

p9343 SI Motion gearbox switching position tolerance (MM) / SI Mtn grbx tol MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	1000	1

Description: Sets the factor to increase the tolerance for the crosswise data comparison of the actual position between the two monitoring channels while the gearbox stage is being switched over.

This factor is effective when actual value synchronization is activated and when deactivated.

Depending on the following tolerance, the following is obtained:

- actual value synchronization activated: p9549 * p9543

- actual value synchronization deactivated: p9542 * p9543

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9344 SI Motion actual value comparison tolerance (referencing) (MM) / SI mtn ref tol MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0000 [mm]	36.0000 [mm]	0.0100 [mm]

Description: Sets the tolerance for checking the actual values.

For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

For linear axes, the maximum value is limited to 1 mm.

p9344 SI Motion actual value comparison tolerance (referencing) (MM) / SI mtn ref tol MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0000 [°]	36.0000 [°]	0.0100 [°]

Description: Sets the tolerance for checking the actual values.

For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

For linear axes, the maximum value is limited to 1 mm.

p9345 SI Motion SSM filter time (Motor Module) / SI Mtn SSM filt MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	100000.00 [µs]	0.00 [µs]

Description: Sets the filter time for the SSM feedback signal to detect standstill.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The filter time is effective only if the function is enabled (p9301.16 = p9501.16 = 1).

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9346 SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	1000000.00 [mm/min]	20.00 [mm/min]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" is set.

For p9368 = p9568 = 0 the value in p9346/p9546 is also applicable for the function "SAM".

Dependency: Refer to: p9546

Caution: The "SAM" function is switched out if the selected threshold value is undershot.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9346 SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	1000000.00 [rpm]	20.00 [rpm]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" is set.

For p9368 = p9568 = 0 the value in p9346/p9546 is also applicable for the function "SAM".

Dependency: Refer to: p9546

Caution: The "SAM" function is switched out if the selected threshold value is undershot.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347	SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [mm/min]	500.0000 [mm/min]	10.0000 [mm/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The velocity hysteresis is effective only if the function is enabled (p9301.16 = p9501.16 = 1).
The parameter is included in the crosswise data comparison of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347	SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [rpm]	500.0000 [rpm]	10.0000 [rpm]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The velocity hysteresis is effective only if the function is enabled (p9301.16 = p9501.16 = 1).
The parameter is included in the crosswise data comparison of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9348	SI Motion SAM actual velocity tolerance (Motor Module) / SI Mtn SAM tol MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [mm/min]	120000.00 [mm/min]	300.00 [mm/min]

Description: Sets the velocity tolerance for the "SAM" function.

Dependency: Refer to: p9548

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9348	SI Motion SAM actual velocity tolerance (Motor Module) / SI Mtn SAM tol MM		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	120000.00 [rpm]	300.00 [rpm]

Description: Sets the velocity tolerance for the "SAM" function.

Dependency: Refer to: p9548

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9349 SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	6000.00 [mm/min]	6.00 [mm/min]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: Refer to: p9301, p9342, p9549

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the crosswise data comparison.

p9349 SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	6000.00 [rpm]	6.00 [rpm]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: Refer to: p9301, p9342, p9549

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the crosswise data comparison.

p9351 SI Motion SLS(SG) changeover/SOS (SBH) delay time (MM) / SI SLS/SOS t MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819, 2820
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	600000000.00 [µs]	100000.00 [µs]

Description: Sets the delay time for the SLS changeover and for the activation of SOS for the functions "Safely-Limited Speed" (SLS) and "Safe operating stop" (SOS).

When transitioning from a higher to a lower safely-limited speed level, and when activating safe operating stop (SOS), within this delay time, the "old" speed level remains active.

This delay is also applicable when activating SLS from the state "SOS and SLS inactive" and activating SOS from the state "SOS inactive".

Dependency: Refer to: p9551

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SLS: Safely-Limited Speed

SOS: Safe Operating Stop

p9352 SI Motion transition time STOP C to SOS (Motor Module) / SI Mtn t C->SOS MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	600000000.00 [µs]	100000.00 [µs]

Description: Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9552

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop

p9353 SI Motion transition time STOP D to SOS (Motor Module) / SI Mtn t D->SOS MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	600000000.00 [µs]	100000.00 [µs]

Description: Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9553

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop

p9354 SI Motion transition time STOP E to SOS (Motor Module) / SI Mtn t E->SOS MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	600000000.00 [µs]	100000.00 [µs]

Description: Sets the transition time from STOP E to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9554

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop

p9355 SI Motion transition time STOP F to STOP B (Motor Module) / SI Mtn t F->B MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	600000000.00 [µs]	0.00 [µs]

Description: Sets the transition time from STOP F to STOP B.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9356 SI Motion STOP A delay time (Motor Module) / SI Mtn IL t_del MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	3600000000.00 [µs]	100000.00 [µs]

Description: Sets the delay time for STOP A after STOP B / SS1.

In the case of encoderless motion monitoring functions with safe brake ramp monitoring (p9306 = 1) and the OFF3 ramp enabled at the same time (p9507.3 = 0), the parameter has no effect.

Dependency: Refer to: p9360, p9556

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SS1: Safe Stop 1

p9357 SI Motion STO test time (Motor Module) / SI Mtn IL t MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	10000000.00 [µs]	100000.00 [µs]

Description: Sets the time after which STO must be active when initiating the test stop.

Dependency: Refer to: p9557

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9358 SI Motion acceptance test mode time limit (Motor Module) / SI Mtn acc t MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5000000.00 [µs]	100000000.00 [µs]	40000000.00 [µs]

Description: Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Dependency: Refer to: p9558

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9360 SI Motion STO shutdown velocity (Motor Module) / SI Mtn IL v_sh MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	6000.00 [mm/min]	0.00 [mm/min]

Description: Sets the shutdown velocity for activating STO.

Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected.

In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).

Dependency: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The shutdown velocity has no effect for a value = 0.
SS1: Safe Stop 1

p9360 SI Motion pulse suppression shutdown speed (Motor Module) / SI Mtn IL n_sh MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	6000.00 [rpm]	0.00 [rpm]

Description: Sets the shutdown speed for the pulse suppression.
Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).

Dependency: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The shutdown speed has no effect for a value = 0.
SS1: Safe Stop 1

p9362[0...1] SI Motion SLP stop response (Motor Module) / SI mtn SLP stop MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	14	2

Description: Sets the stop response for the function "Safely-Limited Position" (SLP).

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9534, p9535

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SLP: Safely-Limited Position

p9363[0...3] SI Motion SLS stop response (Motor Module) / SI Mtn SLS Stop MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	14	2

Description: Sets the stop response for the function "Safely-Limited Speed" (SLS).
These settings apply to the individual limit values for SLS.
In the case of encoderless motion monitoring (p9506/p9306 = 1, 3), only a value of 0 or 1 is permitted.

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D

4: STOP E
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Index: [0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9331, p9380, p9563

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLS: Safely-Limited Speed

p9364 SI Motion SDI tolerance (Motor Module) / SI Mtn SDI tol MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.001 [mm]	360.000 [mm]	12.000 [mm]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).

This motion in the monitored direction is still permissible before safety message C30716 is initiated.

Dependency: Refer to: p9365, p9366

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SDI: Safe Direction (safe motion direction)

p9364 SI Motion SDI tolerance (Motor Module) / SI Mtn SDI tol MM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.001 [°]	360.000 [°]	12.000 [°]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).

This motion in the monitored direction is still permissible before safety message C30716 is initiated.

Dependency: Refer to: p9365, p9366

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SDI: Safe Direction (safe motion direction)

p9365 SI Motion SDI delay time (Motor Module) / SI Mtn SDI t MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	600000000.00 [µs]	100000.00 [µs]

Description: Sets the delay time for the function "Safe motion direction" (SDI).

After selecting the SDI function, then for a maximum of this time, motion in the monitored direction is permissible. This time can therefore be used for braking any motion.

Dependency: Refer to: p9364, p9366

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SDI: Safe Direction (safe motion direction)

p9366 SI Motion SDI stop response (Motor Module) / SI Mtn SDI Stop MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2824
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	14	1

Description: Sets the stop response for the function "Safe motion direction" (SDI).
This setting applies to both directions of motion.
In the case of encoderless motion monitoring (p9306 = 1), only a value of 0 or 1 is permitted.

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Dependency: Refer to: p9364, p9365

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SDI: Safe Direction (safe motion direction)

p9368 SI Motion SAM velocity limit (Motor Module) / SI Mtn SAM v_limMM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	1000.00 [mm/min]	0.00 [mm/min]

Description: Sets the velocity tolerance limit for the "SAM" function.
SAM is de-activated once the set velocity limit has been undershot.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)
For p9568 = p9368 = 0, the following applies:
The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9368 SI Motion SAM velocity limit (Motor Module) / SI Mtn SAM v_limMM

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	1000.00 [rpm]	0.00 [rpm]

Description: Sets the velocity tolerance limit for the "SAM" function.
SAM is de-activated once the set velocity limit has been undershot.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

For p9568 = p9368 = 0, the following applies:

The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9370 SI Motion acceptance test mode (Motor Module) / SI Mtn acc_mod MM

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00AC hex	0000 hex

Description: Setting to select and de-select the acceptance test mode.

Value:
0: [00 hex] De-select the acceptance test mode
172: [AC hex] Select the acceptance test mode

Dependency: Refer to: p9358, r9371

Note: Acceptance test mode can only be selected if the motion monitoring functions, which are integrated in the drives, are enabled (p9601.2/p9801.2).

r9371 SI Motion acceptance test status (Motor Module) / SI Mtn acc_stat MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00AC hex	-

Description: Displays the status of the acceptance test mode.

Value:
0: [00 hex] Acc_mode inactive
12: [0C hex] Acc_mode not possible due to POWER ON fault
13: [0D hex] Acc_mode not possible due to incorrect ID in p9370
15: [0F hex] Acc_mode not possible due to expired Acc_timer
172: [AC hex] Acc_mode active

Dependency: Refer to: p9358, p9370

p9374 SI Motion safe position scaling (Motor Module) / SI mtn SP scal MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	100000	1000

Description: Sets the scaling factor to transfer the safe position via PROFIsafe in the 16-bit notation.

Dependency: Refer to: r9713

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The parameter is only effective when PROFIsafe telegram 901 is selected.

By selecting a suitable scaling of the 32 bit position actual value (r9713[0]), it must be ensured that the scaled position actual value is not greater than 16 bit. The scaling is realized by dividing r9713[0] with this scaling factor.

If, during operation, a position actual value is determined, which cannot be scaled to the 16 bits, then message C30711 with value 7001 is output and safety stop response STOP F.

p9377	SI Motion SLP delay time (Motor Module) / SI mtn SLP t MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	600000000.00 [µs]	0.00 [µs]

Description: Setting the delay time:
-between selecting and activating the "Safety-limited Position" (SLP) function
-when changing between the two active SLP ranges, if the new range is not completely contained in the old range.

Dependency: Refer to: p9301, p9334, p9335

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SLP: Safely-Limited Position

p9380	SI Motion STO delay bus failure (Motor Module) / SI Mtn t to IL MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	800000.00 [µs]	0.00 [µs]

Description: Sets the delay time after which STO is executed when the bus fails.

Dependency: Refer to: p9363

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
The main use of the wait time is the ESR function (Extended Stop and Retract).
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	600.0000 [mm/min]	240000.0000 [mm/min]	1500.0000 [mm/min]

Description: Sets the reference value to define the brake ramp.
The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).

Dependency: Refer to: p9382, p9383

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	600.0000 [rpm]	240000.0000 [rpm]	1500.0000 [rpm]

Description: Sets the reference value to define the brake ramp.
The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).

Dependency: Refer to: p9382, p9383

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9382 SI Motion brake ramp delay time (Motor Module) / SI Mtn rp t_del MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10000.00 [µs]	99000000.00 [µs]	250000.00 [µs]

Description: Sets the delay time for monitoring the brake ramp.

Monitoring of the brake ramp starts once the delay time has elapsed.

Dependency: Refer to: p9381, p9383

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

Internally, the set time is limited downwards to 2 safety monitoring clock cycles (2 * p9500/p9300).

p9383 SI Motion brake ramp monitoring time (Motor Module) / SI Mtn rp t_mon MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
500.00 [ms]	3600000.00 [ms]	10000.00 [ms]

Description: Sets the monitoring time to define the brake ramp.

The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).

Dependency: Refer to: p9381, p9382

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9385 SI Motion actual value sensing sensorless fault tolerance (MM) / ActVal sl tol MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-1	4	-1

Description: Sets the tolerance of the plausibility monitoring of the current and voltage angle.

A higher value results in a higher degree of ruggedness when reversing at low speeds, as well as in the field weakening range for load steps.

An increase is advantageous, if the current or voltage at the motor become small.

Dependency: Refer to: p9507

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Reducing this value can adversely affect the actual value sensing and the plausibility check.

When the value is increased, this results in a longer evaluation delay and a higher velocity deviation (r9787).

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

For synchronous motors, the value 4 must be set.

If value = -1:

- for synchronous motors, the calculation is automatically made with the value 4.

- for induction motors, the calculation is automatically made with a value of 0 (if the code number of the power unit p0201[0] < 14000, otherwise with a value of 2).

p9386 SI Motion actual value sensing sensorless delay time (MM) / ActVal sl t_del MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	5.00 [ms]	1000.00 [ms]	100.00 [ms]

Description: Sets the delay time to evaluate the encoderless actual value sensing after the pulses have been enabled.

The value must be greater than or equal to the motor magnetizing time (p0346).

Caution: The safety functionality is only completely guaranteed after this time has expired.

⚠

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C30711 with the message value 1041 or 1042.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9387 SI Motion actual value sensing sensorless filter time (MM) / Actv sl t_filt MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	100000.00 [µs]	25000.00 [µs]

Description: Sets the filter time for smoothing the actual value with sensorless actual value sensing.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

A longer filter time results in a longer response time.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

The smoothing is realized with a 1st order lowpass filter

For p9387 = minimum value, the filter is deactivated.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9388 SI Motion actual value sensing sensorless minimum current (MM) / ActVal sl I_min MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	1000.00 [%]	10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing referred to 1 A (i.e. 1 % = 10 mA).

- The value must be increased if C30711 has occurred with message value 1042.
- The value must be decreased if C30711 has occurred with message value 1041.

For synchronous motors, the following condition must be fulfilled:

|p0305 x p9783| >= p9388 x 1.2

Recommend.: If required, the correct value of the motor minimum current should be determined by making the appropriate measurements.

Dependency: Refer to: r9785

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

If this percentage value is reduced excessively, then this can result in a safety message and an inaccurate actual value.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

p9389 SI Motion actual value sensing sensorless accel. limit (MM) / ActVal sI a_lim MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.00 [%]	3300.00 [%]	100.00 [%]

Description: Sets the acceleration limit to filter velocity fluctuations.

If this percentage value is increased, when accelerating, velocity peaks that do not reflect the real velocity characteristic can occur.

If this value is decreased, and this dampens the velocity peaks when accelerating.

- The value must be increased if C30711 with message value 1043 has occurred.

- The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Recommend.: The setting of this parameter depends on the motor and closed-loop control, and must be newly determined for each configuration.

To do this, a measurement should be performed while the actual value jumps, and the limit in r9785[0] must be set so low using p9389, so that it is exceeded by the value in r9785[1] a maximum of four times per second. The actual value correction filter intervenes at this instant in time. The step is no longer so drastic.

Dependency: Refer to: r9784

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

For p9389 = maximum value, the filter is deactivated.

Diagnostics parameter p9784 must be used to correctly set this parameter.

r9390[0...3] SI Motion version safety motion monitoring (Motor Module) / SI Mtn Version MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated version for the safe monitoring functions.

Index:
[0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)
[3] = Safety Version (hotfix)

Dependency: Refer to: r9590, r9770, r9870, r9890

Note: Example:

r9390[0] = 2, r9390[1] = 60, r9390[2] = 1, r9390[3] = 0 --> SI Motion version V02.60.01.00

r9398[0...1] SI Motion actual checksum SI parameters (Motor Module) / SI Mtn act CRC MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters of the motion monitoring function (actual checksum) on the Motor Module/Hydraulic Module.

Index:
[0] = Checksum over SI parameters for motion monitoring
[1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: p9399

Note: SI: Safety Integrated

p9399[0...1]	**SI Motion reference checksum SI parameters (Motor Module) / SI Mtn setp CRC MM**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters of the motion monitoring function (reference checksum) on the Motor Module/Hydraulic Module.

Index: [0] = Checksum over SI parameters for motion monitoring
[1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: r9398

Note: SI: Safety Integrated

r9406[0...19]	**PS file parameter number parameter not transferred / PS par_no n transf**		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card).

r9406[0] = 0

--> All of the parameter values were able to be transferred error-free.

r9406[0...x] > 0

--> indicates the parameter number in the following cases:

- parameter, whose value was not able to be completely accepted.

- indexed parameter, where at least 1 index was not able to be accepted. The first index that is not transferred is displayed in r9407.

Dependency: Refer to: r9407, r9408

Note: All indices from r9406 to r9408 designate the same parameter.

r9406[x] parameter number, parameter not accepted

r9407[x] parameter index, parameter not accepted

r9408[x] fault code, parameter not accepted

r9407[0...19]	**PS file parameter index parameter not transferred / PS parameter index**		
All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).

If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n].

r9406[0] = 0

--> All of the parameter values were able to be transferred error-free.

r9406[n] > 0

--> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.

Dependency: Refer to: r9406, r9408

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9408[0...19] PS file fault code parameter not transferred / PS fault code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Only for internal Siemens service purposes.

Dependency: Refer to: r9406, r9407

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9409 Number of parameters to be saved / Qty par to save

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.

Dependency: Refer to: p0971, p0977

Notice: Inherent to the system, the list of the parameters to be backed up is empty after the following actions:
- Download
- Warm restart
- Factory setting

In these cases, a new parameter backup must be initiated, which is then the starting point for the list of modified parameters.

Note: The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9450[0...29] Reference value change parameter with unsuccessful calculation / Ref_chg par n poss

B_INF, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.

r9451[0...29] Units changeover adapted parameters / Unit_chngov par

B_INF, ENC, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the parameters whose parameter would have to be changed during a units changeover.

r9481 Number of BICO interconnections / BICO count

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of BICO interconnections (signal sinks).

Dependency: Refer to: r9482, r9483

Note: The selected BICO interconnections should be entered into r9482 and r9483.

r9482[0...n] BICO interconnections BI/CI parameters / BICO BI/CI par

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** r9481	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the signal sinks (binector/connector inputs, BI/CI parameters).

The number of BICO interconnections is displayed in r9481.

Dependency: Refer to: r9481, r9483

Note: The list is sorted according to signal sources and is structured as follows:

r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)

r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)

...

r9483[0...n] BICO interconnections BO/CO parameters / BICO BO/CO par

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** r9481	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the signal sources (binector/connector outputs, BO/CO parameters).

The number of BICO interconnections is displayed in r9481.

Dependency: Refer to: r9481, r9482

Note: The list is sorted according to signal sources and is structured as follows:

r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)

r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)

...

p9484 BICO interconnections search signal source / BICO S_src srch

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks.

The question is answered:

How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482 and r9483)?

Dependency: Refer to: r9481, r9482, r9483, r9485, r9486

r9485 BICO interconnections signal source search count / BICO S_src srchQty

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of BICO interconnections to the signal sink being searched for.

Dependency: Refer to: r9481, r9482, r9483, p9484, r9486

Note: The signal source to be searched is set in p9484 (BICO-coded).

The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9486 BICO interconnections signal source search first index / BICO S_src srchIdx

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the first index of the signal source being searched for.

Dependency: Refer to: r9481, r9482, r9483, p9484, r9485

Note: The signal source to be searched is set in p9484 (BICO-coded).

The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9490 Number of BICO interconnections to other drives / Qty BICO to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).

Dependency: Refer to: r9491, r9492, p9493

r9491[0...9] BI/CI of BICO interconnections to other drives / BI/CI to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.

Dependency: Refer to: r9490, r9492, p9493

Notice: A drive cannot be deleted if this list is not empty!

Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note: All indices of r9491 to p9493 designate the same interconnection.

r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

r9492[0...9] BO/CO of BICO interconnections to other drives / BO/CO to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.

Dependency: Refer to: r9490, r9491, p9493

Notice: A drive cannot be deleted if this list is not empty!

Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note: All indices of r9491 to p9493 designate the same interconnection.

r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9493[0...9] Reset BICO interconnections to other drives / Reset BICO to drv

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	15	15

Description: Setting to reset the BICO interconnections to other drives.

Each interconnection can be individually reset.

Value:
0: Set connection to 0
1: Set connection to 1 (100 %)
2: Set connection to factory setting
15: Finished

Dependency: Refer to: r9490, r9491, r9492

Note: All indices of r9491 to p9493 designate the same interconnection.

r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9495 BICO behavior for de-activated drive objects / Behav for deact DO

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the behavior for BICO interconnections to drive objects that are either not capable of operation or have been deactivated.

BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).

Value:
0: Inactive
1: Save interconnections
2: Save interconnections and establish the factory setting

Dependency: Refer to: p9496, p9497, p9498, p9499

Note: For p9495 = 0, the following applies:

- the number of interconnections is zero (p9497 = 0).

For p9495 not equal to 0, the following applies:

- the BI/CI parameters involved are listed in p9498[0...29] (signal sink).
- the associated BO/CO parameters are listed in p9499[0...29] (signal source).

p9496 BICO behavior when activating drive objects / Behav when act DO

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the behavior when activating BICO interconnections to drive objects that are either not capable of operation or have been deactivated.

Value:
0: Inactive
1: Restore the interconnections from the list
2: Delete the interconnections from the list

Dependency: Refer to: p9495, p9497, p9498, p9499

Note: The BI/CI parameters involved are listed in p9498[0...29] (signal sink).

The associated BO/CO parameters are listed in p9499[0...29] (signal source).

After p9496 = 1, 2 the following applies:

- p9497 = 0
- p9496 = 0

p9497 BICO interconnections to de-activated drive objects number / Interconn obj qty

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Displays the number of saved BICO interconnections to drive objects that are either not capable of operation or have been deactivated.

BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).

Dependency: Refer to: p9495, p9496, p9498, p9499

p9498[0...29] BICO BI/CI parameters to de-activated drive objects / BI/CI to deact obj

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Displays the saved BI/CI parameters (signal sink), whose source is located on drive objects that are either not capable of operation or have been deactivated.

Dependency: Refer to: p9495, p9496, p9497, p9499

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9499[0...29] BICO BO/CO parameters to de-activated drive objects / BO/CO to deact obj

B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, TB30, TM150, TM31, VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Commands	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Displays the saved BO/CO parameters (signal source), which are located on drive objects that are either not capable of operation or have been deactivated.

Dependency: Refer to: p9495, p9496, p9497, p9498

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9500 SI Motion monitoring clock cycle (Control Unit) / SI Mtn clock CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.50000 [ms]	25.00000 [ms]	12.00000 [ms]

Description: Sets the monitoring clock cycle for safe motion monitoring.

Dependency: Refer to: r2064, p9511

Note: A change only becomes effective after a POWER ON.

The monitoring clock cycle must be a multiple of the actual value sensing clock cycle (see the parameter description for p9511).

p9501 SI Motion enable safety functions (Control Unit) / SI Mtn enable CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the enable signals for the safe motion monitoring.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable SOS/SLS (SBH/SG)	Enable	Inhibit	-
01	Enable SLP (SE)	Enable	Inhibit	-
02	Enable absolute position	Enable	Inhibit	-
03	Enable actual value synchronization	Enable	Inhibit	-
16	Enable SSM (n < nx) hysteresis and filtering	Enable	Inhibit	2823
17	Enable SDI	Enable	Inhibit	2824

24	Enable transfer SLS (SG) limit value via PROFIsafe	Enable	Inhibit	-
25	Enable transfer safe position via PROFIsafe	Enable	Inhibit	-
26	Enable safe gearbox switchover	Enable	Inhibit	-
27	Enable referencing via SCC	Enable	Inhibit	-

Note: A change only becomes effective after a POWER ON.

SDI: Safe Direction (safe motion direction)

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9502 SI Motion axis type (Control Unit) / SI Mtn ax type CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the axis type (linear axis or rotary axis/spindle).

Value:
0: Linear axis
1: Rot axis/spindle

Note: For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.

A change only becomes effective after a POWER ON.

p9503 SI Motion SCA (SN) enable (Control Unit) / SI Mtn SCA enab

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Setting to enable the function "Safe Cam" (SCA).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable SCA1 (SN1)	Enable	Inhibit	-
01	Enable SCA2 (SN2)	Enable	Inhibit	-
02	Enable SCA3 (SN3)	Enable	Inhibit	-
03	Enable SCA4 (SN4)	Enable	Inhibit	-
04	Enable SCA5 (SN5)	Enable	Inhibit	-
05	Enable SCA6 (SN6)	Enable	Inhibit	-
06	Enable SCA7 (SN7)	Enable	Inhibit	-
07	Enable SCA8 (SN8)	Enable	Inhibit	-
08	Enable SCA9 (SN9)	Enable	Inhibit	-
09	Enable SCA10 (SN10)	Enable	Inhibit	-
10	Enable SCA11 (SN11)	Enable	Inhibit	-
11	Enable SCA12 (SN12)	Enable	Inhibit	-
12	Enable SCA13 (SN13)	Enable	Inhibit	-
13	Enable SCA14 (SN14)	Enable	Inhibit	-
14	Enable SCA15 (SN15)	Enable	Inhibit	-
15	Enable SCA16 (SN16)	Enable	Inhibit	-
16	Enable ESCA17 (SN17)	Enable	Inhibit	-
17	Enable SCA18 (SN18)	Enable	Inhibit	-
18	Enable SCA19 (SN19)	Enable	Inhibit	-
19	Enable SCA20 (SN20)	Enable	Inhibit	-
20	Enable SCA21 (SN21)	Enable	Inhibit	-
21	Enable SCA22 (SN22)	Enable	Inhibit	-
22	Enable SCA23 (SN23)	Enable	Inhibit	-
23	Enable SCA24 (SN24)	Enable	Inhibit	-

Bit	Signal name	1 signal	0 signal	FP
24	Enable SCA25 (SN25)	Enable	Inhibit	-
25	Enable SCA26 (SN26)	Enable	Inhibit	-
26	Enable SCA27 (SN27)	Enable	Inhibit	-
27	Enable SCA28 (SN28)	Enable	Inhibit	-
28	Enable SCA29 (SN29)	Enable	Inhibit	-
29	Enable SCA30 (SN30)	Enable	Inhibit	-

Dependency: Refer to: p9501

Note: The "Safe Cam" function (SCA) can either be enabled using p9501 or p9503.

SCA: Safe Cam / SN: Safe software cam

p9505 SI Motion SP modulo value (Control Unit) / SI mtn SP mod CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [°]	737280 [°]	0 [°]

Description: Sets the modulo value in degrees for rotary axes of the "Safe position" function.

This modulo value is taken into account when safely referencing as well as when transferring the safe position via PROFIsafe when the absolute position is enabled.

The value should be set, so that it is precisely at 2^n revolutions, so that when the range that can be represented (+/-2048) overflows, this does not cause the position actual value to jump.

The modulo function is deactivated for a value = 0.

Dependency: Refer to: p9501

Notice: When the "SLP" function is activated, the modulo function must be deactivated as otherwise fault F01681 will be output.

If the absolute position is not enabled, then the parameterized modulo value is not taken into account.

Note: SLP: Safely-Limited Position

SP: Safe Position

p9506 SI Motion function specification (Control Unit) / SI Mtn fct_spc CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	0

Description: Sets the function specification for the safe motion monitoring.

Value:

0: Safety with encoder and accel_monitoring(SAM) / delay time
1: Safety without encoder with braking ramp (SBR)
3: Safety without encoder with accel_monitoring(SAM) / delay time

p9507 SI Motion function specification (Control Unit) / SI Mtn config CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the function configuration for the safe motion monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Extended message acknowledgement	Yes	No	-
01	Setpoint velocity limit for STOP F	No	Yes	-
02	Actual value sensing sensorless motor type	Synchronous motor	Induction motor	-
03	SS1 with OFF3 (brake response)	SS1E external stop	SS1 with OFF3	-

05	Actual value sensing sensorless edge modulation	Yes	No	-
06	Configuration test stop motion monitoring functions	Test automatic	Test manual	-

Note: Re bit 00:

When the function is activated, a safety-relevant acknowledgement (internal event acknowledge) can be performed by selecting/deselecting STO.

Re bit 01:

When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

Re bit 02:

This bit defines the type of motor, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for an induction motor.

For bit = 1, the actual velocity is calculated for a synchronous motor. This value depends on the setting in p0300.

Bit = 0 should be set if no motor is defined (p0300 = 0).

Re bit 03:

When the bit is activated – when selecting function SS1 or activating a STOP B – an SS1E or a STOP B with Stop, which should be externally initiated, is triggered instead of SS1 with a drive-based braking response. As a consequence, brake monitoring (SBR, SAM) is deactivated.

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

Re bit 05:

This bit defines the type of modulation, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for space vector modulation.

For bit = 1, the actual velocity is calculated for edge modulation. This value depends on the setting in p1802.

Re bit 06:

For the automatic test stop, the test stop can still be initiated via binector input p9705.

The automatic test stop is executed after power up, partial power up or a warm restart.

p9509 SI Motion behavior during pulse suppression (Control Unit) / SI Mtn behav IL CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 1111 1111 bin

Description: Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-

Notice: Re bit 00:

If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.

Note: SDI: Safe Direction (safe motion direction)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

Re bit 00:

For bit = 1 and with the SSM safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.

For bit = 0 and with the SSM safety function activated, the following applies:

- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.

Re bit 08:

For bit = 1 and with the SDI safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the status signal indicates inactive.

For bit = 0 and with the SDI safety function activated, the following applies:

- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

p9510 SI Motion clock-cycle synchronous PROFIBUS master / SI Mtn sync master

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Setting for clock cycle synchronous communication between PROFIdrive controller and Control Unit.

The parameter is only relevant, if the safety-relevant motion monitoring functions integrated in the drive have been enabled (p9601.2 =1).

If a PROFIdrive controller exchanges process data in clock cycle synchronism with the Control Unit, then p9510 must be set to 1. This also applies if the drive itself does not exchange process data in clock cycle synchronism.

Examples for clock cycle synchronous communication:

- clock-cycle synchronous control for the motion control (e.g. SIMOTION).

- clock-cycle synchronous PROFIsafe master (e.g. SIMATIC S7-400F).

Value:
0: Communication not isochronous
1: Communication isochronous

Notice: As of firmware version 2.6, the parameter has no effect.

p9511 SI Motion actual value sensing cycle clock (Control Unit) / SI Mtn act clk CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ms]	25.00000 [ms]	0.00000 [ms]

Description: Sets the clock cycle time of the actual value sensing for safe motion monitoring.

Setting criteria if the motion monitoring functions are executed with an encoder.

- A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing.

- The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730.

- The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used.

Setting criteria if the motion monitoring functions are executed without an encoder:

- The actual value sensing clock cycle must be set to the same value as the current controller clock cycle (p0115).

Dependency: Refer to: p0115

Note: The parameter is only active for drive-based motion monitoring functions (p9601.2 = 1).

The monitoring clock cycle from p9500 must be an integer multiple of this parameter.

In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended.

The clock cycle time of the actual value sensing should not be set to more than 8 ms.

A change only becomes effective after a POWER ON.

p9512 Select SI Motion safety functions without selection (CU) / SI Mtn w/o sel CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0001 0000 bin

Description: Sets the safety functions without selection.

The safety functions without selection are enabled with p9601.5/p9801.5.

Using this parameter, the individual motion monitoring functions can then be selected (e.g. SLS, SDI positive, SDI negative), which should then be permanently selected.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	SLS static (CU)	Statically active	Statically inact	-
12	SDI positive static (CU)	Statically active	Statically inact	-
13	SDI negative static (CU)	Statically active	Statically inact	-

Dependency: Refer to: p9601, p9801

Note: A change becomes immediately effective after exiting the safety commissioning mode.

SDI: Safe Direction (safe motion direction).

SLS: Safely-Limited Speed

p9513 SI Motion non safety-relevant measuring steps POS1 (CU) / nsrPOS1

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	22000

Description: Sets the non safety-relevant measuring steps of position value POS1.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0416, r0473, p9313

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9513 is automatically set the same as r0416 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9513 is checked to see that it matches r0416.

p9514 SI Motion absolute encoder linear measuring steps (CU) / Enc lin meas step

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0 [nm]	4294967295 [nm]	100 [nm]

Description: Sets the resolution of the absolute position for a linear absolute encoder.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0422, r0469, p9314

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9514 is automatically set the same as r0422 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9514 is checked to see that it matches r0422.

p9515 SI Motion encoder coarse position value config (Control Unit) / SI Mtn s config CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the encoder configuration for the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-
16	DRIVE-CLiQ encoder	Yes	No	-
17	EnDat-2.2 converter	Yes	No	-

Dependency: Refer to: r0474, p9315

Note: - after starting the copy function (p9700 = 57 hex), p9515.0...4 are set the same as r0474.

For safe functions that are not enabled (p9501 = 0), the following applies:

- when the system boots, p9515.16 is automatically set the same as p0404.10, p9515.17 the same as p0404.8 & 11.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9515.16 is checked to identify whether it coincides with p0404.10, p9515.17 with p0404.8 & 11

p9516 SI Motion encoder configuration safety functions (Control Unit) / SI Mtn enc_cfg CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the configuration for the motor encoder and position actual value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor encoder rotating/linear	Linear	Rotating	-
01	Position actual value sign change	Yes	No	-

Dependency: Refer to: p0404, p0410

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9516.0 is automatically set the same as p0404.0 when the system boots.

- p9516.1 is automatically set the same as p0410.1 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9516.0 is checked to identify whether it coincides with p0404.0.

p9517 SI Motion linear encoder grid division (Control Unit) / SI Mtn grid CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [nm]	250000000.00 [nm]	10000.00 [nm]

Description: Sets the grid division for a linear encoder.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0407, p9516

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting p9517 is automatically set the same as p0407.

For safety functions that are enabled (p9501 > 0), the following applies: p9517 is checked whether it coincides with p0407.

p9518 SI Motion encoder pulses per revolution (Control Unit) / SI Mtn puls/rev CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16777215	2048

Description: Sets the number of encoder pulses per revolution for rotary encoders.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0408, p9516

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9518 is automatically set the same as p0408.

For safety functions that are enabled (p9501 > 0), the following applies: p9518 is checked whether it coincides with p0408.

p9519 SI Motion fine resolution G1_XIST1 (Control Unit) / SI Mtn G1_XIST1 CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2	18	11

Description: Sets the fine resolution for G1_XIST1 in bits.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0418

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9519 is automatically set the same as p0418.

For safety functions that are enabled (p9501 > 0), the following applies: p9519 is checked whether it coincides with p0418.

G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)

p9520 SI Motion spindle pitch (Control Unit) / SI Mtn Sp_pitch CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.1000 [mm]	8388.0000 [mm]	10.0000 [mm]

Description: Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.

Notice: The fourth decimal point can be rounded-off depending on the size of the entered number (from 3 places before the decimal point).

p9521[0...7] SI Motion gearbox enc (motor)/load denominator (Control Unit) / SI Mtn gear den CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2147000000	1

Description: Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9522

p9522[0...7] SI Motion gearbox encoder (motor)/load numerator (Control Unit) / SI Mtn gear num CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	2147000000	1

Description: Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9521

Note: In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.

Example:

Gearbox ratio 1:4, pole pair number (r0313) = 2

--> p9521 = 1, p9522 = 8 (4 x 2)

p9523 SI Motion redundant coarse pos. value valid bits (Control Unit) / Valid bits CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	9

Description: Sets the number of valid bits of the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: r0470, p9323

Note: - after starting the copy function (p9700 = 57 hex), p9523 is set the same as r0470.

p9524 SI Motion Redundant coarse pos. value fine resolution bits (CU) / SI Mtn fine bit CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-16	16	-2

Description: Sets the number of valid bits for the fine resolution of the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: r0471, p9324

Note: - after starting the copy function (p9700 = 57 hex), p9524 is set the same as r0471.

p9525 SI Motion Redundant coarse pos. value relevant bits (CU) / Relevant bits CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	16

Description: Sets the number of relevant bits for the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0414, r0472, p9325

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9525 is automatically set the same as r0472 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9525 is checked to see that it matches r0472.

p9526 SI Motion encoder assignment second channel / SI Mtn enc chan 2

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	3	1

Description: Sets the number of the encoder that the second channel (control, Motor Module) uses for safe motion monitoring functions.

Dependency: For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1).

Refer to: p0187, p0188, p0189, p0430

Note: For p9526 = 1, the encoder for the closed-loop speed control is used for the second channel of the motion monitoring functions (1-encoder system).

A change only becomes effective after a POWER ON.

p9529	SI Motion Gx_XIST1 coarse pos. safe most significant bit (CU) / Gx_XIST1 MSB CU		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	31	14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: p0415, r0475, p9329

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9529 is automatically set the same as r0475 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9529 is checked to see that it matches r0475.

MSB: Most Significant Bit

p9530	SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [mm]	100.000 [mm]	1.000 [mm]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Note: SOS: Safe Operating Stop / SBH: Safe operating stop

p9530	SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [°]	100.000 [°]	1.000 [°]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Note: SOS: Safe Operating Stop / SBH: Safe operating stop

p9531[0...3]	SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [mm/min]	1000000.00 [mm/min]	2000.00 [mm/min]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).

Index:
[0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9532, p9561, p9563

Note: SLS: Safely-Limited Speed / SG: Safely reduced speed

p9531[0...3]	SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [rpm]	1000000.00 [rpm]	2000.00 [rpm]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).

Index:
[0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9532, p9561, p9563

Note: SLS: Safely-Limited Speed / SG: Safely reduced speed

p9532[0...15]	SI Motion SLS (SG) override factor (Control Unit) / SI Mtn SLS over CU		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [%]	100.000 [%]	100.000 [%]

Description: Sets the override factor for the limit value for SLS2 and SLS4 for the function "Safely-Limited Speed" (SLS).

Index:
[0] = SLS (SG) override factor 0
[1] = SLS (SG) override factor 1
[2] = SLS (SG) override factor 2
[3] = SLS (SG) override factor 3
[4] = SLS (SG) override factor 4
[5] = SLS (SG) override factor 5
[6] = SLS (SG) override factor 6
[7] = SLS (SG) override factor 7
[8] = SLS (SG) override factor 8
[9] = SLS (SG) override factor 9
[10] = SLS (SG) override factor 10
[11] = SLS (SG) override factor 11
[12] = SLS (SG) override factor 12
[13] = SLS (SG) override factor 13
[14] = SLS (SG) override factor 14
[15] = SLS (SG) override factor 15

Dependency: Refer to: p9501, p9531

Note: The actual override factor for SLS2 and SLS4 is selected using the safety-relevant inputs (SGE).
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9533	SI Motion SLS setpoint velocity limiting (Control Unit) / SI Mtn SLS set_lim		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.000 [%]	100.000 [%]	80.000 [%]

Description: This is an evaluation factor to define the setpoint limit from the selected actual speed limit.
The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733.

Dependency: This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1)
r9733[0] = p9531[x] x p9533 (converted from the load side to the motor side)
r9733[1] = - p9531[x] x p9533 (converted from the load side to the motor side)
[x] = Selected SLS stage
Conversion factor from the motor side to the load side:
- motor type = rotary and axis type = linear: p9522 / (p9521 x p9520)
- otherwise: p9522 / p9521
Refer to: p9501, p9531, p9601

Note: The active actual speed limit is selected via safety-relevant inputs (SGE).
When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733.
SLS: Safely-Limited Speed

p9534[0...1] SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [mm]	2147000.000 [mm]	100000.000 [mm]

Description: Sets the upper limit for the function "Safely-Limited Position" (SLP).

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9535, p9562

Note: The following applies to the setting of these limits:
- p9534[x] > p9535[x]
- p9534[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9534[0...1] SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	100000.000 [°]

Description: Sets the upper limit for the function "Safely-Limited Position" (SLP).

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9535, p9562

Note: The following applies to the setting of these limits:
- p9534[x] > p9535[x]
- p9534[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9535[0...1] SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [mm]	2147000.000 [mm]	-100000.000 [mm]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Note: The following applies to the setting of these limits:
- p9534[x] > p9535[x]
- p9535[x] must lie in the valid traversing range (-737280 ... 737280).

SLP: Safely-Limited Position / SE: Safe software limit switches

p9535[0...1] SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	-100000.000 [°]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Note: The following applies to the setting of these limits:
- p9534[x] > p9535[x]
- p9535[x] must lie in the valid traversing range (-737280 ... 737280).

SLP: Safely-Limited Position / SE: Safe software limit switches

p9536[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [mm]	2147000.000 [mm]	10.000 [mm]

Description: Sets the plus cam position for the function "Safe Cam" (SCA).

Index:
[0] = Cam position SCA1 (SN1)
[1] = Cam position SCA2 (SN2)
[2] = Cam position SCA3 (SN3)
[3] = Cam position SCA4 (SN4)
[4] = Cam position SCA5 (SN5)
[5] = Cam position SCA6 (SN6)
[6] = Cam position SCA7 (SN7)
[7] = Cam position SCA8 (SN8)
[8] = Cam position SCA9 (SN9)
[9] = Cam position SCA10 (SN10)
[10] = Cam position SCA11 (SN11)
[11] = Cam position SCA12 (SN12)
[12] = Cam position SCA13 (SN13)
[13] = Cam position SCA14 (SN14)
[14] = Cam position SCA15 (SN15)
[15] = Cam position SCA16 (SN16)
[16] = Cam position SCA17 (SN17)
[17] = Cam position SCA18 (SN18)
[18] = Cam position SCA19 (SN19)
[19] = Cam position SCA20 (SN20)
[20] = Cam position SCA21 (SN21)
[21] = Cam position SCA22 (SN22)
[22] = Cam position SCA23 (SN23)
[23] = Cam position SCA24 (SN24)
[24] = Cam position SCA25 (SN25)
[25] = Cam position SCA26 (SN26)
[26] = Cam position SCA27 (SN27)
[27] = Cam position SCA28 (SN28)

[28] = Cam position SCA29 (SN29)
[29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9537

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9536[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+

VECTOR_G (Safety rot)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	10.000 [°]

Description: Sets the plus cam position for the function "Safe Cam" (SCA).

Index:
[0] = Cam position SCA1 (SN1)
[1] = Cam position SCA2 (SN2)
[2] = Cam position SCA3 (SN3)
[3] = Cam position SCA4 (SN4)
[4] = Cam position SCA5 (SN5)
[5] = Cam position SCA6 (SN6)
[6] = Cam position SCA7 (SN7)
[7] = Cam position SCA8 (SN8)
[8] = Cam position SCA9 (SN9)
[9] = Cam position SCA10 (SN10)
[10] = Cam position SCA11 (SN11)
[11] = Cam position SCA12 (SN12)
[12] = Cam position SCA13 (SN13)
[13] = Cam position SCA14 (SN14)
[14] = Cam position SCA15 (SN15)
[15] = Cam position SCA16 (SN16)
[16] = Cam position SCA17 (SN17)
[17] = Cam position SCA18 (SN18)
[18] = Cam position SCA19 (SN19)
[19] = Cam position SCA20 (SN20)
[20] = Cam position SCA21 (SN21)
[21] = Cam position SCA22 (SN22)
[22] = Cam position SCA23 (SN23)
[23] = Cam position SCA24 (SN24)
[24] = Cam position SCA25 (SN25)
[25] = Cam position SCA26 (SN26)
[26] = Cam position SCA27 (SN27)
[27] = Cam position SCA28 (SN28)
[28] = Cam position SCA29 (SN29)
[29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9537

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9537[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [mm]	2147000.000 [mm]	-10.000 [mm]

Description: Sets the minus cam position for the function "Safe Cam" (SCA).

Index:
[0] = Cam position SCA1 (SN1)
[1] = Cam position SCA2 (SN2)
[2] = Cam position SCA3 (SN3)

[3] = Cam position SCA4 (SN4)
[4] = Cam position SCA5 (SN5)
[5] = Cam position SCA6 (SN6)
[6] = Cam position SCA7 (SN7)
[7] = Cam position SCA8 (SN8)
[8] = Cam position SCA9 (SN9)
[9] = Cam position SCA10 (SN10)
[10] = Cam position SCA11 (SN11)
[11] = Cam position SCA12 (SN12)
[12] = Cam position SCA13 (SN13)
[13] = Cam position SCA14 (SN14)
[14] = Cam position SCA15 (SN15)
[15] = Cam position SCA16 (SN16)
[16] = Cam position SCA17 (SN17)
[17] = Cam position SCA18 (SN18)
[18] = Cam position SCA19 (SN19)
[19] = Cam position SCA20 (SN20)
[20] = Cam position SCA21 (SN21)
[21] = Cam position SCA22 (SN22)
[22] = Cam position SCA23 (SN23)
[23] = Cam position SCA24 (SN24)
[24] = Cam position SCA25 (SN25)
[25] = Cam position SCA26 (SN26)
[26] = Cam position SCA27 (SN27)
[27] = Cam position SCA28 (SN28)
[28] = Cam position SCA29 (SN29)
[29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9536

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9537[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-

VECTOR_G (Safety rot)

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-2147000.000 [°]	2147000.000 [°]	-10.000 [°]

Description: Sets the minus cam position for the function "Safe Cam" (SCA).

Index:
[0] = Cam position SCA1 (SN1)
[1] = Cam position SCA2 (SN2)
[2] = Cam position SCA3 (SN3)
[3] = Cam position SCA4 (SN4)
[4] = Cam position SCA5 (SN5)
[5] = Cam position SCA6 (SN6)
[6] = Cam position SCA7 (SN7)
[7] = Cam position SCA8 (SN8)
[8] = Cam position SCA9 (SN9)
[9] = Cam position SCA10 (SN10)
[10] = Cam position SCA11 (SN11)
[11] = Cam position SCA12 (SN12)
[12] = Cam position SCA13 (SN13)
[13] = Cam position SCA14 (SN14)
[14] = Cam position SCA15 (SN15)
[15] = Cam position SCA16 (SN16)
[16] = Cam position SCA17 (SN17)
[17] = Cam position SCA18 (SN18)
[18] = Cam position SCA19 (SN19)
[19] = Cam position SCA20 (SN20)
[20] = Cam position SCA21 (SN21)
[21] = Cam position SCA22 (SN22)
[22] = Cam position SCA23 (SN23)
[23] = Cam position SCA24 (SN24)

[24] = Cam position SCA25 (SN25)
[25] = Cam position SCA26 (SN26)
[26] = Cam position SCA27 (SN27)
[27] = Cam position SCA28 (SN28)
[28] = Cam position SCA29 (SN29)
[29] = Cam position SCA30 (SN30)

Dependency: Refer to: p9501, p9503, p9536

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9538[0...29] SI Motion SCA (SN) cam track assignment (Control Unit) / SI Mtn SCA assign.

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	100	414	[0] 100 [1] 101 [2] 102 [3] 103 [4] 104 [5] 105 [6] 106 [7] 107 [8] 108 [9] 109 [10] 110 [11] 111 [12] 112 [13] 113 [14] 114 [15] 200 [16] 201 [17] 202 [18] 203 [19] 204 [20] 205 [21] 206 [22] 207 [23] 208 [24] 209 [25] 210 [26] 211 [27] 212 [28] 213 [29] 214

Description: Assigns the individual cams to the maximum of 4 cam tracks and defines the numerical value for the SGA "cam range".

p9538[0...29] = CBA dec

C = Assignment of the cam to the cam track.

Valid values are 1, 2, 3, 4.

BA = Numerical value for the SGA "cam range".

If the position lies in the range of this cam, the value BA is signaled to the safety-relevant logic via the SGA "cam range" of the cam track set using C.

Valid values are 0 ... 14. Each numerical value may only be used once for each cam track.

Examples:

p9538[0] = 207

Cam 1 (index 0) is assigned cam track 2. If the position lies within the range of this cam, a value of 7 is entered in the SGA "cam range" of the second cam track.

p9538[5] = 100

Cam 6 (index 5) is assigned cam track 1. If the position lies within the range of this cam, a value of 0 is entered in the SGA "cam range" of the first cam track.

Index: [0] = Track assignment SCA1
[1] = Track assignment SCA2
[2] = Track assignment SCA3
[3] = Track assignment SCA4
[4] = Track assignment SCA5
[5] = Track assignment SCA6
[6] = Track assignment SCA7
[7] = Track assignment SCA8
[8] = Track assignment SCA9
[9] = Track assignment SCA10
[10] = Track assignment SCA11
[11] = Track assignment SCA12
[12] = Track assignment SCA13
[13] = Track assignment SCA14
[14] = Track assignment SCA15
[15] = Track assignment SCA16
[16] = Track assignment SCA17
[17] = Track assignment SCA18
[18] = Track assignment SCA19
[19] = Track assignment SCA20
[20] = Track assignment SCA21
[21] = Track assignment SCA22
[22] = Track assignment SCA23
[23] = Track assignment SCA24
[24] = Track assignment SCA25
[25] = Track assignment SCA26
[26] = Track assignment SCA27
[27] = Track assignment SCA28
[28] = Track assignment SCA29
[29] = Track assignment SCA30

Dependency: Refer to: p9501, p9503

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9539[0...7] SI Motion gearbox direction of rotation reversal (Control Unit) / SI Mtn grbx rev CU

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the direction of rotation reversal for the gearbox.

0: No direction of rotation reversal

1: Direction of rotation reversal

The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: Refer to: p9521

p9540	SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol CU		
VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [mm]	10.0000 [mm]	0.1000 [mm]

Description: Sets the tolerance for the function "Safe Cam" (SCA).

Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.

Note: A change only becomes effective after a POWER ON.

p9540	SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol CU		
VECTOR_G (Safety rot)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [°]	10.0000 [°]	0.1000 [°]

Description: Sets the tolerance for the function "Safe Cam" (SCA).

Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.

Note: A change only becomes effective after a POWER ON.

p9541	SI Motion encoder comparison algorithm (CU) / Enc comp algo		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	255

Description: Sets the comparison algorithm for the encoder position monitoring functions.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Value:
0: SMx20 safety algorithm
10: DQL binary safety algorithm
11: DQL linear non-binary safety algorithm
12: SMC30 safety algorithm
255: Safety algorithm unknown

Dependency: Refer to: p0417, p9341

Note: For safe functions that are not enabled (p9501 = 0), the following applies:

- p9541 is automatically set the same as r0417 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9541 is checked to see that it matches r0417.

p9542	SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act tol CU		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.0010 [mm]	360.0000 [mm]	0.1000 [mm]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.

For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Note: For a linear axis, the tolerance is internally limited to 10 mm.
For a "linear axis with rotating motor" and factory setting of p9520, p9521 and p9522, the factory setting of p9542 corresponds to a position tolerance of 36 ° on the motor side.

p9542 SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act tol CU

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0010 [°]	360.0000 [°]	0.1000 [°]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.
For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Note: For a linear axis, the tolerance is internally limited to 10 mm.
For a "linear axis with rotating motor" and factory setting of p9520, p9521 and p9522, the factory setting of p9542 corresponds to a position tolerance of 36 ° on the motor side.

p9543 SI Motion gearbox switching position tolerance factor (CU) / SI Mtn grbx tol CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	1000	1

Description: Sets the factor to increase the tolerance for the crosswise data comparison of the actual position between the two monitoring channels while the gearbox stage is being switched over.
This factor is effective when actual value synchronization is activated and when deactivated.
Depending on the following tolerance, the following is obtained:
- actual value synchronization activated: p9549 * p9543
- actual value synchronization deactivated: p9542 * p9543

p9544 SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0000 [mm]	36.0000 [mm]	0.0100 [mm]

Description: Sets the tolerance for checking the actual values.
For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Note: A change only becomes effective after a POWER ON.
For linear axes, the maximum value is limited to 1 mm.

p9544 SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0000 [°]	36.0000 [°]	0.0100 [°]

Description: Sets the tolerance for checking the actual values.

For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Note: A change only becomes effective after a POWER ON.

For linear axes, the maximum value is limited to 1 mm.

p9545 SI Motion SSM (SGA n < nx) filter time (Control Unit) / SI Mtn SSM filt CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	100.00 [ms]	0.00 [ms]

Description: Sets the filter time for the SSM feedback signal to detect standstill.

Note: The filter time is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9546 SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	1000000.00 [mm/min]	20.00 [mm/min]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.

For p9568 = 0, the value in p9546 is also applicable for the function "SAM".

Caution: The following applies for p9506 = 3:

The "SAM" function is switched out if the selected threshold value is undershot.

Note: F-DO: Failsafe Digital Output / SGA: Safety-related output

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9546 SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	1000000.00 [rpm]	20.00 [rpm]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.

For p9568 = 0, the value in p9546 is also applicable for the function "SAM".

Caution: The following applies for p9506 = 3:

The "SAM" function is switched out if the selected threshold value is undershot.

Note: F-DO: Failsafe Digital Output / SGA: Safety-related output

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9547 **SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU**

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0010 [mm/min]	500.0000 [mm/min]	10.0000 [mm/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Note: The velocity hysteresis is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9547 **SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU**

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2823
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.0010 [rpm]	500.0000 [rpm]	10.0000 [rpm]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Note: The velocity hysteresis is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9548 **SI Motion SAM actual velocity tolerance (Control Unit) / SI Mtn SAM tol CU**

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	120000.00 [mm/min]	300.00 [mm/min]

Description: Sets the velocity tolerance for the "SAM" function.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9548 **SI Motion SAM actual velocity tolerance (Control Unit) / SI Mtn SAM tol CU**

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	120000.00 [rpm]	300.00 [rpm]

Description: Sets the velocity tolerance for the "SAM" function.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9549 SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	6000.00 [mm/min]	6.00 [mm/min]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: Refer to: p9501, p9542

Note: If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the crosswise data comparison.

p9549 SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	6000.00 [rpm]	6.00 [rpm]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: Refer to: p9501, p9542

Note: If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the crosswise data comparison.

p9550 SI Motion SGE changeover tolerance time (Control Unit) / SI Mtn SGE_chg tol

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	10000.00 [ms]	500.00 [ms]

Description: Sets the tolerance time for the changeover of the safety-related inputs (SGE).

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9551 SI Motion SLS(SG) changeover/SOS (SBH) delay time (CU) / SI SLS/SOS t CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819, 2820
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	600000.00 [ms]	100.00 [ms]

Description: Sets the delay time for the SLS changeover and for the activation of SOS for the functions "Safely-Limited Speed" (SLS) and "Safe operating stop" (SOS).

When transitioning from a higher to a lower safely-limited speed level, and when activating safe operating stop (SOS), within this delay time, the "old" speed level remains active.

This delay is also applicable when activating SLS from the state "SOS and SLS inactive" and activating SOS from the state "SOS inactive".

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

p9552	**SI Motion transition time STOP C to SOS (SBH) (Control Unit) / SI Mtn t C->SOS CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	100.00 [ms]

Description: Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop / SBH: Safe operating stop

p9553	**SI Motion transition time STOP D to SOS (SBH) (Control Unit) / SI Mtn t D->SOS CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	100.00 [ms]

Description: Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop / SBH: Safe operating stop

p9554	**SI Motion transition time STOP E to SOS (SBH) (Control Unit) / SI Mtn t E->SOS CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	100.00 [ms]

Description: Sets the transition time from STOP E to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9354

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop / SBH: Safe operating stop

p9555	**SI Motion transition time STOP F to STOP B (Control Unit) / SI Mtn t F->B CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	0.00 [ms]

Description: Sets the transition time from STOP F to STOP B.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9556 SI Motion STOP A delay time (Control Unit) / SI Mtn IL t_del CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2819
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	3600000.00 [ms]	100.00 [ms]

Description: Sets the delay time for STOP A after STOP B.

In the case of encoderless motion monitoring functions with safe brake ramp monitoring (p9506 = 1) and the OFF3 ramp enabled at the same time (p9507.3 = 0), the parameter has no effect.

Dependency: Refer to: p9560

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9557 SI Motion STO test time (Control Unit) / SI Mtn IL t_test

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	10000.00 [ms]	100.00 [ms]

Description: Sets the time after which STO must be active when initiating the test stop.

Note: A change only becomes effective after a POWER ON.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9558 SI Motion acceptance test mode time limit (Control Unit) / SI Mtn acc t CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
5000.00 [ms]	100000.00 [ms]	40000.00 [ms]

Description: Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9559 SI Motion forced checking procedure timer (Control Unit) / SI Mtn dyn timer

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [h]	9000.00 [h]	8.00 [h]

Description: Sets the time interval for carrying out the forced checking procedure and testing the safety motion monitoring functions integrated in the drives.

Within the parameterized time, the safety functions must have been tested at least once (including de-selection of the "STO" function).

This monitoring time is reset each time the test is carried out.

The signal source to initiate the forced checking procedure is set in p9705.

Dependency: Refer to: p9705

Note: STO: Safe Torque Off

p9560 SI Motion STO shutdown velocity (Control Unit) / SI Mtn IL v_shutCU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	6000.00 [mm/min]	0.00 [mm/min]

Description: Sets the shutdown velocity for activating STO.

Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected.

In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).

Dependency: Refer to: p9556

Note: The shutdown velocity has no effect for a value = 0.

SS1: Safe Stop 1

p9560 SI Motion pulse suppression shutdown speed (Control Unit) / SI Mtn IL n_shutCU

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	6000.00 [rpm]	0.00 [rpm]

Description: Sets the shutdown speed for the pulse suppression.

Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).

Dependency: Refer to: p9556

Note: The shutdown speed has no effect for a value = 0.

SS1: Safe Stop 1

p9561 SI Motion SLS (SG) stop response (Control Unit) / SI Mtn SLS resp

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	14	5

Description: Sets the stop response for the function "Safely-Limited Speed" (SLS).

This setting applies for all SLS limit values.

An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.

This parameter can only be used for SINUMERIK Safety Integrated.

For motion monitoring functions integrated in the drive, only a value of 5 is permissible. Other settings result in the safety message C01711/C30711 with message value 44.

Value:

0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
5: Sets the stop response via p9563 (SLS-specific)
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Dependency: Refer to: p9531, p9563, p9580

Note: SLS: Safely-Limited Speed / SG: Safely reduced speed

p9562[0...1] SI Motion SLP (SE) stop response (Control Unit) / SI Mtn SLP Stop CU

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	14	2

Description: Sets the stop response for the function "Safely-Limited Position" (SLP).

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9534, p9535

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLP: Safely-Limited Position / SE: Safe software limit switches

p9563[0...3] SI Motion SLS (SG)-specific stop response (Control Unit) / SI Mtn SLS stop CU

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	14	2

Description: Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS).

These settings apply to the individual limit values for SLS.

An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
10: STOP A with delayed STO when the bus fails
11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Index:
[0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: Refer to: p9531, p9561, p9580

Notice: In the case of encoderless motion monitoring (p9506/p9306 = 1, 3), only a value of 0 or 1 is permitted.

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLS: Safely-Limited Speed / SG: Safely reduced speed

p9564	**SI Motion SDI tolerance (Control Unit) / SI Mtn SDI tol CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [mm]	360.000 [mm]	12.000 [mm]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).

This motion in the monitored direction is still permissible before safety message C01716 is initiated.

Dependency: Refer to: p9565, p9566

Note: SDI: Safe Direction (safe motion direction)

p9564	**SI Motion SDI tolerance (Control Unit) / SI Mtn SDI tol CU**		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [°]	360.000 [°]	12.000 [°]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).

This motion in the monitored direction is still permissible before safety message C01716 is initiated.

Dependency: Refer to: p9565, p9566

Note: SDI: Safe Direction (safe motion direction)

p9565	**SI Motion SDI delay time (Control Unit) / SI Mtn SDI t CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2824
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	100.00 [ms]

Description: Sets the delay time for the function "Safe motion direction" (SDI).

After selecting the SDI function, then for a maximum of this time, motion in the monitored direction is permissible. This time can therefore be used for braking any motion.

Dependency: Refer to: p9564, p9566

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SDI: Safe Direction (safe motion direction)

p9566	**SI Motion SDI stop response (Control Unit) / SI Mtn SDI Stop CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2824
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	14	1

Description: Sets the stop response for the function "Safe motion direction" (SDI).

This setting applies to both directions of motion.

Value:
0: STOP A
1: STOP B
2: STOP C
3: STOP D
4: STOP E
10: STOP A with delayed STO when the bus fails

11: STOP B with delayed STO when the bus fails
12: STOP C with delayed STO when the bus fails
13: STOP D with delayed STO when the bus fails
14: STOP E with delayed STO when the bus fails

Dependency: Refer to: p9564, p9565

Notice: In the case of encoderless motion monitoring (p9506 = 1), only a value of 0 or 1 is permitted.

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SDI: Safe Direction (safe motion direction)

p9568 SI Motion SAM velocity limit (Control Unit) / SI Mtn SAM v_limCU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [mm/min]	1000.00 [mm/min]	0.00 [mm/min]

Description: Sets the velocity tolerance limit for the "SAM" function.

SAM is de-activated once the set velocity limit has been undershot.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

For p9568 = p9368 = 0, the following applies:

The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9568 SI Motion SAM velocity limit (Control Unit) / SI Mtn SAM v_limCU

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [rpm]	1000.00 [rpm]	0.00 [rpm]

Description: Sets the velocity tolerance limit for the "SAM" function.

SAM is de-activated once the set velocity limit has been undershot.

Note: SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

For p9568 = p9368 = 0, the following applies:

The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9570 SI Motion acceptance test mode (Control Unit) / SI Mtn Acc_mode

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00AC hex	0000 hex

Description: Setting to select and de-select the acceptance test mode.

Value:
0: [00 hex] De-select the acceptance test mode
172: [AC hex] Select the acceptance test mode

Dependency: Refer to: p9558, r9571, p9601

Note: Acceptance test mode can only be selected if the safe motion monitoring functions are enabled.

r9571 SI Motion acceptance test status (Control Unit) / SI Mtn acc_status

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00AC hex	-

Description: Displays the status of the acceptance test mode.

Value:
0: [00 hex] Acc_mode inactive
12: [0C hex] Acc_mode not possible due to POWER ON fault
13: [0D hex] Acc_mode not possible due to incorrect ID in p9570
15: [0F hex] Acc_mode not possible due to expired Acc_timer
172: [AC hex] Acc_mode active

Dependency: Refer to: p9558, p9570

p9572 SI Motion reference position (Control Unit) / SI mtn rel_pos

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-737280.000 [mm]	737280.000 [mm]	0.000 [mm]

Description: The reference position entered in this parameter, is used as safe absolute position when setting p9573.

If errors are identified when performing the plausibility checks, then message C01711 is output with message value 1003

Note: The unit depends on the selected axis type, linear or rotary axis, in p9502

p9572 SI Motion reference position (Control Unit) / SI mtn rel_pos

VECTOR_G (Safety rot)	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-737280.000 [°]	737280.000 [°]	0.000 [°]

Description: The reference position entered in this parameter, is used as safe absolute position when setting p9573.

If errors are identified when performing the plausibility checks, then message C01711 is output with message value 1003

Note: The unit depends on the selected axis type, linear or rotary axis, in p9502

p9573 SI Motion accept reference position (Control Unit) / SI mtn set_ref_pos

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	263	0

Description: The safe absolute position is rejected or newly set using this parameter.

If errors are identified when performing the plausibility checks, then message C1711 is output with message value 1003

Value:
0: No action
89: Set reference position at standstill
122: Declare reference position invalid
263: Referencing via SCC

Dependency: Refer to: p9572

Note: SCC: Safety Control Channel

p9574 SI Motion safe position scaling (Control Unit) / SI mtn SP scal CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	1	100000	1000

Description: Sets the scaling factor to transfer the safe position via PROFIsafe in the 16-bit notation.

Dependency: Refer to: r9713

Note: The parameter is only effective when PROFIsafe telegram 901 is selected.

By selecting a suitable scaling of the 32 bit position actual value (r9713[0]), it must be ensured that the scaled position actual value is not greater than 16 bit. The scaling is realized by dividing r9713[0] with this scaling factor.

If, during operation, a position actual value is determined, which cannot be scaled to the 16 bits, then message C0711 with value 7001 is output and safety stop response STOP F.

p9575 SI Motion acceptance test SLP (SE) (Control Unit) / SI Mtn accept SLP

VECTOR_G			
	Can be changed: U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00AC hex	0000 hex

Description: Setting to select and de-select the acceptance test for SLP (SE).

Value:
0: [00 hex] deselect acceptance test SLP (SE)
172: [AC hex] select acceptance test SLP (SE)

Dependency: Refer to: p9358, p9370, p9558, p9570, p9601

Note: Acceptance test SLP (SE) can only be selected, if the safe motion monitoring functions have been enabled, and the acceptance test mode was activated in p9570/p9370.

SLP: Safely-Limited Position / SE: Safe software limit switches

p9577 SI Motion SLP delay time (Control Unit) / SI Mtn SLP t CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	600000.00 [ms]	0.00 [ms]

Description: Setting the delay time:

-between selecting and activating the "Safety-limited Position" (SLP) function

-when changing between the two active SLP ranges, if the new range is not completely contained in the old range.

Dependency: Refer to: p9501, p9534, p9535

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SLP: Safely-Limited Position

p9580 SI Motion STO delay bus failure (Control Unit) / SI Mtn t to IL CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	800.00 [ms]	0.00 [ms]

Description: Sets the delay time after which STO is executed when the bus fails.

Dependency: Refer to: p9561, p9563

Note: In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

The main use of the wait time is the ESR function (Extended Stop and Retract).

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9581 SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
600.0000 [mm/min]	240000.0000 [mm/min]	1500.0000 [mm/min]

Description: Sets the reference value to define the brake ramp.

The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).

Dependency: Refer to: p9582, p9583

p9581 SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU

VECTOR_G (Safety rot)

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
600.0000 [rpm]	240000.0000 [rpm]	1500.0000 [rpm]

Description: Sets the reference value to define the brake ramp.

The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).

Dependency: Refer to: p9582, p9583

p9582 SI Motion brake ramp delay time (Control Unit) / SI Mtn rp t_del CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
10.00 [ms]	99000.00 [ms]	250.00 [ms]

Description: Sets the delay time for monitoring the brake ramp.

Monitoring of the brake ramp starts once the delay time has elapsed.

Dependency: Refer to: p9581, p9583

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

Internally, the set time is limited downwards to 2 safety monitoring clock cycles (2 * p9500/p9300).

p9583 SI Motion brake ramp monitoring time (Control Unit) / SI Mtn rp t_mon CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.50 [s]	3600.00 [s]	10.00 [s]

Description: Sets the monitoring time to define the brake ramp.

The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).

Dependency: Refer to: p9581, p9582

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9585 SI Motion actual value sensing sensorless fault tolerance (CU) / ActVal sl tol CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-1	4	-1

Description: Sets the tolerance of the plausibility monitoring of the current and voltage angle.

A higher value results in a higher degree of ruggedness when reversing at low speeds, as well as in the field weakening range for load steps.

An increase is advantageous, if the current or voltage at the motor become small.

Dependency: Refer to: r9787

Notice: Reducing this value can adversely affect the actual value sensing and the plausibility check.

When the value is increased, this results in a longer evaluation delay and a higher velocity deviation (r9787).

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

For synchronous motors, the value 4 must be set.

If value = -1:

- for synchronous motors, the calculation is automatically made with the value 4.
- for induction motors, the calculation is automatically made with a value of 0 (if the code number of the power unit p0201[0] < 14000, otherwise with a value of 2).

p9586 SI Motion actual value sensing sensorless delay time (CU) / ActVal sl t_del CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	5.00 [ms]	1000.00 [ms]	100.00 [ms]

Description: Sets the delay time to evaluate the encoderless actual value sensing after the pulses have been enabled.

The value must be greater than or equal to the motor magnetizing time (p0346).

Caution: The safety functionality is only completely guaranteed after this time has expired.

Notice: If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C01711 with the message value 1041 or 1042.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9587 SI Motion actual value sensing sensorless filter time (CU) / Actv sl t_filt CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	100.00 [ms]	25.00 [ms]

Description: Sets the filter time for smoothing the actual value with sensorless actual value sensing.

Notice: A longer filter time results in a longer response time.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

The smoothing is realized with a 1st order lowpass filter

For p9587 = minimum value, the filter is deactivated.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9588	**SI Motion actual value sensing sensorless minimum current (CU) / ActVal sl I_min CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [%]	1000.00 [%]	10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing referred to 1 A (i.e. 1 % = 10 mA).

- The value must be increased if C01711 has occurred with message value 1042.
- The value must be decreased if C01711 has occurred with message value 1041.

For synchronous motors, the following condition must be fulfilled:

|p0305 x p9783| >= p9588 x 1.2

Recommend.: If required, the correct value of the motor minimum current should be determined by making the appropriate measurements.

Dependency: Refer to: r9785

Notice: If this percentage value is reduced excessively, then this can result in a safety message and an inaccurate actual value.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

p9589	**SI Motion act. value sensing sensorless acceleration limit (CU) / ActVal sl a_lim CU**		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	10.00 [%]	3300.00 [%]	100.00 [%]

Description: Sets the acceleration limit to filter velocity fluctuations.

If this percentage value is increased, when accelerating, velocity peaks that do not reflect the real velocity characteristic can occur.

If this value is decreased, and this dampens the velocity peaks when accelerating.

- The value must be increased if C01711 with message value 1043 has occurred.
- The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Recommend.: The setting of this parameter depends on the motor and closed-loop control, and must be newly determined for each configuration.

To do this, a measurement should be performed while the actual value jumps, and the limit in r9785[0] must be set so low using p9589, so that it is exceeded by the value in r9785[1] a maximum of four times per second. The actual value correction filter intervenes at this instant in time. The step is no longer so drastic.

Dependency: Refer to: r9784

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

For p9589 = maximum value, the filter is deactivated.

Diagnostics parameter p9784 must be used to correctly set this parameter.

r9590[0...3]	**SI Motion version safety motion monitoring (Control Unit) / SI Mtn version CU**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the Safety Integrated version for the safe monitoring functions.

Index:
[0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)
[3] = Safety Version (hotfix)

Dependency: Refer to: r9770, r9870, r9890

Note: Example:

r9590[0] = 2, r9590[1] = 60, r9590[2] = 1, r9590[3] = 0 --> SI Motion version V02.60.01.00

p9601 SI enable functions integrated in the drive (Control Unit) / SI enable fct CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Control Unit.

Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or Power Module being used:

0000 hex:

Safety functions integrated in the drive inhibited (no safety function).

0001 hex:

Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).

0004 hex:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1).

0005 hex:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 1).

0008 hex:

Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).

0009 hex:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).

0024 hex:

Extended functions without selection are enabled (permissible for r9771.16 = 1).

0025 hex:

Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9771.16 = 1).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO (SH) via terminals (CU) enable	Enable	Inhibit	2810
02	Enable motion monitoring functions integrated in drive (CU)	Enable	Inhibit	-
03	Enable PROFIsafe (CU)	Enable	Inhibit	-
05	Enab motion monit functions integr in drive w/out selection (CU)	Enable	Inhibit	-
06	Basic functions via TM54F	Enable	Inhibit	-

Dependency: Refer to: r9771, p9801

Note: A change always becomes effective only after a POWER ON. Exception: Changes to p9601.0 become effective immediately.

CU: Control Unit

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

SI: Safety Integrated

SMM: Safe Motion Monitoring

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

p9602 SI enable Safe Brake Control (Control Unit) / SI enable SBC CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2814
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the enable signal for the function "Safe Brake Control" (SBC) on the Control Unit.

Value:
0: Inhibit SBC
1: Enable SBC

Dependency: Refer to: p9802

Note: The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9601 not equal to 0).

It does not make sense to parameterize "no motor holding brake available" and enable "Safe Brake Control" (p1215 = 0, p9602 = p9802 = 1) if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).

CU: Control Unit

SBC: Safe Brake Control

SI: Safety Integrated

p9610 SI PROFIsafe address (Control Unit) / SI PROFIsafe CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFE hex	0000 hex

Description: Sets the PROFIsafe address for the Control Unit.

Dependency: Refer to: p9810

p9611 SI PROFIsafe telegram selection (Control Unit) / SI Ps telegram CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	998	998

Description: Sets the PROFIsafe telegram number for the Control Unit.

Value:
0: No PROFIsafe telegram selected
30: PROFIsafe standard telegram 30, PZD-1/1
31: PROFIsafe standard telegram 31, PZD-2/2
900: PROFIsafe SIEMENS telegram 900, PZD-2/2
901: PROFIsafe SIEMENS telegram 901, PZD-3/5
902: PROFIsafe SIEMENS telegram 902, PZD-3/6
998: Compatibility mode (as for firmware version < 4.5)

Dependency: Refer to: p9811, p60022

Note: For p9601.3 = p9801.3 = 1 (PROFIsafe enabled), the following variants exist when parameterizing PROFIsafe telegram 30:

- p9611 = p9811 = 998 and p60022 = 0
- p9611 = p9811 = 998 and p60022 = 30
- p9611 = p9811 = 30 and p60022 = 30

p9620[0...7] BI: SI signal source for STO (SH)/SBC/SS1 (Control Unit) / SI S_srcSTO/SS1 CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2810
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the following functions on the Control Unit:
STO: Safe Torque Off / SH: Safe standstill
SBC: Safe Brake Control
SS1: Safe Stop 1 (time monitored)

Dependency: Refer to: p9601

Note: The following signal sources are permitted:
- fixed zero (standard setting).
- digital inputs DI 0 ... 7, 16, 17, 20, 21 on the Control Unit 320-2 (CU320-2).
- digital inputs DI 0 ... 3 on the Controller Extensions (CX32-2, NX10.3, NX15.3).
- digital inputs DI 0 ... 3, 16 on the Control Unit 310-2 (CU310-2).

It is not permitted to establish an interconnection to a digital input in the simulation mode.
For a parallel circuit configuration of n power units, the following applies:
p9620[0] = Signal source for power unit 1
...
p9620[n-1] = Signal source for power unit n

p9621 BI: SI Safe Brake Adapter signal source (Control Unit) / SI SBA S_src CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2814
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for Safe Brake Adapter (SBA).
This defines via which digital input the Safe Brake Adapter feedback signal is read-in (SBA_DIAG).
p9621/p9821 = 0:
There is no Safe Brake Control (SBC) with Safe Brake Adapter (SBA) available.
p9621/p9821 = r0722.x (x = 0, 1 ... 7)
Safe Brake Adapter and Booksize unit (no Communication Interface Module (CIM)).
p9621/p9821 = r9872.3
Safe Brake Adapter and Chassis unit (CIM).

Dependency: Refer to: p9601, p9602, p9821

Note: No difference is tolerated for a crosswise data comparison between p9621 and p9821.
To use the "Safe Brake Adapter" function the following must apply:
p9601 = p9801 <> 0 and p9602 = p9802 = 1

p9622[0...1] SI SBA relay delay times (Control Unit) / SI SBA relay t CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2814
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	1000.00 [ms]	[0] 100.00 [ms] [1] 65.00 [ms]

Description: Sets the delay times for activating and de-activating the Safe Brake Adapter relay.

The relay-specific minimum delay times for evaluating the feedback signal contacts have to be set. They differ for the activation and de-activation of one and the same relay.

Index: [0] = Wait time activation
[1] = Wait time deactivation

Dependency: Refer to: p9822

Note: For a crosswise data comparison between p9622 and p9822, a difference of one Safety monitoring clock cycle is tolerated.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

Re index 0:

Wait time switch on = drop-out time + bounce time NO contact + effect of the free-wheeling diode in the Safe Brake Adapter

Re index 1:

Wait time switch off = response time + bounce time NC contact + effect of the free-wheeling diode in the Safe Brake Adapter

p9650 SI SGE changeover discrepancy time (Control Unit) / SI SGE chg t CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2810
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	2000.00 [ms]	500.00 [ms]

Description: Sets the discrepancy time to change over the safety-related inputs (SGE) on the Control Unit.

An SGE changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this discrepancy time.

Dependency: Refer to: p9850

Note: For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

SGE: Safety-related input (e.g. STO terminals)

p9651 SI STO/SBC/SS1 debounce time (Control Unit) / SI STO t_debou CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [ms]	100.00 [ms]	0.00 [ms]

Description: Sets the debounce time for the failsafe digital inputs used to control STO/SBC/SS1.

Note: The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe digital inputs with no reaction/influence on the selection or deselection of the Safety Basic Functions.

Example:

Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed.

Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.

p9652 SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [s]	300.00 [s]	0.00 [s]

Description: Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Control Unit to brake along the OFF3 down ramp (p1135).

Recommend.: In order that the drive can completely ramp-down along the OFF3 ramp and a motor holding brake that is possibly available can close, then the delay time should be set as follows:
Motor holding brake parameterized: delay time >= p1135 + p1228 + p1217
Motor holding brake not parameterized: delay time >= p1135 + p1228

Dependency: Refer to: p1135, p9852

Note: For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9653 SI Safe Stop 1 drive-based braking response / SI SS1 drv resp

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the drive-based braking response for the "Safe Stop 1" (SS1) function.

Value:
0: SS1 with OFF3
1: SS1E external stop

Note: SS1: Safe Stop 1 (Safe Stop 1, corresponds to Stop Category 1 acc. to EN60204)
SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)
SS1E requires the externally initiated stop in order to be in conformance with stop Category 1.
With this parameter, a switchover is made from SS1 to SS1E, and the drive-based braking response of function SS1 (time controlled) of the Basic Functions is deactivated.

p9658 SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A CU

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2802
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	30000.00 [ms]	0.00 [ms]

Description: Sets the transition period from STOP F to STOP A on the Control Unit.

Dependency: Refer to: r9795, p9858

Note: For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
STOP F: Defect in a monitoring channel (error in the crosswise data comparison)
STOP A: STO as a result of a fault detected by Safety Integrated

p9659 SI forced checking procedure timer / SI FCP Timer

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2810
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [h]	9000.00 [h]	8.00 [h]

Description: Sets the time interval for carrying out the forced checking procedure and testing the Safety shutdown paths.
Within the parameterized time, STO must have been de-selected at least once. The monitoring time is reset each time that STO is de-selected.

Note: STO: Safe Torque Off / SH: Safe standstill

r9660 SI forced checking procedure remaining time / SI frc chk remain

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [h]	- [h]	- [h]

Description: Displays the time remaining before dynamization and testing of the safety shutdown paths (forced checking procedure).

p9665[0...255] SI Motor Module parameter save / SI MM par save

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00FF hex	0000 hex

Description: Save the safety parameters for the basic functions on the Motor Module/Hydraulic Module.

Note: The parameter values are saved in the following indices:

p9801: index 20...23
p9802: index 28...31
p9810: index 36...39
p9811: index 116...119
p9821: index 84...87
p9822[0]: index 92...95
p9822[1]: index 100...103
p9825[0]: index 124...127
p9825[1]: index 132...135
p9826: index 140...143
p9850: index 44...47
p9851: index 76...79
p9852: index 52...55
p9858: index 60...63
p9897: index 108...111
p9899: index 68...71

Depending on the existing technology, configuration and software version, it is possible that not all of the listed parameters are available.

r9670 SI module identification Control Unit / Module ID CU

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	-

Description: CRC via Node Identifier of the Control Unit.

Note: CU: Control Unit

r9671[0...n]	**SI module identifier Motor Module / Module ID MM**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** PDS, p0120	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via the Node Identifier of a Motor Module.

Note: The CRC is saved indexed when Motor Modules are connected in parallel.

MM: Motor Module

r9672	**SI module identifier Power Module / Module ID PM**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via the Node Identifier of a Power Module.

Note: PM: Power Module

r9673	**SI module identifier Sensor Module channel 1 / Module ID SM 1**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via Node Identifier of the Sensor Module, which is used by the first monitoring channel.

Note: SM: Sensor Module

r9674	**SI module identifier Sensor Module channel 2 / Module ID SM 2**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via Node Identifier of the Sensor Module, which is used by the second monitoring channel.

Note: SM: Sensor Module

r9675	**SI module identifier sensor channel 1 / Module ID sensor 1**		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via the serial number of the encoder, which is used by the first monitoring channel.

Note: When using an encoder without its own serial number, the value of zero is kept.

r9676	SI module identifier sensor channel 2 / Module ID sensor 2		
VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	4294967295	-

Description: CRC via the serial number of the encoder, which is used by the second monitoring channel.

Note: When using an encoder without its own serial number, the value of zero is kept.

p9697	SI Motion bus failure STO/SH delay time (CU) / SI Mtn STO t CU		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	800.00 [ms]	0.00 [ms]

Description: Sets the delay time for STO after bus failure on the Control Unit (e.g. used for ESR).

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

ESR: Extended Stop and Retract

STO: Safe Torque Off / SH: Safe standstill

p9700	SI Motion copy function / SI Mtn copy fct		
TM54F_MA	**Can be changed:** C2(95), U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00CC hex	0000 hex

Description: Setting to start the required copy function.

After starting, the appropriate parameters are copied from the Control Unit to the Motor Module.

Once copying is complete, the parameter is automatically reset to zero.

Value:
0: [00 hex] Copy function ended
29: [1D hex] Start copy function node identifier
87: [57 hex] Start copy function SI parameters
204: [CC hex] Start copy function TM54F communication clock cycles

Note: Re value = 57 hex:

The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

SI: Safety Integrated

p9700	SI Motion copy function / SI Mtn copy fct		
VECTOR_G	**Can be changed:** C2(95), U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00D0 hex	0000 hex

Description: Setting to start the required copy function.

After starting, the appropriate parameters are copied from the Control Unit to the Motor Module.

Once copying is complete, the parameter is automatically reset to zero.

Value:
0: [00 hex] Copy function ended
29: [1D hex] Start copy function node identifier
46: [2E hex] start copy function encoder parameters

87: [57 hex] Start copy function SI parameters
208: [D0 hex] Start copy function SI basic parameters

Note: Re value = 57 hex, 2E hex and D0 hex:

The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

Re value = D0 hex:

The following parameters are copied after starting the copy function:

p9601 --> p9801, p9602 --> p9802, p9610 --> 9810, p9611 --> 9811, p9621 --> 9821, p9622 --> 9822, p9650 --> p9850, p9651 --> p9851, p9652 --> p9852, p9658 --> p9858, p9697 --> p9897

p9701 Acknowledge SI motion data change / Ackn SI Mtn dat

TM54F_MA, TM54F_SL

Can be changed: C2(95), U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00EC hex	0000 hex

Description: Setting to transfer the reference checksums from the associated actual checksums after changes (SI parameters, hardware).

After transferring the reference checksums, parameters are automatically reset to zero.

Value:
0: [00 hex] Data unchanged
172: [AC hex] Acknowledge data change complete
236: [EC hex] Acknowledge hardware CRC

Dependency: Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899

Note: Re value = AC hex:

These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

SI: Safety Integrated

p9701 Acknowledge SI motion data change / Ackn SI Mtn dat

VECTOR_G

Can be changed: C2(95), U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00EC hex	0000 hex

Description: Setting to transfer the reference checksums from the associated actual checksums after changes (SI parameters, hardware).

After transferring the reference checksums, parameters are automatically reset to zero.

Value:
0: [00 hex] Data unchanged
172: [AC hex] Acknowledge data change complete
220: [DC hex] Acknowledge SI basic parameter change
236: [EC hex] Acknowledge hardware CRC

Dependency: Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899

Note: Re value = AC and DC hex:

These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

p9702 SI Acknowledge component replacement / Comp_replace ackn

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	29	0

Description: Setting to acknowledge that a component has been replaced.

By writing 29 to this parameter, the unique identifier of a safety-relevant component is transferred into the drive parameterization.

Value: 0: [00 hex] hardware replacement acknowledge ready
29: [1D hex] hardware replacement acknowledgment

Notice: It is not permissible that the safety commissioning mode is set in order to write to this parameter.

Note: After successful execution, this parameter is automatically reset to zero.

Data must then be saved in a non-volatile fashion (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").

The parameter cannot be written to using a project download, and cannot be set in an offline project.

p9705 BI: SI Motion: Test stop signal source / SI Mtn test stop

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2837
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the test stop of the safety-relevant motion monitoring functions.

Notice: Before setting the signal source in p9705 it must be ensured that the signal source is at a logical 0.

If, in the Safety commissioning mode, the signal source in p9705 is set - and it already has a logical 1 - then a test stop is immediately initiated and the messages C01711/C30711 are output with message value 1005.

Note: It is not permissible to use TM54F inputs to start the test stop.

r9707[0...2] CO: SI Motion diagnostics encoder position actual value GX_XIST1 / SI Mtn XIST1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display:

Index0: of the encoder actual value GX_Xist1,

Index1: of the encoder actual value GX_Xist1 in the clock cycle, from which the subsequently transferred reference position was received.

Index2: The difference between index1 and index0 while waiting for the reference position to be transferred.

Index1 and index2 are only relevant for safety monitoring functions requiring an encoder with absolute reference, when "Referencing via SCC" is enabled (p9501 bit27=1)

Index: [0] = Encoder actual value XIst1 on CU
[1] = Encoder actual value XIst1 latched for referencing
[2] = XIst1 latched - reference position difference

Note: The parameter is only available for Safety Integrated with encoder

r9708[0...5] SI Motion diagnostics safe position / SI mtn safe pos

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822, 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm]	- [mm]	- [mm]

Description: Displays the actual load-side actual values of both monitoring channels and their difference.

Index: [0] = Load-side actual value on the CU
[1] = Load-side actual value on the second channel
[2] = Load-side actual value difference CU - second channel
[3] = Load-side max. actual value difference CU - second channel
[4] = Load-side actual value as safe position via PROFIsafe
[5] = Load-side additional actual value difference CU - second channel

Dependency: Refer to: r9713

Note: Re index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

Re index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

Re index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

When the function is not enabled, the content corresponds to the value in index 0.

Re index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter.

Input in p9542: p9708[3] + p9708[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9708[3].

CDC: Crosswise Data Comparison

r9708[0...5] SI Motion diagnostics safe position / SI mtn safe pos

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2822, 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°]	- [°]	- [°]

Description: Displays the actual load-side actual values of both monitoring channels and their difference.

Index:
[0] = Load-side actual value on the CU
[1] = Load-side actual value on the second channel
[2] = Load-side actual value difference CU - second channel
[3] = Load-side max. actual value difference CU - second channel
[4] = Load-side actual value as safe position via PROFIsafe
[5] = Load-side additional actual value difference CU - second channel

Dependency: Refer to: r9713

Note: Re index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

Re index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

Re index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

When the function is not enabled, the content corresponds to the value in index 0.

Re index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter.

Input in p9542: p9708[3] + p9708[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9708[3].

CDC: Crosswise Data Comparison

r9710[0...1] SI Motion diagnostics result list 1 / SI Mtn res_list 1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays result list 1 that, for the crosswise data comparison between the monitoring channels, led to the fault.

Index:
[0] = Result list second channel
[1] = Result list drive

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value > upper limit SOS	Yes	No	-
01	Actual value > lower limit SOS	Yes	No	-
02	Actual value > upper limit SLP1	Yes	No	-
03	Actual value > lower limit SLP1	Yes	No	-
04	Actual value > upper limit SLP2	Yes	No	-
05	Actual value > lower limit SLP2	Yes	No	-
06	Actual value > upper limit SLS1	Yes	No	-
07	Actual value > lower limit SLS1	Yes	No	-
08	Actual value > upper limit SLS2	Yes	No	-
09	Actual value > lower limit SLS2	Yes	No	-
10	Actual value > upper limit SLS3	Yes	No	-
11	Actual value > lower limit SLS3	Yes	No	-
12	Actual value > upper limit SLS4	Yes	No	-
13	Actual value > lower limit SLS4	Yes	No	-
16	Actual value > upper limit SAM/SBR	Yes	No	-
17	Actual value > lower limit SAM/SBR	Yes	No	-
18	Actual value > upper limit SDI positive	Yes	No	-
19	Actual value > lower limit SDI positive	Yes	No	-
20	Actual value > upper limit SDI negative	Yes	No	-
21	Actual value > lower limit SDI negative	Yes	No	-

Note:
SBR: Safe Brake Ramp (safe brake ramp monitoring)
SLP: Safely-Limited Position
SLS: Safely-Limited Speed
SOS: Safe Operating Stop

r9711[0...1] SI Motion diagnostics result list 2 / SI Mtn res_list 2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays result list 2 that, for the crosswise data comparison between the monitoring channels, led to the fault.

Index:
[0] = Result list second channel
[1] = Result list drive

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value > upper limit SCA1+	Yes	No	-
01	Actual value > lower limit SCA1+	Yes	No	-
02	Actual value > upper limit SCA1-	Yes	No	-

03	Actual value > lower limit SCA1-	Yes	No	-
04	Actual value > upper limit SCA2+	Yes	No	-
05	Actual value > lower limit SCA2+	Yes	No	-
06	Actual value > upper limit SCA2-	Yes	No	-
07	Actual value > lower limit SCA2-	Yes	No	-
08	Actual value > upper limit SCA3+	Yes	No	-
09	Actual value > lower limit SCA3+	Yes	No	-
10	Actual value > upper limit SCA3-	Yes	No	-
11	Actual value > lower limit SCA3-	Yes	No	-
12	Actual value > upper limit SCA4+	Yes	No	-
13	Actual value > lower limit SCA4+	Yes	No	-
14	Actual value > upper limit SCA4-	Yes	No	-
15	Actual value > lower limit SCA4-	Yes	No	-
16	Actual value > upper limit SSM+	Yes	No	-
17	Actual value > lower limit SSM+	Yes	No	-
18	Actual value > upper limit SSM-	Yes	No	-
19	Actual value > lower limit SSM-	Yes	No	-
20	Actual value > upper limit modulo	Yes	No	-
21	Actual value > lower limit modulo	Yes	No	-

Note: SCA: Safe Cam

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

r9712 CO: SI Motion diagnostics position actual value motor side / SI Mtn s_act mot

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual motor-side position actual value for the motion monitoring functions on the Control Unit.

Note: The display is updated in the safety monitoring clock cycle.

r9713[0...5] CO: SI Motion diagnostics position actual value load side / SI Mtn s_act load

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual load-side actual values of both monitoring channels and their difference.

Index:
[0] = Load-side actual value on the CU
[1] = Load-side actual value on the second channel
[2] = Load-side actual value difference CU - second channel
[3] = Load-side max. actual value difference CU - second channel
[4] = Load-side actual value as safe position via PROFIsafe
[5] = Load-side additional actual value difference CU - second channel

Dependency: Refer to: r9708, r9724

Note: The value of this parameter is displayed in r9708 with units (mm or degrees).

The display is updated in the safety monitoring clock cycle.

Re index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

Re index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

Re index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

Re index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

For a 16-bit notation, the value is influenced using the scaling factor (p9574/p9374).

When the function is not enabled, the content corresponds to the value in index 0.

Re index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter. Input in p9542: p9713[3] + p9713[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9713[3].

CDC: Crosswise Data Comparison

r9714[0...2] CO: SI motion diagnostics velocity / SI Mtn diag v

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the velocity actual values for the motion monitoring functions on the Control Unit.

Index:
[0] = Load-side velocity actual value on the Control Unit
[1] = Actual SAM/SBR velocity limit on the Control Unit
[2] = Actual SLS velocity limit on the Control Unit

Dependency: Refer to: r9732

Notice: Re index 2:

This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).

Note: The display is updated in the safety monitoring clock cycle.

For linear axes, the following unit applies: millimeters per minute

For rotary axes, the following unit applies: revolutions per minute

r9714[0...2] CO: SI motion diagnostics velocity / SI Mtn diag v

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the velocity actual values for the motion monitoring functions on the Control Unit.

Index:
[0] = Load-side velocity actual value on the Control Unit
[1] = Actual SAM/SBR velocity limit on the Control Unit
[2] = Actual SLS velocity limit on the Control Unit

Dependency: Refer to: r9732

Notice: Re index 2:

This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).

Note: The display is updated in the safety monitoring clock cycle.

For linear axes, the following unit applies: millimeters per minute

For rotary axes, the following unit applies: revolutions per minute

r9718.23 CO/BO: SI Motion control signals 1 / SI Mtn ctrl_sig 1

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Control signal 1 for safety-relevant motion monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
23	Set offset for TfS to the actual torque	Set	Reset	-

Note: TfS: Traverse to fixed stop

r9719.0...31 CO/BO: SI Motion control signals 2 / SI Mtn ctrl_sig 2

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Control signal 2 for safety-relevant motion monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	De-select SOS/SLS (SBH/SG)	Yes	No	-
01	De-select SOS (SBH)	Yes	No	-
03	Select SLS (SG) bit 0	Set	Not set	-
04	Select SLS (SG) bit 1	Set	Not set	-
05	Deselect SDI positive	Yes	No	-
06	Deselect SDI negative	Yes	No	-
07	Deselect SLP	Yes	No	-
08	Gearbox selection bit 0	Set	Not set	-
09	Gearbox selection bit 1	Set	Not set	-
10	Gearbox selection bit 2	Set	Not set	-
11	Gearbox switchover	Set	Not set	-
12	Select SLP (SE) position range	SLP2 (SE2)	SLP1 (SE1)	-
13	Close brake from control	Yes	No	-
15	Select test stop	Yes	No	-
16	SGE valid	Yes	No	-
18	De-select external STOP A	Yes	No	-
19	De-select external STOP C	Yes	No	-
20	De-select external STOP D	Yes	No	-
21	De-select external STOP E	Yes	No	-
28	SLS (SG) override bit 0	Set	Not set	-
29	SLS (SG) override bit 1	Set	Not set	-
30	SLS (SG) override bit 2	Set	Not set	-
31	SLS (SG) override bit 3	Set	Not set	-

Note: Re r9719.0 and r9719.1:

These two bits must be considered together.

- if SOS/SLS (SBH/SG) is de-selected using bit 0, then assignment of bit 1 is irrelevant.

- if SOS/SLS (SBH/SG) is selected using bit 0, then a changeover is made between SOS (SBH) and SLS (SG) using bit 1.

SLP: Safely-Limited Position / SE: Safe software limit switches

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

SDI: Safe Direction (safe motion direction)

r9720.0...27 CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2840, 2855
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Control signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	De-select STO	Yes	No	-
01	De-select SS1	Yes	No	-
02	De-select SS2	Yes	No	-
03	De-select SOS	Yes	No	-
04	De-select SLS	Yes	No	-
06	Deselect SLP	Yes	No	2822
07	Acknowledgement	Signal edge active	No	-
09	Select SLS bit 0	Set	Not set	-
10	Select SLS bit 1	Set	Not set	-
12	Deselect SDI positive	Yes	No	2824
13	Deselect SDI negative	Yes	No	2824
19	Select SLP position range	SLP2	SLP1	2822
24	Select gearbox bit 0	Set	Not set	-
25	Select gearbox bit 1	Set	Not set	-
26	Select gearbox bit 2	Set	Not set	-
27	Gearbox switchover	Set	Not set	-

Note: This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9721.0...15 CO/BO: SI Motion status signals (Control Unit) / SI Mtn stat_sig CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status signals of the safe motion monitoring functions on monitoring channel 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	SOS or SLS active	Yes	No	-
01	SOS active	Yes	No	-
02	Pulse enable	Deleted	Enabled	-
03	Active SLS stage bit 0	Set	Not set	-
04	Active SLS stage bit 1	Set	Not set	-
05	Velocity below limit value n_x	Yes	No	-
06	SLP active	Yes	No	-
07	Safely referenced	Yes	No	-
08	SDI pos active	Yes	No	-
09	SDI neg active	Yes	No	-
10	SLP active position area	SLP2	SLP1	-
12	STOP A or STOP B or STO or SS1 active	Yes	No	2819
13	STOP C or SS2 active	Yes	No	2819
14	STOP D active	Yes	No	2819
15	STOP E active	Yes	No	-

Note: This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9722.0...31 CO/BO: SI Motion drive-integrated status signals (Control Unit) / SI Mtn int stat CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2840, 2855
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive on monitoring channel 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO or safe pulse cancellation active	Yes	No	-
01	SS1 active	Yes	No	-
02	SS2 active	Yes	No	-
03	SOS active	Yes	No	-
04	SLS active	Yes	No	-
06	SLP active	Yes	No	2822
07	Internal event	No	Yes	-
09	Active SLS stage bit 0	Set	Not set	-
10	Active SLS stage bit 1	Set	Not set	-
11	SOS selected	Yes	No	-
12	SDI pos active	Yes	No	2824
13	SDI neg active	Yes	No	2824
15	SSM (speed below limit value)	Yes	No	2823
19	SLP active position area	SLP2	SLP1	2822
22	SP valid	Yes	No	-
23	Safely referenced	Yes	No	-
30	SLP limit upper maintained	Yes	No	2822
31	SLP limit lower maintained	Yes	No	2822

Notice: Re bit 07:

The signal state behaves in an opposite way to the PROFIsafe Standard.

Note: This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

Re bit 07:

An internal event is displayed if a STOP A ... F is active.

r9723.0...17 CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the diagnostic signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Forced checking procedure required	Yes	No	-
01	STOP F and then STOP B active	Yes	No	2819
02	Communication failure	Yes	No	-
03	Actual value sensing supplies valid value	Yes	No	2821
04	Encoderless act val sensing acc to technique for U/f control	Yes	No	-
09	Safe pulse cancellation active	Yes	No	-
12	Test stop active	Yes	No	-
16	SAM/SBR active	Yes	No	2820
17	Position referenced	Yes	No	2821

Note: Re bit 00:

A required dynamization is also displayed via alarm A01679.

Re bit 01:

This bit can be used, to execute a drive-based or control-based ESR.

Re bit 04:

When sensing the velocity without encoder, a distinction is made between the closed-loop speed controlled and open-loop speed controlled (U/f) modes.

Re bit 09:

Safe pulse pulse cancellation is a state that can only occur for the combination of velocity sensing without encoder (p9506) and drive-integrated motion monitoring functions without selection (p9601.5). In this state, internally an STO is initiated, which can be withdrawn again using an OFF1 enable.

Re bit 12:

An active test stop is also displayed using the safety message C01798.

ESR: Extended Stop and Retract

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

r9724 SI Motion crosswise comparison clock cycle / SI Mtn CDC clk cyc

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the crosswise comparison clock cycle.

The value indicates the clock cycle time with which each individual CDC value is compared between the two monitoring channels.

Dependency: Refer to: p9500

Note: Crosswise comparison clock cycle = monitoring clock cycle (p9500) * number of data to be crosswise compared

CDC: Crosswise Data Comparison

r9725[0...2] SI Motion diagnostics STOP F / SI Mtn Diag STOP F

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Re index 0:

Displays the message value that resulted in the STOP F on the drive.

Value = 0:

The Control Unit signaled a STOP F.

Value = 1 ... 999:

Number of the incorrect date in the crosswise data comparison between the monitoring channels.

Value >= 1000:

Additional diagnostic values of the drive.

Re index 1:

Displays the value of the Control Unit that resulted in the STOP F.

Re index 2:

Displays the value from the second channel that resulted in the STOP F.

Index: [0] = Message value for CDC
[1] = Control Unit CDC actual value
[2] = Components CDC actual value

Note: The significance of the individual message values is described in message C01711.

CDC: Crosswise Data Comparison

Re Index 1, 2:

When Safety message C01711 with message value >= 1000 occurs, these indices are not supplied with values.

p9726 SI Motion user agreement selection/de-selection / SI Mtn UserAgr sel

VECTOR_G	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	00AC hex	0000 hex

Description: Setting to select and de-select the user agreement.

Value:
0: [00 hex] De-select user agreement
172: [AC hex] Select user agreement

Dependency: Refer to: r9727

r9727 SI Motion user agreement inside the drive / SI Mtn UserAgr int

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2822
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the internal state of the user agreement.

Value = 0: User agreement is not set.

Value = AC hex: User agreement is set.

Dependency: Refer to: p9726

r9728[0...2] SI Motion actual checksum SI parameters / SI Mtn act CRC

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum).

Index:
[0] = Checksum over SI parameters for motion monitoring
[1] = Checksum over SI parameters for actual values
[2] = Checksum over SI parameters for hardware

Dependency: Refer to: p9729

p9729[0...2] SI Motion reference checksum SI parameters / SI Mtn ref CRC

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum using the checksum-tested Safety Integrated parameters for motion monitoring functions (reference checksum).

Index:
[0] = Checksum over SI parameters for motion monitoring
[1] = Checksum over SI parameters for actual values
[2] = Checksum over SI parameters for hardware

Dependency: Refer to: r9728

r9730 SI Motion Safe maximum velocity / SI mtn safe v_Max

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing.

This parameter indicates up to which load velocity the safe encoder actual values (redundant encoder coarse position) can still be correctly detected as a result of the particular encoder parameterization.

This parameter is only of significance for enabled safety with encoder (otherwise "0").

Note: If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.

r9730 SI Motion Safe maximum velocity / SI mtn safe v_Max

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing.

This parameter indicates up to which load velocity the safe encoder actual values (redundant encoder coarse position) can still be correctly detected as a result of the particular encoder parameterization.

This parameter is only of significance for enabled safety with encoder (otherwise "0").

Note: If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.

r9731 SI Motion safe position accuracy / SI Mtn pos acc

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm]	- [mm]	- [mm]

Description: Displays the safe position accuracy (load side).

As a result of the actual value sensing for safe motion monitoring functions, this accuracy can be achieved as the maximum.

In the case of the two encoder system, the accuracy of the poorer encoder is displayed, based on the number of encoder pulses.

Note: The parameter is only of significance for enabled safety with encoder (otherwise "0").

r9731 SI Motion safe position accuracy / SI Mtn pos acc

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°]	- [°]	- [°]

Description: Displays the safe position accuracy (load side).

As a result of the actual value sensing for safe motion monitoring functions, this accuracy can be achieved as the maximum.

In the case of the two encoder system, the accuracy of the poorer encoder is displayed, based on the number of encoder pulses.

Note: The parameter is only of significance for enabled safety with encoder (otherwise "0").

r9732[0...1] SI Motion velocity resolution / SI Mtn v_res

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the velocity resolution for safety-relevant motion monitoring functions.

Re index 0:

Displays the safe velocity resolution (load side). Setpoints for velocity limits or parameter changes for velocities below this threshold have no effect.

Re index 1:

Displays the safe velocity accuracy based on the safe encoder accuracy

Index: [0] = Actual velocity resolution
[1] = Minimum velocity resolution

Note: Index 0: This parameter does not provide any information about the actual accuracy of the velocity sensing. This depends on the type of actual value sensing, the gear factors as well as the quality of the encoder being used.

Index 1: For a two-encoder system, with just non-safety capable encoders, this means the poorer value of the two encoders. Index[1] takes into account the coarse resolution of the encoder only

r9732[0...1] SI Motion velocity resolution / SI Mtn v_res

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the velocity resolution for safety-relevant motion monitoring functions.

Re index 0:

Displays the safe velocity resolution (load side). Setpoints for velocity limits or parameter changes for velocities below this threshold have no effect.

Re index 1:

Displays the safe velocity accuracy based on the safe encoder accuracy

Index: [0] = Actual velocity resolution
[1] = Minimum velocity resolution

Note: Index 0: This parameter does not provide any information about the actual accuracy of the velocity sensing. This depends on the type of actual value sensing, the gear factors as well as the quality of the encoder being used.

Index 1: For a two-encoder system, with just non-safety capable encoders, this means the poorer value of the two encoders. Index[1] takes into account the coarse resolution of the encoder only

r9733[0...2] CO: SI Motion setpoint speed limit effective / SI Mtn setp_lim

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2820, 2824, 3630
P-Group: Safety Integrated	**Units group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the necessary setpoint speed limit as a result of the selected motion monitoring functions.

	Contrary to the parameterization of the SI limit values, this parameter specifies the motor-side limit value and not the load-side limit value.
Recommend.:	For the ramp-function generator, by appropriately interconnecting the speed limits p1051 and p1052 with r9733[0, 1], a drive-based setpoint velocity limiting can be realized. - CI: p1051 = r9733[0] - CI: p1052 = r9733[1] Additional limiting can also be activated using connector input p1085 and p1088.
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative [2] = Setpoint limit absolute
Dependency:	For SLS: r9733[0] = p9531[x] x p9533 (converted from the load side to the motor side) For SDI negative: r9733[0] = 0 For SLS: r9733[1] = - p9531[x] x p9533 (converted from the load side to the motor side) For SDI positive: r9733[1] = 0 [x] = Selected SLS stage Conversion factor from the motor side to the load side: - motor type = rotary and axis type = linear: p9522 / (p9521 x p9520) - otherwise: p9522 / p9521 Refer to: p9531, p9533
Notice:	If p1051 = r9733[0] is interconnected, p1052 = r9733[1] must also be interconnected and vice versa. If only the absolute value of the setpoint velocity limiting is required, r9733[2] must be interconnected.
Note:	The unit changeover between linear and rotary axis is not implemented via the safety changeover (p9502) but by the linear motor changeover. If the "SLS" or "SDI" function is not selected, r9733[0] shows p1082 and r9733[1] shows -p1082. The display in r9733 can be delayed by up to one Safety monitoring clock cycle as compared to the display in r9719/r9720 and r9721/r9722.

r9734.0...15 CO/BO: SI Safety Info Channel status word S_ZSW1B / SIC S_ZSW1B

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for status word S_ZSW1B of the safety information channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO active	Yes	No	-
01	SS1 active	Yes	No	-
02	SS2 active	Yes	No	-
03	SOS active	Yes	No	-
04	SLS active	Yes	No	-
05	SOS selected	Yes	No	-
06	SLS selected	Yes	No	-
07	Internal event	Yes	No	-
09	Select SLS bit0	Yes	No	-
10	Select SLS bit1	Yes	No	-
12	SDI positive selected	Yes	No	-
13	SDI neg selected	Yes	No	-
14	ESR retract requested	Yes	No	-
15	Safety message present	Yes	No	-

Note: SIC: Safety Info Channel

Re bit 07:

An internal event is displayed if a STOP A ... F is active.

p9740 — SI Motion user agreement selection/de-selection MM / SI mtn UserAgr MM

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	00AC hex	0000 hex

Description: Setting to select and de-select the user agreement on the Motor Module/Hydraulic Module.

Value:
0: [00 hex] De-select user agreement
172: [AC hex] Select user agreement

Dependency: Refer to: r9741

r9741 — SI Motion user agreement inside the drive MM / SI Mtn UserAgr int

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2822
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the internal state of the user agreement.
Value = 0: User agreement is not set.
Value = AC hex: User agreement is set.

Dependency: Refer to: p9740

r9743.4...15 — CO/BO: SI Safety Info Channel status word S_ZSW2B / SIC S_ZSW2B

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for status word S_ZSW2B of the safety information channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	SLP selected position area	SLP2	SLP1	-
07	SLP selected and user agreement set	Yes	No	-
08	SDI positive selected	Yes	No	-
09	SDI neg selected	Yes	No	-
12	Test stop active	Yes	No	-
13	Test stop required	Yes	No	-
14	Reference position required	Yes	no	-
15	Reference trigger command identified or reference position valid	Yes	no	-

Note: SIC: Safety Info Channel

r9744 — SI message buffer changes, counter / SI msg_buffer chng

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the changes of the safety message buffer.
This counter is incremented every time that the safety message buffer changes.

Recommend.: This is used to check whether the safety message buffer has been read out consistently.

Dependency: Refer to: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756

r9745[0...63] SI components / SI comp

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the component of the safety message that has occurred.

Note: Value = 0: Assignment to a component not possible.

r9747[0...63] SI message code / SI msg_code

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the numbers of safety messages that have occurred.

Dependency: Refer to: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756

Note: The messages type "safety message" (Cxxxxx) are entered in the message fault buffer.

Message buffer structure (principle):

r9747[0], r9748[0], r9749[0], r9753[0], r9754[0], r9755[0], r9756[0] --> Actual message case, safety message 1

...

r9747[7], r9748[7], r9749[7], r9753[7], r9754[7], r9755[7], r9756[7] --> Actual message case, safety message 8

r9747[8], r9748[8], r9749[8], r9753[8], r9754[8], r9755[8], r9756[8] --> 1st acknowledged message case, safety message 1

...

r9747[15], r9748[15], r9749[15], r9753[15], r9754[15], r9755[15], r9756[15] --> 1st acknowledged message case, safety message 8

...

r9747[56], r9748[56], r9749[56], r9753[56], r9754[56], r9755[56], r9756[56] --> 7th acknowledged message case, safety message 1

...

r9747[63], r9748[63], r9749[63], r9753[63], r9754[63], r9755[63], r9756[63] --> 7th acknowledged message case, safety message 8

r9748[0...63] SI message time received in milliseconds / SI t_msg recv ms

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the relative system runtime in milliseconds when the safety message occurred.

Dependency: Refer to: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756

r9749[0...63] SI message value / SI msg_value

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the additional information about the safety message that occurred (as integer number).

Dependency: Refer to: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756

r9750[0...63] SI diagnostic attributes / SI diag_attr

VECTOR_G			
	Can be changed: -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Messages	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the diagnostic attributes of the safety messages that have occurred.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFIdrive fault class bit 0	High	Low	-
17	PROFIdrive fault class bit 1	High	Low	-
18	PROFIdrive fault class bit 2	High	Low	-
19	PROFIdrive fault class bit 3	High	Low	-
20	PROFIdrive fault class bit 4	High	Low	-

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the SI message buffer and the assignment of the indices is shown in r9747.

Re bits 20 ... 16:

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault

p9752 SI message cases counter / SI msg_cases count

VECTOR_G

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	65535	0

Description: Number of safety messages that have occurred since the last reset.

Dependency: The safety message buffer is cleared by resetting the parameter to 0.
Refer to: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756

Note: The parameter is reset to 0 at POWER ON.

r9753[0...63] SI message value for float values / SI msg_val float

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays additional information about the safety message that has occurred for float values.

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756

r9754[0...63] SI message time received in days / SI t_msg recv days

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the relative system runtime in days when the safety message occurred.

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756

r9755[0...63] SI message time removed in milliseconds / SI t_msg rem ms

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the relative system runtime in milliseconds when the safety message was removed.

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756

r9756[0...63] SI message time removed in days / SI t_msg rem days

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Messages	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the relative system runtime in days when the safety message was removed.

Dependency: Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755

p9761 SI password input / SI password inp

VECTOR_G	Can be changed: C1, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dyn. index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Enters the Safety Integrated password.

Note: It is not possible to change Safety Integrated parameters until the Safety Integrated password has been entered.

p9762 SI password new / SI password new

VECTOR_G	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dyn. index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Enters a new Safety Integrated password.

Dependency: A change made to the Safety Integrated password must be acknowledged in the following parameter:

Refer to: p9763

p9763 SI password acknowledgement / SI ackn password

VECTOR_G	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dyn. index: -	Func. diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Acknowledges the new Safety Integrated password.

Dependency: Refer to: p9762

Note: The new password entered into p9762 must be re-entered in order to acknowledge.

p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.

r9765 SI Motion forced check procedure remaining time (Control Unit) / SI Mtn dyn remain

VECTOR_G	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dyn. index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	**Max**	**Factory setting**
	- [h]	- [h]	- [h]

Description: Displays the time remaining until the next dynamization and testing of the safety motion monitoring functions integrated in the drives.

The signal source to initiate the forced checking procedure is parameterized in p9705.

Dependency: Refer to: p9705

r9768[0...7] SI PROFIsafe receive control words (Control Unit) / SI Ps PZD recv CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the received PROFIsafe telegram on the Control Unit.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8

Dependency: Refer to: r9769

Note: The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

r9769[0...7] SI PROFIsafe send status words (Control Unit) / SI Ps PZD send CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the PROFIsafe telegram to be sent on the Control Unit.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8

Dependency: Refer to: r9768

Note: The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

r9770[0...3] SI version drive-integrated safety function (Control Unit) / SI version Drv CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated version for the drive-integrated safety functions on the Control Unit.

Index:
[0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)
[3] = Safety Version (hotfix)

Dependency: Refer to: r9870, r9890

Note: Example:
r9770[0] = 2, r9770[1] = 60, r9770[2] = 1, r9770[3] = 0 --> Safety version V02.60.01.00

r9771 SI common functions (Control Unit) / SI common fct CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the supported Safety Integrated monitoring functions supported on both monitoring channels.

The Control Unit determines this display.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO supported via terminals	Yes	No	2804
01	SBC supported	Yes	No	2804
02	Extended Functions supported (p9501 > 0)	Yes	No	2804
03	SS1 supported	Yes	No	2804
04	Extended Functions PROFIsafe supported	Yes	No	-
05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
06	Basic Functions PROFIsafe supported	Yes	No	-
07	Extended Functions encoderless supported	Yes	No	-
08	Safe Brake Adapter supported	Yes	No	-
09	Basic Functions PROFIsafe for parallel connection supported	Yes	No	-
10	Extended Functions integrated in drive for parallel connection	Yes	No	-
11	Extended Functions SDI supported	Yes	No	-
12	Extended Functions SSM encoderless supported	Yes	No	-
13	ESR delay of the pulse suppression	Yes	No	-
14	SBC for parallel connection supported	Yes	No	-
15	SLS limit SP supported via PROFIsafe	Yes	No	-
16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-

Dependency: Refer to: r9871

Note: CU: Control Unit

ESR: Extended Stop and Retract

SBC: Safe Brake Control

SDI: Safe Direction (safe motion direction)

SI: Safety Integrated

SLP: Safely-Limited Position

SP: Safe Position

SS1: Safe Stop 1

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

STO: Safe Torque Off / SH: Safe standstill

SCC: Safety Control Channel

Re bit 16:

SS1E is supported for Safety Extended Functions.

r9772.0...23 CO/BO: SI status (Control Unit) / SI status CU

VECTOR_G	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the Safety Integrated status on the Control Unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO or safe pulse cancellation on CU selected	Yes	No	2810
01	STO or safe pulse cancellation on CU active	Yes	No	2810
02	SS1 delay time active on the Control Unit	Yes	No	2810
04	SBC requested	Yes	No	2814
05	SS1 selected on the Control Unit (Basic Functions)	Yes	No	-
06	SS1 active on the Control Unit (Basic Functions)	Yes	No	-
07	STO terminal state on the Control Unit (Basic Functions)	High	Low	-
09	STOP A cannot be acknowledged active	Yes	No	2802
10	STOP A active	Yes	No	2802
15	STOP F active	Yes	No	2802
16	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause selection via Safe Motion Monitoring (SMM)	Yes	No	-
19	STO cause actual value missing or safe pulse cancellation	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-

Dependency: Refer to: r9872

Note: Re bit 00:

When STO or "Safe pulse cancellation" is selected, the cause is displayed in bits 16 ... 21.

Re bit 01:

- For p9772.1 = 1 and p9772.19 = 0, an STO from the Safety Basic functions is active.
- For p9772.1 = 1 and p9772.19 = 1, safe pulse cancellation is active, if safety functions without selection are activated via p9601.2/p9801.2 = 1 and p9601.5/p9801.5 = 1.

Note:

If p9601.0 = 1 and p9601.2 = 1 and p9801.5 = 1 then for bit 0 and 1, the STO function applies.

Re bit 05:

When SS1 is selected, the cause is displayed in bits 22 and 23.

Re bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

Re bit 19:

With SMM encoderless no actual value sensing is possible on account of OFF2.

With SMM with encoder no actual value sensing is possible on account of parking.

For Safety functions without selection, safe pulse cancellation to selected (p9772.19 = 1).

SMM: Safe Motion Monitoring

Re bit 22 and 23:
These bits show via which path the SS1 has been triggered, i.e. what has started the SS1 delay time.
If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

r9773.0...31 CO/BO: SI status (Control Unit + Motor Module) / SI status CU+MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated status on the drive (Control Unit + Motor Module).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO selected in drive	Yes	No	2804
01	STO active in drive	Yes	No	2804
02	SS1 delay time active in the drive	Yes	No	2804
04	SBC requested	Yes	No	2804
05	SS1 selected in the drive (Basic Functions)	Yes	No	-
06	SS1 active in the drive (Basic Functions)	Yes	No	-
31	Shutdown paths must be tested	Yes	No	2810

Note: This status is formed from the AND operation of the relevant status of the two monitoring channels.

r9774.0...31 CO/BO: SI status (group STO) / SI stat group STO

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status for Safety Integrated of the group to which this drive belongs.
These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO selected in group	Yes	No	2804
01	STO active in group	Yes	No	2804
02	SS1 delay time active in group	Yes	No	-
04	SBC requested in group	Yes	No	2804
05	SS1 selected in group (Basic Functions)	Yes	No	-
06	SS1 active in group (Basic Functions)	Yes	No	-
31	Shutdown paths of the group must be tested	Yes	No	2804

Dependency: Refer to: p9620, r9773

Notice: If a drive belonging to a group is de-activated via p0105, then the signals in r9774 can no longer be correctly displayed (Remedy: Before de-activating, remove this drive from the group).

Note: A group is formed by appropriately grouping the terminals for the function "Safe Torque Off" (STO).
The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

r9776 SI diagnostics / SI diag

TM54F_MA

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: The parameter is used for diagnostics.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Safety parameter changed POWER ON required	Yes	No	-
01	Safety functions enabled	Yes	No	-
02	Safety component replaced and data save required	Yes	No	-

Dependency: Refer to: r9793

Note: Re bit 00 = 1:

At least one Safety parameter has been changed that will only take effect after a POWER ON.

Re bit 01 = 1:

Safety functions (basic functions or extended functions) have been enabled and are active.

Re bit 02 = 1:

A safety-relevant component has been replaced. Data save required (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").

r9776 SI diagnostics / SI diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: The parameter is used for diagnostics.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Safety parameter changed POWER ON required	Yes	No	-
01	Safety functions enabled	Yes	No	-
02	Safety component replaced and data save required	Yes	No	-
03	Safety component replaced and acknowledge/save required	Yes	No	-

Dependency: Refer to: r9793

Note: Re bit 00 = 1:

At least one Safety parameter has been changed that will only take effect after a POWER ON.

Re bit 01 = 1:

Safety functions (basic functions or extended functions) have been enabled and are active.

Re bit 02 = 1:

A safety-relevant component has been replaced. Data save required (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").

Re bit 03 = 1:

A safety-relevant component has been replaced. Acknowledge (p9702 = 29) and save (p0977 = 1 or p0971 = 1 or "Copy RAM to ROM") required.

r9780 SI monitoring clock cycle (Control Unit) / SI monitor_clck CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Control Unit.

Dependency: Refer to: r0110, p0115, r9880

Note: Information regarding the relationship between monitoring clock cycle and response times can be found in the following references:

- SINAMICS S120 Function Manual Safety Integrated
- technical documentation for the particular product

r9781[0...1] SI checksum to check changes (Control Unit) / SI chg chksm CU

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the checksum for tracking changes for Safety Integrated.

These are additional checksums that are created to track changes (fingerprint for the "safety logbook" functionality) to safety parameters (that are relevant for checksums).

Index: [0] = SI checksum to track functional changes
[1] = SI checksum to track hardware-specific changes

Dependency: Refer to: p9601, p9729, p9799

r9782[0...1] SI time stamps to check changes (Control Unit) / SI chg t CU

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [h]	- [h]	- [h]

Description: Displays the time stamps for the checksums for tracking changes for Safety Integrated.

The time stamps for the checksums for tracking changes (fingerprint for the "safety logbook" functionality) made to safety parameters are saved in parameters p9781[0] and p9781[1].

Index: [0] = SI time stamp for checksum to track functional changes
[1] = SI time stamp for checksum to track hardware-specific changes

Dependency: Refer to: p9601, p9729, p9799

p9783 SI Motion act. value sensing sensorless synchr. motor I_inject / Actv sl sync I_inj

VECTOR_G (n/M)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-50.00 [%]	0.00 [%]	-20.00 [%]

Description: Sets the additional field-generating current for synchronous motors with sensorless actual value sensing.

The set value is referred to p0305.

This parameter ensures a "base load" for the motor.

The value must fulfill the following condition:

|p0305 x p9783| >= p9588 x 1.2

Dependency: Refer to: p9588

Notice: Reducing this percentage value can adversely affect actual value sensing with synchronous motors.

If the value is increased, this results in an increased motor power loss.

Note: This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

For p9783 = maximum value, current injection is deactivated.

Current injection is not effective in the U/f control mode.

r9784[0...1] SI Motion diagnostics sensorless acceleration / Diag sl a

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm/s²]	- [mm/s²]	- [mm/s²]

Description: Display to diagnose acceleration values of the encoderless actual values sensing.

Index:
[0] = Setpoint acceleration value
[1] = Actual acceleration value

Dependency: Refer to: p9589

Note: Re index 0:

Shows the parameterized acceleration value of p9589.

Re index 1:

Shows the actually measured acceleration values of the encoderless actual value sensing

r9784[0...1] SI Motion diagnostics sensorless acceleration / Diag sl a

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rev/s²]	- [rev/s²]	- [rev/s²]

Description: Display to diagnose acceleration values of the encoderless actual values sensing.

Index:
[0] = Setpoint acceleration value
[1] = Actual acceleration value

Dependency: Refer to: p9589

Note: Re index 0:

Shows the parameterized acceleration value of p9589.

Re index 1:

Shows the actually measured acceleration values of the encoderless actual value sensing

r9785[0...1] SI Motion diagnostics sensorless minimum current / Diag sl I_min

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** 6_3	**Unit selection:** p0505
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mA]	- [mA]	- [mA]

Description: Display to diagnose currents of the encoderless actual value sensing.

Index:
[0] = Minimum current parameterized
[1] = Minimum current measured

Dependency: Refer to: p9588

Note: Re index 0:

Displays the parameterized minimum current of p9588.

Re index 1:

Displays the currently measured current of the encoderless actual value sensing

r9786[0...2] SI Motion diagnostics sensorless angle / Diag sl angle

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [°]	- [°]	- [°]

Description: Display to diagnose the angle for sensorless actual value sensing.

Index: [0] = Plausibility angle actual value
[1] = Voltage angle actual value
[2] = Current angle actual value

Dependency: Refer to: p9585

Note: Re index 0:
Displays the actual plausibility angle.
Re index 1:
Displays the actual voltage angle.
Re index 2:
Displays the actual current angle.

r9787 SI Motion diagnostics sensorless velocity deviation / Diag sl v_dev

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the actual velocity deviation for sensorless actual value sensing.
This value is calculated when setting p9585/p9385.
The actual velocity has a deviation of +/- r9787 for 6 ms * p9585/p9385 within a monitoring time of 1 s.

Dependency: Refer to: p9585

Note: For linear axes, the following unit applies: millimeters per minute
For rotary axes, the following unit applies: revolutions per minute

r9787 SI Motion diagnostics sensorless velocity deviation / Diag sl v_dev

VECTOR_G (Safety rot)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual velocity deviation for sensorless actual value sensing.
This value is calculated when setting p9585/p9385.
The actual velocity has a deviation of +/- r9787 for 6 ms * p9585/p9385 within a monitoring time of 1 s.

Dependency: Refer to: p9585

Note: For linear axes, the following unit applies: millimeters per minute
For rotary axes, the following unit applies: revolutions per minute

r9793[0...9] SI diagnostics component replacement / Diag comp_replace

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the component number for the first 10 replaced safety-relevant components.

Dependency: Refer to: r9776

Note: This parameter does not exist for a Control Unit and Terminal Module.

r9794[0...19] SI crosswise comparison list (Control Unit) / SI CDC_list CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of the data that are being presently compared crosswise on the Control Unit.
The content of the list of crosswise-compared data is dependent upon the particular application.

Dependency: Refer to: r9894

Note: Example:
r9794[0] = 1 (monitoring clock cycle)
r9794[1] = 2 (enable safety functions)
r9794[2] = 3 (F-DI changeover, tolerance time)
...
A complete list of numbers for crosswise-compared data items appears in fault F01611.

r9795 SI diagnostics STOP F (Control Unit) / SI diag STOP F CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of the cross-compared data which has caused STOP F on the Control Unit.

Dependency: Refer to: r9895

Note: A complete list of numbers for crosswise-compared data items appears in fault F01611.

r9798 SI actual checksum SI parameters (Control Unit) / SI act_checksum CU

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2800
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the checksum over the checked Safety Integrated parameters on the Control Unit (actual checksum).

Dependency: Refer to: p9799, r9898

p9799 SI reference checksum SI parameters (Control Unit) / SI set_checksum CU

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2800
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters on the Control Unit (reference checksum).

Dependency: Refer to: r9798, p9899

p9801 SI enable functions integrated in the drive (Motor Module) / SI enable fct MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 bin

Description: Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Motor Module.

Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or Power Module being used:

0000 hex:

Safety functions integrated in the drive inhibited (no safety function).

0001 hex:

Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1).

0004 hex:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1).

0005 hex:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1).

0008 hex:

Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1).

0009 hex:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).

0024 hex:

Extended functions without selection are enabled (permissible for r9871.16 = 1).

0025 hex:

Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9871.16 = 1).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO (SH) via terminals (MM) enable	Enable	Inhibit	2810
02	Enable motion monitoring functions integrated in drive (MM)	Enable	Inhibit	-
03	Enable PROFIsafe (MM)	Enable	Inhibit	-
05	Enab motion monit functions integr in drive w/out selection (MM)	Enable	Inhibit	-
06	Basic functions via TM54F	Enable	Inhibit	-

Dependency: Refer to: p9601, r9871

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change always becomes effective only after a POWER ON. Exception: Changes to p9801.0 become effective immediately.

MM: Motor Module

SI: Safety Integrated

SMM: Safe Motion Monitoring

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

p9802 SI enable Safe Brake Control (Motor Module) / SI enable SBC MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Func. diagram:** 2814
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the enable signal for the "Safe Brake Control" function (SBC) on the Motor Module.

0: Inhibit SBC

1: Enable SBC

Dependency: Refer to: p9602

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9801 not equal to 0).

It does not make sense to parameterize "no motor holding brake available" and enable "Safe Brake Control" (p1215 = 0, p9602 = p9802 = 1) if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).

MM: Motor Module

SBC: Safe Brake Control

SI: Safety Integrated

p9810 SI PROFIsafe address (Motor Module) / SI PROFIsafe MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	FFFE hex	0000 hex

Description: Sets the PROFIsafe address of the Motor Module/Hydraulic module.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9811 SI PROFIsafe telegram selection (Motor Module) / SI Ps telegram MM

VECTOR_G			
	Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	998	998

Description: Sets the PROFIsafe telegram number for the Motor Module/Hydraulic Module.

Value:
0: No PROFIsafe telegram selected
30: PROFIsafe standard telegram 30, PZD-1/1
31: PROFIsafe standard telegram 31, PZD-2/2

900: PROFIsafe SIEMENS telegram 900, PZD-2/2
901: PROFIsafe SIEMENS telegram 901, PZD-3/5
902: PROFIsafe SIEMENS telegram 902, PZD-3/6
998: Compatibility mode (as for firmware version < 4.5)

Dependency: Refer to: p9611, p60022

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For p9601.3 = p9801.3 = 1 (PROFIsafe enabled), the following variants exist when parameterizing PROFIsafe telegram 30:

- p9611 = p9811 = 998 and p60022 = 0
- p9611 = p9811 = 998 and p60022 = 30
- p9611 = p9811 = 30 and p60022 = 30

p9821 BI: SI Safe Brake Adapter signal source (Motor Module) / SI SBA S_src MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2814
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for Safe Brake Adapter (SBA).

This defines via which digital input the Safe Brake Adapter feedback signal is read-in (SBA_DIAG).

p9621/p9821 = 0:

There is no Safe Brake Control (SBC) with Safe Brake Adapter (SBA) available.

p9621/p9821 = r0722.x (x = 0, 1 ... 7)

Safe Brake Adapter and Booksize unit (no Communication Interface Module (CIM)).

p9621/p9821 = r9872.3

Safe Brake Adapter and Chassis unit (CIM).

Dependency: Refer to: p9601, p9602, p9621

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: No difference is tolerated for a crosswise data comparison between p9621 and p9821.

To use the "Safe Brake Adapter" function the following must apply:

p9601 = p9801 <> 0 and p9602 = p9802 = 1

p9822[0...1] SI SBA relay delay times (Motor Module) / SI SBA relay t MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2814
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	1000000.00 [µs]	[0] 100000.00 [µs] [1] 65000.00 [µs]

Description: Sets the delay times for activating and de-activating the Safe Brake Adapter relay.

The relay-specific minimum delay times for evaluating the feedback signal contacts have to be set. They differ for the activation and de-activation of one and the same relay.

Index: [0] = Wait time activation
[1] = Wait time deactivation

Dependency: Refer to: p9622

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

Re index 0:

Wait time switch on = drop-out time + bounce time NO contact + effect of the free-wheeling diode in the Safe Brake Adapter

Re index 1:

Wait time switch off = response time + bounce time NC contact + effect of the free-wheeling diode in the Safe Brake Adapter

p9850 SI SGE changeover discrepancy time (Motor Module) / SI SGE chg t MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2810
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	2000000.00 [µs]	500000.00 [µs]

Description: Sets the discrepancy time to change over the safety-related inputs (SGE) on the Motor Module/Hydraulic Module.

An SGE changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this discrepancy time.

Dependency: Refer to: p9650

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.

Rounding effects can occur in the last decimal place of the parameterized time.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

SGE: Safety-related input (e.g. STO terminals)

p9851 SI STO/SBC/SS1 debounce time (Motor Module) / SI STO t_debou MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [µs]	100000.00 [µs]	0.00 [µs]

Description: Sets the debounce time for the EP terminal of the Motor Module.

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: Rounding effects can occur in the last decimal place of the parameterized time.

The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe digital inputs with no reaction/influence on the selection or deselection of the Safety Basic Functions.

Example:

Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed.

Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.

p9852 SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.00 [ms]	300000.00 [ms]	0.00 [ms]

Description: Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Motor Module to brake along the OFF3 down ramp (p1135).

Recommend.: In order that the drive can completely ramp-down along the OFF3 ramp and a motor holding brake that is possibly available can close, then the delay time should be set as follows:

Motor holding brake parameterized: delay time >= p1135 + p1228 + p1217

Motor holding brake not parameterized: delay time >= p1135 + p1228

Dependency: Refer to: p1135, p9652

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.

Rounding effects can occur in the last decimal place of the parameterized time.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9858 SI transition time STOP F to STOP A (Motor Module) / SI STOP F->A MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	30000000.00 [µs]	0.00 [µs]

Description: Sets the transition period from STOP F to STOP A on the Motor Module/Hydraulic Module.

Dependency: Refer to: p9658, r9895

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.

Rounding effects can occur in the last decimal place of the parameterized time.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

STOP F: Defect in a monitoring channel (error in the crosswise data comparison)

STOP A: STO as a result of a fault detected by Safety Integrated

r9870[0...3] SI version drive-integrated safety function (Motor Module) / SI version MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated version for the drive-integrated safety functions on the Motor Module/Hydraulic Module.

Index:
[0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)
[3] = Safety Version (hotfix)

Dependency: Refer to: r9770, r9890

Note: Example:

r9870[0] = 2, r9870[1] = 60, r9870[2] = 1, r9870[3] = 0 --> Safety version V02.60.01.00

r9871 SI common functions (Motor Module / SI general fct MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the supported Safety Integrated monitoring functions supported on both monitoring channels.

The Motor Module/Hydraulic Module determines this display.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO supported via terminals	Yes	No	2804
01	SBC supported	Yes	No	2804
02	Extended Functions supported (p9501 > 0)	Yes	No	2804
03	SS1 supported	Yes	No	2804
04	Extended Functions PROFIsafe supported	Yes	No	-
05	Extended Functions integrated in drive supported (p9601.2 = 1)	Yes	No	-
06	Basic Functions PROFIsafe supported	Yes	No	-
07	Extended Functions encoderless supported	Yes	No	-

08	Safe Brake Adapter supported	Yes	No	-
09	Basic Functions PROFIsafe for parallel connection supported	Yes	No	-
10	Extended Functions integrated in drive for parallel connection	Yes	No	-
11	Extended Functions SDI supported	Yes	No	-
12	Extended Functions SSM encoderless supported	Yes	No	-
13	ESR delay of the pulse suppression	Yes	No	-
14	SBC for parallel connection supported	Yes	No	-
15	SLS limit SP supported via PROFIsafe	Yes	No	-
16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-

Dependency: Refer to: r9771

Note: ESR: Extended Stop and Retract

SBC: Safe Brake Control

SDI: Safe Direction (safe motion direction)

SI: Safety Integrated

SLP: Safely-Limited Position

SP: Safe Position

SS1: Safe Stop 1

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

STO: Safe Torque Off / SH: Safe standstill

Re bit 16:

SS1E is supported for Safety Extended Functions.

SCC: Safety Control Channel.

r9872.0...24 CO/BO: SI status list (Motor Module) / SI status MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2804
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated status on the Motor Module/Hydraulic Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO on Motor Module selected	Yes	No	2810
01	STO on Motor Module active	Yes	No	2810
02	SS1 delay time on Motor Module active	Yes	No	2810
03	Safe Brake Adapter feedback signal	Yes	No	2814
04	SBC requested	Yes	No	2814
05	SS1 selected on the Motor Module (Basic Functions)	Yes	No	-
06	SS1 active on the Motor Module (Basic Functions)	Yes	No	-
07	STO terminal state on the Motor Module (Basic Functions)	High	Low	-
09	STOP A cannot be acknowledged active	Yes	No	2802
10	STOP A active	Yes	No	2802
15	STOP F active	Yes	No	2802
16	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause: selection via SMM	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-

21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
24	Slave Motor Module ready for communication	Yes	No	-

Dependency: Refer to: r9772

Notice: If communication between both monitoring channels is interrupted (e.g. by switching off the power unit), this display parameter is no longer updated. The last transferred status of the Motor Module/Hydraulic Module is displayed.

Note: Re bit 00:

When STO is selected, the cause is displayed in bits 16 ... 21.

Re bit 05:

When SS1 is selected, the cause is displayed in bits 22 and 23.

Re bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

SMM: Safe Motion Monitoring

Re bit 22, 23:

These bits show via which path the SS1 was triggered, i.e. what has started the SS1 delay time.

If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

Re bit 24:

Only for parallel connection and active motion monitoring functions: Slave Motor Module ready for communication

r9880 SI monitoring clock cycle (Motor Module) / SI monitor_clck MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Motor Module/Hydraulic Module.

Dependency: Refer to: r0110, p0115, r9780

Note: Information about the interrelationship between the monitoring clock cycle and the response times can be taken from the technical documentation on the particular product.

r9881[0...11] SI Motion Sensor Module Node Identifier second channel / SI Mtn SM Ident

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Node Identifier of the Sensor Module that the second channel uses for the motion monitoring functions.

r9890[0...2] SI version (Sensor Module) / SI version SM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated version on the Sensor Module.

Index: [0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)

Dependency: Refer to: r9770, r9870

Note: Example:
r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01

r9894[0...19] SI crosswise comparison list (Motor Module) / SI CDC_list MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of the data that are being presently compared crosswise on the Motor Module/Hydraulic Module.
The content of the list of crosswise-compared data is dependent upon the particular application.

Dependency: Refer to: r9794

Note: Example:
r9894[0] = 1 (monitoring clock cycle)
r9894[1] = 2 (enable safety functions)
r9894[2] = 3 (F-DI changeover, tolerance time)
...
The complete list of numbers for crosswise data comparison is listed in Fault F30611.

r9895 SI diagnostics STOP F (Motor Module) / SI diag STOP F MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2802
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of the cross-compared data which has caused STOP F on the Motor Module/Hydraulic Module.

Dependency: Refer to: r9795

Note: The complete list of numbers for crosswise data comparison is listed in Fault F30611.

p9897 SI Motion bus failure STO delay time (MM) / SI Mtn IL t_del MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [µs]	800000.00 [µs]	0.00 [µs]

Description: Sets the delay time for STO after bus failure on the Motor Module/Hydraulic Module (e.g. used for ESR).

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: Rounding effects can occur in the last decimal place of the parameterized time. The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
ESR: Extended Stop and Retract
STO: Safe Torque Off / SH: Safe standstill

r9898 SI actual checksum SI parameters (Motor Module) / SI act_checksum MM

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2800
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters on the Motor Module/Hydraulic Module (actual checksum).

Dependency: Refer to: r9798, p9899

p9899 SI reference checksum SI parameters (Motor Module) / SI set_checksum MM

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2800
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters on the Motor Module/Hydraulic Module (reference checksum).

Dependency: Refer to: p9799, r9898

r9900 Actual topology number of indices / Act topo indices

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the number of indices of the actual topology.

Dependency: Refer to: r9901

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

r9901[0...n] Actual topology / Act topo

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** r9900	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual topology of the drive unit.

The actual topology is sub-divided into several sections. Each of the following data is saved under an index.

General data on the topology:

- version
- attribute to compare the actual topology and target topology
- number of components

Data on a component:

- type component of the node ID of the component
- number of DRIVE-CLiQ sockets in the Node Identifier
- manufacturer and version of the Node Identifier
- serial number of the Node Identifier (4 indices)

- index of the component
- order number (8 indices)
- attribute to compare the actual topology and target topology of the component
- communications address
- number of port types
- port type
- number of ports of the port type
- communications address of the associated/linked component
- number of the associated/linked port
- communications address of the associated/linked component
- number of the associated port, etc.

Data on the next component:
- etc.

Dependency: Refer to: r9900

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

p9902 Target topology number of indices / TargetTopo indices

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
1	65535	1

Description: Sets the number of target topology indices.

Dependency: Refer to: p9903

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

p9903[0...n] Target topology / Target topo

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** p9902	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0000 hex	FFFF hex	0000 hex

Description: Sets the target topology of the drive unit.
The target topology is sub-divided into several sections. Each of the following data is saved under an index.
General data on the topology:
- version
- attribute to compare the actual topology and target topology
- number of components

Data on a component:
- type component of the Node Identifier of the component
- number of DRIVE-CLiQ sockets in the Node Identifier
- manufacturer and version of the Node Identifier
- serial number of the Node Identifier (4 indices)
- index of the component
- order number (8 indices)
- attribute to compare the actual topology and target topology of the component
- component number
- number of port types
- port type
- number of ports of the port type

- component number of the associated/linked component
- number of the associated/linked port
- component number of the associated/linked component
- number of the associated port, etc.

Data on the next component:

- etc.

Dependency: Refer to: p9902

Note: The target topology can only be modified using the commissioning software.

The parameter is not displayed for the STARTER commissioning software.

Changes only become effective when the state of p0009 = 101 changes to 0 or 111.

p9904 Topology comparison acknowledge differences / Topo_compare ackn

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.

Differences that can be acknowledged:

- topology comparison, component shifted
- topology comparison, serial number of a component has been detected to be different (byte 3 = 1)
- topology comparison shows one component that is connected differently

The following parameter values are available:

p9904 = 1 --> the procedure is started.

p9904 = 0 after starting --> the procedure has been successfully completed.

p9904 = 1 after starting --> the procedure has not been successfully completed.

The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.

Byte 2:

Number of structural differences.

Byte 3:

Number of differences that can be acknowledged (p9904).

Byte 4:

Number of differences. These differences can be resolved as follows:

- sets the topology comparison (p9906 or p9907/p9908).
- change over the actual topology.

The appropriate action should be selected corresponding to the message that is displayed/output.

Note: In order to permanently accept the acknowledgement of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

p9905 Device specialization / Specialization

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.

With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers.

Note: p9905 is automatically set to 0 at the end of the operation.

In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).

p9906 Topology comparison comparison stage of all components / Topo_cmpr tot comp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	0

Description: Sets the type of comparison between the actual topology and target topology.

The comparison is started by setting the required value.

Value:
0: High: Compares the complete electronic rating plate
1: Average: Compares the component type and the Order number
2: Low: Compares the component type
3: Minimum: Compares the component class
99: Topology has different comparison stages

Note: The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

p9906 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9906 = 1: Component type, Order No.

p9906 = 2: Component type

p9906 = 3: Component class (e.g. Sensor Module or Motor Module)

p9907 Topology comparison comparison stage of the component number / Topo_cmpr comp_no

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.

Dependency: Refer to: p9908

p9908 Topology comparison comparison stage of a component / Topo_cmpr 1 comp

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	99	0

Description: Sets the type of comparison of a component in the target topology with the actual topology.

The comparison is started by setting the required value.

Value:
0: High: Compares the complete electronic rating plate
1: Average: Compares the component type and the Order number
2: Low: Compares the component type

3:	Minimum: Compares the component class
99:	Topology has different comparison stages

Dependency: Refer to: p9907

Note: The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

p9908 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9908 = 1: Component type, Order No.

p9908 = 2: Component type

p9908 = 3: Component class (e.g. Sensor Module or Motor Module)

p9909 Topology comparison component replacement / Topo_cmpr replace

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	1

Description: For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion.

For the components that have been replaced, the electronic rating plate must match as far as the following data is concerned:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency: Refer to: p9904, p9905

Note: The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for Control Unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910 Target topology accept additional components / Add comp accept

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	0

Description: Accept additional inserted DRIVE-CLiQ components into the target topology.

The corresponding drive objects are added to the project.

Value:

0:	No selection
1:	Drive object type SERVO
2:	Drive object type VECTOR
3:	SINAMICS GM (DFEMV & VECTORMV)
4:	SINAMICS SM (AFEMV & VECTORMV)
5:	SINAMICS GL (VECTORGL)
6:	SINAMICS SL (VECTORSL)

p9911[0...6] Insert drive object / Drv_obj insert

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	4294967295	0

Description: New drive objects can be created using this parameter.

Index 0:

The values 2 ... 62 are permissible.

Index 1:

Number of the drive object type (e.g. 11 for type SERVO).

Index 2, 4, 5, 6:

Function modules defined for the drive object.

Index 3:

= 0: Ready.

= 1: Reset (only indices 0 ... 3).

= 2: Reset all (indices 0 ... 3 and flagged entries).

= 3: Check and flag for insertion.

Index:
[0] = Drive object number
[1] = Drive object type
[2] = Drive object function module
[3] = Reset or check and flag for insertion
[4] = Drive object function module expansion 1
[5] = Drive object function module expansion 2
[6] = Drive object function module expansion 3

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

p9912[0...1] Delete drive object / Drv_obj delete

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	62	0

Description: Drive objects can be deleted using this parameter.

Index 0:

The values 2 ... 62 are permissible.

Index 1:

= 0: Ready.

= 1: Reset (only indices 0 and 1)

= 2: Reset all (indices 0 and 1 and flagged entries).

= 3: Check and flag for deletion.

= 30: Check and flag for deletion. Keep target topology.

Index:
[0] = Drive object number
[1] = Reset or check and flag for deletion

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

p9913[0...2]	**Change drive object number / Change drv_obj_no**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0	62	0

Description: Existing drive objects can be assigned new numbers using these parameters.

Index 0:

The values 2 ... 62 are permissible.

Index 1:

The values 2 ... 62 are permissible.

Index 2:

= 0: Ready.

= 1: Reset (only indices 0 ... 2).

= 2: Reset all (indices 0 ... 2 and flagged entries).

= 3: Check and flag for modification.

Index: [0] = Drive object number old
[1] = Drive object number new
[2] = Reset or check and flag for modification

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

p9914[0...2]	**Change component number / Change comp_no**		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0	199	0

Description: You can change the number of topology components using this parameter.

Index 0:

The values 2 ... 199 are permissible.

Index 1:

The values 2 ... 199 are permissible.

Index 2:

= 0: Ready.

= 1: Reset (only indices 0 ... 2).

= 2: Reset all (indices 0 ... 2 and flagged entries).

= 3: Check and flag for modification.

Index: [0] = Component number old
[1] = Component number new
[2] = Reset or check and flag for modification

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

p9915	DRIVE-CLiQ data transfer error shutdown threshold master / DQ fault master		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(1)	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	0007 07FF hex	0007 02FF hex

Description: Only for internal Siemens service purposes.

p9916	DRIVE-CLiQ data transfer error shutdown threshold slave / DQ fault slave		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(1)	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Topology	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0000 hex	0007 07FF hex	0007 02FF hex

Description: Only for internal Siemens service purposes.

p9917[0...1]	Delete component / Delete comp		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** C1(30)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min	**Max**	**Factory setting**
	0	199	0

Description: Excessive components that have not been assigned can be removed from the component target topology using this parameter.

Index 0:

The values 2 ... 199 are permissible.

Index 1:

= 0: Ready.

= 1: Reset (only indices 0 and 1)

= 2: Reset all (indices 0 and 1 and flagged entries).

= 3: Check and flag for deletion.

Index: [0] = Component number
[1] = Reset or check and flag for deletion

Note: Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

p9920[0...99]	Licensing enter license key / Enter license key		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Enters the license key for this drive unit.

Example of the license key:

EACZ-QBCA = 69 65 67 90 45 81 66 67 65 dec (ASCII characters)

Index 0 = license key character 1 (e.g. 69 dec)

Index 1 = license key character 2 (e.g. 65 dec)

...

Index 8 = license key character 9 (e.g. 65 dec)
Index 9 = license key character 10 (e.g. 0 dec)
...

Dependency: Refer to: r7843, p9921

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
With the STARTER commissioning software, ASCII characters are not entered coded, i.e. the characters of the license key can be entered as printed in the Certificate of License. In this case, STARTER codes the characters.

Note: For an invalid license key, all the indices have the value 0 dec.
Only the ASCII characters contained in a license key can be entered ("1" to "9", "A" to "H", "K" to "N", "P" to "Z" as well as "-").
When manually changing p9920[x] to the value 0 dec, all the values of all the following indices are also set to 0 dec.
After entering the license key, the license key must be activated (p9921).
If the licensing is not adequate, then the following alarm is displayed together with LED:
- A13000 --> licensing not sufficient
- LED READY --> flashes green/red with 0.5 Hz

p9921 Licensing activate license key / Act license key

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Activates the entered license key.
The following is executed when activating the license key.
- the checksum of the entered license key is checked.
- the entered license key is saved in a non-volatile fashion on the memory card.
- re-enter the license key.

Value:
0: Inactive
1: Activate start license key

Dependency: Refer to: p9920

Note: Before activation, the license key entered using parameter p9920 is checked. If this check identifies an error, activation is rejected. In this case, writing a 1 to p9921 is rejected.
When the license key has been activated, p9921 is automatically set to 0.

r9925[0...99] Firmware file incorrect / FW file incorr

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.

Dependency: Refer to: r9926

Note: The directory and name of the file is displayed in the ASCII code.

r9926 Firmware check status / FW check status

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status when the firmware is checked when the system is booted.

0: Firmware not yet checked.
1: Check running.
2: Check successfully completed.
3: Check indicates an error.

Dependency: Refer to: r9925

p9930[0...8] System logbook activation / SYSLOG activation

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Only for service purposes.

Index:
[0] = System logbook stage (0: Not active)
[1] = COM2/COM1 (0: COM2, 1: COM1)
[2] = Activate file write (0: Not active)
[3] = Display time stamp (0: Not displayed)
[4...7] = Reserved
[8] = System logbook file size (stages, each 10 kB)

Notice: Before powering down the Control Unit, ensure that the system logbook is switched out (p9930[0] = 0).

If writing to the file is activated (p9930[2] = 1), writing to the file must be de-activated again before switching off the Control Unit (p9930[2] = 0) in order to ensure that the system logbook has been completely written to the file.

p9931[0...179] System logbook module selection / SYSLOG mod select.

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Only for service purposes.

p9932 Save system logbook EEPROM / SYSLOG EEPROM save

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Only for service purposes.

r9935.0 BO: POWER ON delay signal / POWER ON t_delay

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and binector output for a delay after POWER ON.

After power-on, binector output r9935.0 is set with the start of the first sampling time and is again reset after approx. 100 ms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	POWER ON delay signal	High	Low	-

r9936[0...199] DRIVE-CLiQ diagnostic error counter connection / DQdiag err counter

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the error counter for the individual DRIVE-CLiQ connections/cables.

r9936[0]: sum of the error counter for all connections

r9936[1]: not used

r9936[2]: error counter for the feeder cable to DRIVE-CLiQ components with component number 2

...

r9936[199]: error counter for the feeder cable to DRIVE-CLiQ components with component number 199

The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit.

Dependency: Refer to: p9937, p9938

p9937 DRIVE-CLiQ diagnostic configuration / DQ diag config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the configuration for the DRIVE-CLiQ diagnostics (error counter r9936).

Using this function, connections and cables of DRIVE-CLiQ connections can be checked for transfer errors. The error counter is evaluated in the PHY blocks involved.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Alarm for connection error	Yes	No	-
08	Reset error counter	Yes	No	-

Dependency: Refer to: r9936, p9938

Note: Re bit 00:

To activate this function, p9938 must be set to 0 (inactive).

After changing the error counter (r9936), an appropriate alarm is output.

The alarm automatically disappears after 5 seconds.

Re bit 08:

With p9937.8 = 1, the error counters are reset (r9936[0...199]).

After the reset, p9937.8 is automatically set to 0.

p9938 DRIVE-CLiQ detailed diagnostics configuration / DQ diag config

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	6	0

Description: Sets the configuration for the DRIVE-CLiQ detailed diagnostics (r9943).

Using the detailed diagnostics, it is possible to investigate data transfer errors on an individual connection, selected using p9942.

Value:

0: Inactive
1: Sum send and receive errors
2: Only send errors
3: Only receive errors
4: Siemens internal

	5: Siemens internal
	6: Siemens internal
Dependency:	The functions in p9938 can only be set for p9937.0 = 0.
	Refer to: r9936, p9937, p9939, p9942
Notice:	If value = 0:
	- detailed diagnostics is inactive.
	- the error counter is active (r9936).
	If value > 0:
	- the error counter is inactive (r9936).
	- the detailed diagnostics as configured is active (r9943).

p9939 DRIVE-CLiQ detailed diagnostics time interval / DQ detail t_interv

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1 [s]	3600 [s]	1 [s]

Description: Sets the time interval for recording the error counter in r9943.

Dependency: Refer to: r9936, p9938, p9942, r9943

p9941 Target topology feature delete all components / Feature delete

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Topology	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min	**Max**	**Factory setting**
0	1	0

Description: For p9941 =1, the serial numbers of all components in the target topology are deleted (zero is written).

Through activation and de-activation this enables the actual topology components to be newly assigned to the target topology components.

Note: p9941 is automatically set to 0 at the end of the operation.

A warm restart is triggered automatically after p0009 = 0.

p9942 DRIVE-CLiQ detailed diagnostics select individual connection / DQ detail conn

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	199	0

Description: Sets the component, whose feeder cable is monitored for data transfer errors.

The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit.

Errors that have occurred in the selected time interval (p9939) can be read-out from r9943.

Dependency: Refer to: r9936, p9938, p9939, r9943

r9943 DRIVE-CLiQ detailed diagn. individual connection error counter / DQ det err counter

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the connection errors of the individual connection that have occurred within the time interval (p9939).

The detailed diagnostics for the individual connection is activated via p9938 > 0 and is selected via p9942.

Dependency: Refer to: r9936, p9938, p9939, p9942

r9975[0...7] System utilization measured / Sys util meas

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the measured system utilization.

The higher the value displayed, the higher the system utilization.

Index:
[0] = Computing time utilization (min)
[1] = Computing time utilization (averaged)
[2] = Computing time utilization (max)
[3] = Largest total utilization (min)
[4] = Largest total utilization (averaged)
[5] = Largest total utilization (max)
[6] = Reserved
[7] = Reserved

Dependency: Refer to: r9976, r9979, r9980, r9981

Note: Re index 3 ... 5:

The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here. The sampling time with the largest total utilization is displayed in r9979.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9976[0...7] System utilization / Sys util

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the system utilization.

If the utilization is greater than 100%, fault F01054 is output.

Index:
[0] = Reserved
[1] = Computing time utilization
[2] = Reserved
[3] = Reserved
[4] = Reserved
[5] = Largest total utilization
[6] = Reserved
[7] = Reserved

Dependency: Refer to: r9979, r9980

Note: Re index 1:

The value shows the total computing time load of the system.

Re index 5:

The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9979 Sampling time with largest total utilization / t_sampl lg total

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [µs]	- [µs]	- [µs]

Description: Displays the sampling time with the largest total utilization.

Dependency: Refer to: r7901, r9976

Note: The largest total utilization is displayed in r9976[5].

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9980[0...165] Sampling times utilization calculated / t_sampl util calc

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the calculated utilizations for the active sampling times based on the existing target topology.

Index:
[0] = Net utilization 0
[1] = Total utilization 0
[2] = Net utilization 1
[3] = Total utilization 1
[4] = Net utilization 2
[5] = Total utilization 2
[6] = Net utilization 3
[7] = Total utilization 3
[8] = Net utilization 4
[9] = Total utilization 4
[10] = Net utilization 5
[11] = Total utilization 5
[12] = Net utilization 6
[13] = Total utilization 6
[14] = Net utilization 7
[15] = Total utilization 7
[16] = Net utilization 8
[17] = Total utilization 8
[18] = Net utilization 9
[19] = Total utilization 9
[20] = Net utilization 10
[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14

[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21
[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47

[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51
[104] = Net utilization 52
[105] = Total utilization 52
[106] = Net utilization 53
[107] = Total utilization 53
[108] = Net utilization 54
[109] = Total utilization 54
[110] = Net utilization 55
[111] = Total utilization 55
[112] = Net utilization 56
[113] = Total utilization 56
[114] = Net utilization 57
[115] = Total utilization 57
[116] = Net utilization 58
[117] = Total utilization 58
[118] = Net utilization 59
[119] = Total utilization 59
[120] = Net utilization 60
[121] = Total utilization 60
[122] = Net utilization 61
[123] = Total utilization 61
[124] = Net utilization 62
[125] = Total utilization 62
[126] = Net utilization 63
[127] = Total utilization 63
[128] = Net utilization 64
[129] = Total utilization 64
[130] = Net utilization 65
[131] = Total utilization 65
[132] = Net utilization 66
[133] = Total utilization 66
[134] = Net utilization 67
[135] = Total utilization 67
[136] = Net utilization 68
[137] = Total utilization 68
[138] = Net utilization 69
[139] = Total utilization 69
[140] = Net utilization 70
[141] = Total utilization 70
[142] = Net utilization 71
[143] = Total utilization 71
[144] = Net utilization 72
[145] = Total utilization 72
[146] = Net utilization 73
[147] = Total utilization 73
[148] = Net utilization 74
[149] = Total utilization 74
[150] = Net utilization 75
[151] = Total utilization 75
[152] = Net utilization 76
[153] = Total utilization 76
[154] = Net utilization 77
[155] = Total utilization 77
[156] = Net utilization 78
[157] = Total utilization 78
[158] = Net utilization 79
[159] = Total utilization 79
[160] = Net utilization 80
[161] = Total utilization 80

[162] = Net utilization 81
[163] = Total utilization 81
[164] = Net utilization 82
[165] = Total utilization 82

Dependency: Refer to: r7901, r9976, r9979

Note: The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9981[0...165] Sampling times utilization measured / t_sampl util meas

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the utilizations measured for the active sampling times.

Index:
[0] = Net utilization 0
[1] = Total utilization 0
[2] = Net utilization 1
[3] = Total utilization 1
[4] = Net utilization 2
[5] = Total utilization 2
[6] = Net utilization 3
[7] = Total utilization 3
[8] = Net utilization 4
[9] = Total utilization 4
[10] = Net utilization 5
[11] = Total utilization 5
[12] = Net utilization 6
[13] = Total utilization 6
[14] = Net utilization 7
[15] = Total utilization 7
[16] = Net utilization 8
[17] = Total utilization 8
[18] = Net utilization 9
[19] = Total utilization 9
[20] = Net utilization 10
[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14
[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21

[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51
[104] = Net utilization 52
[105] = Total utilization 52
[106] = Net utilization 53
[107] = Total utilization 53
[108] = Net utilization 54

[109] = Total utilization 54
[110] = Net utilization 55
[111] = Total utilization 55
[112] = Net utilization 56
[113] = Total utilization 56
[114] = Net utilization 57
[115] = Total utilization 57
[116] = Net utilization 58
[117] = Total utilization 58
[118] = Net utilization 59
[119] = Total utilization 59
[120] = Net utilization 60
[121] = Total utilization 60
[122] = Net utilization 61
[123] = Total utilization 61
[124] = Net utilization 62
[125] = Total utilization 62
[126] = Net utilization 63
[127] = Total utilization 63
[128] = Net utilization 64
[129] = Total utilization 64
[130] = Net utilization 65
[131] = Total utilization 65
[132] = Net utilization 66
[133] = Total utilization 66
[134] = Net utilization 67
[135] = Total utilization 67
[136] = Net utilization 68
[137] = Total utilization 68
[138] = Net utilization 69
[139] = Total utilization 69
[140] = Net utilization 70
[141] = Total utilization 70
[142] = Net utilization 71
[143] = Total utilization 71
[144] = Net utilization 72
[145] = Total utilization 72
[146] = Net utilization 73
[147] = Total utilization 73
[148] = Net utilization 74
[149] = Total utilization 74
[150] = Net utilization 75
[151] = Total utilization 75
[152] = Net utilization 76
[153] = Total utilization 76
[154] = Net utilization 77
[155] = Total utilization 77
[156] = Net utilization 78
[157] = Total utilization 78
[158] = Net utilization 79
[159] = Total utilization 79
[160] = Net utilization 80
[161] = Total utilization 80
[162] = Net utilization 81
[163] = Total utilization 81
[164] = Net utilization 82
[165] = Total utilization 82

Dependency: Refer to: r7901, r9975, r9980

Note: The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9982[0...4] Data memory utilization / Mem_util dat_mem

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the calculated data memory utilization rates based on the existing target topology.

Index:
[0] = Fast data memory 1
[1] = Fast data memory 2
[2] = Fast data memory 3
[3] = Fast data memory 4
[4] = Reserved

r9983[0...4] Measured data memory utilization (actual load) / Mem_ut dat_mem ms

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the measured data memory utilization rates based on the existing target topology.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9984[0...4] Data memory utilization OA / Mem_ut dat_mem OA

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the utilization of the data memory by OA applications.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Reserved

r9986[0...7] DRIVE-CLiQ system load / DQ system load

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ system load based on the existing target topology.
The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

r9987[0...7]	DRIVE-CLiQ bandwidth load / DQ bandw load		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ bandwidth load based on the existing target topology.
The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

r9988[0...7]	DRIVE-CLiQ DPRAM load / DQ DPRAM load		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ DPRAM load based on the existing target topology.
The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

p9990	DO memory usage actual value determination selection / Mem_use ActVal sel		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** U, T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	65535	0

Description: The meaning of the parameter differs for reading and writing.
Read:
- Returns the number of memory areas monitored.
Write:
- Memory usage of a drive object: Enter drive object number
- Memory usage of the complete system: Enter value 65535

r9991[0...4]	Memory usage drive object actual value / Mem_use DO ActVal		
CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
	P-Group: -	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	-

Description: Displays the memory usage for each drive object as actual value.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9992[0...4] **Memory usage drive object reference value / Mem_use DO ref val**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the memory usage for each drive object as reference value.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9993[0...4] **Memory usage OA application / Mem_use OA**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the memory usage of an OA application.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9999[0...99] **Software error internal supplementary diagnostics / SW_err int diag**

CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Diagnostics parameter to display additional information for internal software errors.

Note: Only for internal Siemens troubleshooting.

p10000[0...5] **SI TM54F communication clock cycle / TM54F comm_cycle**

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00000 [ms]	25.00000 [ms]	[0] 12.00000 [ms] [1...5] 0.00000 [ms]

Description: Sets the safety communication clock cycle with which the TM54F communicates with a drive.
The communication clock cycle must correspond to the safety monitoring clock cycle of the drive.
Presently, the TM54F only supports one communication clock cycle for all drives.
This is entered into P10000[0].

Index:
[0] = Drive 1
[1] = Drive 2
[2] = Drive 3
[3] = Drive 4

[4] = Drive 5
[5] = Drive 6

Note: - If only index 0 of p10000 is used, then p10000[0] defines the communication clock cycle that is applicable for all drives used in p10010[]. In this case, all safety monitoring clock cycles on the Control Unit must be identical with p10000[0].
- The minimum communication clock cycle is 1 ms.

p10001 SI TM54F delay time for test stop at DO 0 ... DO 3 / SI t_delay DO

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
2.00 [ms]	2000.00 [ms]	500.00 [ms]

Description: Sets the delay time for testing the digital outputs 0 ... 3 (DO 0 ... DO 3).
Within this time, for a forced checking procedure of the digital outputs, the signal must have been detected via the corresponding readback input (p10047).

Dependency: Refer to: p10003, p10007, p10041, p10046

Note: The delay time must be set to a value greater than the debounce time (p10017). The set time is rounded internally to an integer multiple of the TM54F sampling time (r10015).

p10002 SI TM54F F-DI changeover discrepancy time / SI F-DI chg t

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2850, 2851
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [ms]	2000.00 [ms]	500.00 [ms]

Description: Sets the discrepancy time for digital inputs.
The signal states at the two associated digital inputs (F-DI) must assume the same state within this discrepancy time.

Note: The discrepancy time of the F-DIs must always be set higher than the highest value of parameter p9780 or p9500 of the drives that use safety with TM54F. The set time is rounded internally to an integer multiple of the TM54F sampling time (r10015).

p10003 SI TM54F forced checking procedure timer / SI dyn t

TM54F_MA

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [h]	8760.00 [h]	8.00 [h]

Description: Sets the time to carry out the forced checking procedure (test stop).
Within the parameterized time, the digital inputs/outputs must must have been subject to a forced checking procedure at least once. The forced checking procedure is started with binector input p10007 = 0/1 signal.

Dependency: Refer to: p10001, p10007, p10046

r10004[0...1] SI TM54F parameter actual checksum / SI par CRC act

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2847
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the actual checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).

Index: [0] = Checksum HW-independent TM54F parameters
[1] = Checksum HW-dependent TM54F parameters (MM)

p10005[0...1] SI TM54F parameter target checksum / SI par CRC target

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2847
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Displays the reference checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).

Index: [0] = Checksum HW-independent TM54F parameters
[1] = Checksum HW-dependent TM54F parameters (MM)

p10006 SI TM54F acknowledgement internal event input terminal / SI ackn int event

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Select a fail-safe digital input for the signal "acknowledge internal event" (internal fault).
The signal is transferred to the corresponding control signal of all drives.
The falling edge at this input resets the status "internal event" in the drives.
The rising edge at this input acknowledges any existing discrepancy errors.

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Note: The values "static active" and "static inactive" result in an inactive function of the safe acknowledgment.
F-DI: Failsafe Digital Input

p10007 BI: SI TM54F forced checking procedure F-DI/F-DO signal source / SI dynF-DI/DOs_src

TM54F_MA

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to initiate the test stop.
For example, a digital input of the Control Unit or one of the other Terminal Modules can be set as signal source.
The test stop is triggered on a 0/1 signal edge.
The TM54F must be in the "ready" state (p0010 = 0).

Dependency: Refer to: p10001, p10003, p10041, p10046

Notice: Digital inputs of the TM54F must not be used to trigger the test stop.

p10008 SI TM54F operating mode / SI op_mod

TM54F_MA, TM54F_SL	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	1

Description: Sets the operating mode for the Terminal Module 54F (TM54F).

Value:
0: Function interface
1: Control interface

Note: Parameter being prepared. For this firmware version, the function interface is not supported.

p10009 SI TM54F SLP retract F-DI / SI SLP retr F-DI

TM54F_MA, TM54F_SL	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	10	0

Description: Selects a fail-safe digital input for the "SLP retract" function.

A rising edge at this F-DI makes it possible to retract the drives, which at this instant in time indicate a violation of the SLP limit.

After safe acknowledgment of the active safety faults, the drives can be traversed in the direction of the permitted position range.

In the retract mode, SLP becomes inactive, and SDI, if enabled, is selected in the direction of the permitted position range.

A 0 signal at the F-DI for retraction, deactivates the active retraction mode (SLP becomes active again, and SDI selected corresponding to the actual F-DIs).

Value:
0: Function inactive
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)

Note: - Retraction is only possible, if SDI in the opposite direction of the permitted position range is not already selected.

- A discrepancy at this F-DI must be acknowledged using a safe acknowledgment.

F-DI: Failsafe Digital Input

SDI: Safe Direction (safe motion direction)

SLP: Safely-Limited Position

p10010[0...5] SI TM54F drive object assignment / SI drv_obj assign

TM54F_MA, TM54F_SL	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2847, 2848
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	62	0

Description: Sets the drive object number for the drives that are available.

Index:
[0] = Drive 1
[1] = Drive 2

[2] = Drive 3
[3] = Drive 4
[4] = Drive 5
[5] = Drive 6

Note: A change only becomes effective after a POWER ON.

p10011[0...5] SI TM54F drive group assignment / SI drv_gr assign

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	4	1

Description: Sets the drive group for the drives that are available.

A drive group is a combination of several drives with the same types of behavior.

Index:
[0] = Drive 1
[1] = Drive 2
[2] = Drive 3
[3] = Drive 4
[4] = Drive 5
[5] = Drive 6

Note: If the basic functions are controlled via the TM54F, then within a drive group, only drives with basic functions or drives with extended functions can be assigned.

p10012[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 1 / SI MM/HM Node ID 1

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the actual Node Identifier (word 1, bit 0 ... 31) for the Motor/Hydraulic Modules.

Index:
[0] = Drive 1
[1] = Drive 2
[2] = Drive 3
[3] = Drive 4
[4] = Drive 5
[5] = Drive 6

Dependency: Refer to: p10013, p10014

Note: The Node Identifier (96 bit) is represented in the following 3 parameters.

p10012[0] word 1 (bit 0 ... 31) for Motor/Hydraulic Module 1

...

p10012[5] word 1 (bit 0 ... 31) for Motor/Hydraulic Module 6

p10013[0] word 2 (bit 32 ... 63) for Motor/Hydraulic Module 1

...

p10013[5] word 2 (bit 32 ... 63) for Motor/Hydraulic Module 6

p10014[0] word 3 (bit 64 ... 95) for Motor/Hydraulic Module 1

...

p10014[5] word 3 (bit 64 ... 95) for Motor/Hydraulic Module 6

p10013[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 2 / SI MM Node ID 2

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the actual Node Identifier (word 2, bit 32 ... 63) for the Motor/Hydraulic Modules.

Index:
[0] = Drive 1
[1] = Drive 2
[2] = Drive 3
[3] = Drive 4
[4] = Drive 5
[5] = Drive 6

Dependency: Refer to: p10012, p10014

Note: The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.

p10014[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 3 / SI MM Node ID 3

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the actual Node Identifier (word 3, bit 64 ... 95) for the Motor/Hydraulic Modules.

Index:
[0] = Drive 1
[1] = Drive 2
[2] = Drive 3
[3] = Drive 4
[4] = Drive 5
[5] = Drive 6

Dependency: Refer to: p10012, p10013

Note: The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.

r10015 SI TM54F sampling time / SI t_sample

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [ms]	- [ms]	- [ms]

Description: Displays the active sampling time of the TM54F.

In this clock cycle, the debounced F-DIs (p10017) are evaluated, and converted over to SGEs.

In this clock cycle, also the F-DOs are controlled corresponding to the presently available SGAs.

This clock cycle corresponds to the smallest communication clock cycle that was entered in p10000[].

SGEs are transferred to the drives, and the SGAs received from the drives are transferred with the specific communication clock cycle of each drive in p10000[].

The value of a specific index of p10000[] represents the communication clock cycle of the drive, which is entered in the same index of p10010[].

Note: F-DO: Failsafe Digital Output / SGA: Safety-related output

SGE: Safety-relevant input

p10017 SI TM54F digital inputs debounce time / SI DI t_debounce

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [ms]	100.00 [ms]	1.00 [ms]

Description: Sets the debounce time for digital inputs.
The debounce time is accepted rounded off to whole milliseconds.
The debounce time acts on the following digital inputs:
- Fail-safe digital inputs (F-DI).
- Single-channel digital inputs (DI).

Note: Example:
Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed.
Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.
The debounce result can be read in r10051.

p10020[0...3] SI TM54F special operating mode selection / SI spec op sel

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	3	1

Description: Sets the special operating mode for the operating mode "function interface".
0 = Inactive
1 = Safe Operating Stop with braking (SS2)
2 = Safe Operating Stop without braking (SOS)
3 = Safely reduced speed without standstill (SLS)
4 = Safely reduced speed with agreement (SS2 --> SLS)

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: Refer to: p10008

Note: Parameter being prepared. For this firmware version, the function interface is not supported.
SLS: Safely-Limited Speed
SOS: Safe Operating Stop
SS2: Safe Stop 2

p10021[0...3] SI TM54F Emergency Stop stop response / SI Emergency Stop

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Sets the stop response for the drive group for Emergency Stop.
The input terminal for Emergency Stop is set in p10038.
0 = Stop reaction STO
1 = Stop reaction SS1
2 = Stop reaction SS2

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: Refer to: p10008, p10038

Note: Parameter being prepared. For this firmware version, the function interface is not supported.

p10022[0...3] SI TM54F STO input terminal / SI STO F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for the "STO" function (operating mode "control interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

STO: Safe Torque Off

p10023[0...3] SI TM54F SS1 input terminal / SI SS1 F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SS1 (operating mode "control interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

SS1: Safe Stop 1

p10024[0...3] SI TM54F SS2 input terminal / SI SS2 F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SS2 (operating mode "control interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

SS2: Safe Stop 2

p10025[0...3] SI TM54F SOS input terminal / SI SOS F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the fail-safe digital input (F-DI) for the "SOS" function (operating mode = control interface).

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)

8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

SOS: Safe Operating Stop

p10026[0...3] SI TM54F SLS input terminal / SI SLS F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SLS (operating mode "control interface").

Value: 0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

SLS: Safely-Limited Speed

p10027[0...3] SI TM54F SLS limit bit 0 input terminal / SI SLS lim 0 F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SLS limit bit 0 (operating mode "control interface").

Value: 0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)

4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, selection bit remains statically at "0".

If value = 255:

No terminal assigned, selection bit remains statically at "1".

F-DI: Failsafe Digital Input

SLS: Safely-Limited Speed

p10028[0...3] SI TM54F SLS limit bit 1 input terminal / SI SLS lim 1 F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SLS limit bit 1 (operating mode "control interface").

Value: 0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, selection bit remains statically at "0".

If value = 255:

No terminal assigned, selection bit remains statically at "1".

F-DI: Failsafe Digital Input

SLS: Safely-Limited Speed

p10030[0...3] SI TM54F SDI positive input terminal / SI SDI pos F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SDI positive (operating mode "control interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note:
If value = 0:
No terminal assigned, safety function always active.
If value = 255:
No terminal assigned, safety function always inactive.
F-DI: Failsafe Digital Input
SDI: Safe Direction (safe motion direction)

p10031[0...3] SI TM54F SDI negative input terminal / SI SDI neg F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for SDI negative (operating mode "control interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note:
If value = 0:
No terminal assigned, safety function always active.
If value = 255:
No terminal assigned, safety function always inactive.
F-DI: Failsafe Digital Input
SDI: Safe Direction (safe motion direction)

p10032[0...3]	SI TM54F SLP input terminal / SI SLP F-DI		
TM54F_MA, TM54F_SL	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	0

Description: Sets the input terminal for the "SLP" function

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:

No terminal assigned, safety function always active.

If value = 255:

No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input

SLP: Safely-Limited Position

p10033[0...3]	SI TM54F SLP position range input terminal / SI SLP pos F-DI		
TM54F_MA, TM54F_SL	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	255	0

Description: Sets the input terminal for selecting the position area for "SLP".

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: If value = 0:
No terminal assigned, selection bit remains statically at "0".
If value = 255:
No terminal assigned, selection bit remains statically at "1".
F-DI: Failsafe Digital Input
SLP: Safely-Limited Position

p10036[0...3] SI TM54F special operating mode input terminal / SI spec mode F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for "special operating mode" (operating mode "function interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: Parameter being prepared. For this firmware version, the function interface is not supported.
If value = 0:
No terminal assigned, static special operation.
If value = 255:
No terminal assigned, static normal operation.

p10037[0...3] SI TM54F agreement input terminal / SI agreement F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for "agreement" (operating mode "function interface").

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Note: Parameter being prepared. For this firmware version, the function interface is not supported.

If value = 0:

No terminal assigned, no static agreement.

If value = 255:

No terminal assigned, static agreement.

p10038[0...3] SI TM54F Emergency Stop input terminal / SI E-Stop F-DI

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	255	0

Description: Sets the input terminal for input "Emergency Stop" (operating mode "function interface").

The behavior of this input signal is set in p10021.

Value:
0: Statically active
1: F-DI 0 (X521.2/3/6)
2: F-DI 1 (X521.4/5/7)
3: F-DI 2 (X522.1/2/7)
4: F-DI 3 (X522.3/4/8)
5: F-DI 4 (X522.5/6/9)
6: F-DI 5 (X531.2/3/6)
7: F-DI 6 (X531.4/5/7)
8: F-DI 7 (X532.1/2/7)
9: F-DI 8 (X532.3/4/8)
10: F-DI 9 (X532.5/6/9)
255: Statically inact

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: Refer to: p10008, p10021

Note: Parameter being prepared. For this firmware version, the function interface is not supported.

If value = 0:

No terminal assigned, "Emergency Stop" statically active.

If value = 255:

No terminal assigned, no "Emergency Stop" statically active.

p10039[0...3] SI TM54F Safe State signal selection / SI Safe State Sel

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2856
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0001 bin

Index: [0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Power_removed	Selected	Not selected	-
01	SS1_active	Selected	Not selected	-
02	SS2_active	Selected	Not selected	-
03	SOS_active	Selected	Not selected	-

04	SLS_active	Selected	Not selected	-
05	SDI_pos_active	Selected	Not selected	-
06	SDI_neg_active	Selected	Not selected	-
07	SLP_active	Selected	Not selected	-

p10040 SI TM54F F-DI input mode / SI F-DI inp_mode

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Sets the input mode for the safety digital inputs (F-DI).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	F-DI 0, DI 1+ (X521.3)	NO contact	NC contact	2850
01	F-DI 1, DI 3+ (X521.5)	NO contact	NC contact	2850
02	F-DI 2, DI 5+ (X522.2)	NO contact	NC contact	2850
03	F-DI 3, DI 7+ (X522.4)	NO contact	NC contact	2850
04	F-DI 4, DI 9+ (X522.6)	NO contact	NC contact	2850
05	F-DI 5, DI 11+ (X531.3)	NO contact	NC contact	2851
06	F-DI 6, DI 13+ (X531.5)	NO contact	NC contact	2851
07	F-DI 7, DI 15+ (X532.2)	NO contact	NC contact	2851
08	F-DI 8, DI 17+ (X532.4)	NO contact	NC contact	2851
09	F-DI 9, DI 19+ (X532.6)	NO contact	NC contact	2851

Note: Only an NC contact can be connected for the safety digital inputs not listed.

p10041 SI TM54F F-DI enable for test / SI F-DI enab test

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 0000 0000 0000 bin

Description: Enable signal for the integration of F-DI in the test (forced checking procedure) of the sensor power supply.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	F-DI 0, power supply L1+	Test active	No test	-
01	F-DI 1, power supply L1+	Test active	No test	-
02	F-DI 2, power supply L1+	Test active	No test	-
03	F-DI 3, power supply L1+	Test active	No test	-
04	F-DI 4, power supply L1+	Test active	No test	-
05	F-DI 5, power supply L2+	Test active	No test	-
06	F-DI 6, power supply L2+	Test active	No test	-
07	F-DI 7, power supply L2+	Test active	No test	-
08	F-DI 8, power supply L2+	Test active	No test	-
09	F-DI 9, power supply L2+	Test active	No test	-

Note: F-DI: Failsafe Digital Input

p10042[0...5] SI TM54F F-DO 0 signal sources / SI F-DO 0 S_src

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2857
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	783	0

Description: Sets the signal sources for F-DO 0.
The 6 signal sources in p10042[0...5] are AND'ed and the result is output at F-DO 0.

Value:

0: No function
1: Drive group 1 STO active
2: Drive group 1 SS1 active
3: Drive group 1 SS2 active
4: Drive group 1 SOS active
5: Drive group 1 SLS active
6: Drive group 1 SSM feedback signal active
7: Drive group 1 safe state
8: Drive group 1 SOS selected
9: Drive group 1 internal event
10: Drive group 1 active SLS stage bit 0
11: Drive group 1 active SLS stage bit 1
12: Drive group 1 SDI positive active
13: Drive group 1 SDI negative active
14: Drive group 1 SLP active
15: Drive group 1 active SLP area
257: Drive group 2 STO active
258: Drive group 2 SS1 active
259: Drive group 2 SS2 active
260: Drive group 2 SOS active
261: Drive group 2 SLS active
262: Drive group 2 SSM feedback signal active
263: Drive group 2 safe state
264: Drive group 2 SOS selected
265: Drive group 2 internal event
266: Drive group 2 active SLS stage bit 0
267: Drive group 2 active SLS stage bit 1
268: Drive group 2 SDI positive active
269: Drive group 2 SDI negative active
270: Drive group 2 SLP active
271: Drive group 2 active SLP area
513: Drive group 3 STO active
514: Drive group 3 SS1 active
515: Drive group 3 SS2 active
516: Drive group 3 SOS active
517: Drive group 3 SLS active
518: Drive group 3 SSM feedback signal active
519: Drive group 3 safe state
520: Drive group 3 SOS selected
521: Drive group 3 internal event
522: Drive group 3 active SLS stage bit 0
523: Drive group 3 active SLS stage bit 1
524: Drive group 3 SDI positive active
525: Drive group 3 SDI negative active
526: Drive group 3 SLP active
527: Drive group 3 active SLP area
769: Drive group 4 STO active
770: Drive group 4 SS1 active
771: Drive group 4 SS2 active
772: Drive group 4 SOS active
773: Drive group 4 SLS active
774: Drive group 4 SSM feedback signal active
775: Drive group 4 safe state
776: Drive group 4 SOS selected
777: Drive group 4 internal event
778: Drive group 4 active SLS stage bit 0
779: Drive group 4 active SLS stage bit 1
780: Drive group 4 SDI positive active
781: Drive group 4 SDI negative active
782: Drive group 4 SLP active
783: Drive group 4 active SLP area

Index:

[0] = AND logic operation input 1
[1] = AND logic operation input 2
[2] = AND logic operation input 3
[3] = AND logic operation input 4

[4] = AND logic operation input 5
[5] = AND logic operation input 6

Note: F-DO: Failsafe Digital Output

p10043[0...5] SI TM54F F-DO 1 signal sources / SI F-DO 1 S_src

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2857
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	783	0

Description: Sets the signal sources for F-DO 1.

The 6 signal sources in p10043[0...5] are AND'ed and the result is output at F-DO 1.

Value:

0: No function
1: Drive group 1 STO active
2: Drive group 1 SS1 active
3: Drive group 1 SS2 active
4: Drive group 1 SOS active
5: Drive group 1 SLS active
6: Drive group 1 SSM feedback signal active
7: Drive group 1 safe state
8: Drive group 1 SOS selected
9: Drive group 1 internal event
10: Drive group 1 active SLS stage bit 0
11: Drive group 1 active SLS stage bit 1
12: Drive group 1 SDI positive active
13: Drive group 1 SDI negative active
14: Drive group 1 SLP active
15: Drive group 1 active SLP area
257: Drive group 2 STO active
258: Drive group 2 SS1 active
259: Drive group 2 SS2 active
260: Drive group 2 SOS active
261: Drive group 2 SLS active
262: Drive group 2 SSM feedback signal active
263: Drive group 2 safe state
264: Drive group 2 SOS selected
265: Drive group 2 internal event
266: Drive group 2 active SLS stage bit 0
267: Drive group 2 active SLS stage bit 1
268: Drive group 2 SDI positive active
269: Drive group 2 SDI negative active
270: Drive group 2 SLP active
271: Drive group 2 active SLP area
513: Drive group 3 STO active
514: Drive group 3 SS1 active
515: Drive group 3 SS2 active
516: Drive group 3 SOS active
517: Drive group 3 SLS active
518: Drive group 3 SSM feedback signal active
519: Drive group 3 safe state
520: Drive group 3 SOS selected
521: Drive group 3 internal event
522: Drive group 3 active SLS stage bit 0
523: Drive group 3 active SLS stage bit 1
524: Drive group 3 SDI positive active
525: Drive group 3 SDI negative active
526: Drive group 3 SLP active
527: Drive group 3 active SLP area
769: Drive group 4 STO active
770: Drive group 4 SS1 active
771: Drive group 4 SS2 active
772: Drive group 4 SOS active

773: Drive group 4 SLS active
774: Drive group 4 SSM feedback signal active
775: Drive group 4 safe state
776: Drive group 4 SOS selected
777: Drive group 4 internal event
778: Drive group 4 active SLS stage bit 0
779: Drive group 4 active SLS stage bit 1
780: Drive group 4 SDI positive active
781: Drive group 4 SDI negative active
782: Drive group 4 SLP active
783: Drive group 4 active SLP area

Index:
[0] = AND logic operation input 1
[1] = AND logic operation input 2
[2] = AND logic operation input 3
[3] = AND logic operation input 4
[4] = AND logic operation input 5
[5] = AND logic operation input 6

Note: F-DO: Failsafe Digital Output

p10044[0...5] SI TM54F F-DO 2 signal sources / SI F-DO 2 S_src

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2857
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	783	0

Description: Sets the signal sources for F-DO 2.

The 6 signal sources in p10044[0...5] are AND'ed and the result is output at F-DO 2.

Value:
0: No function
1: Drive group 1 STO active
2: Drive group 1 SS1 active
3: Drive group 1 SS2 active
4: Drive group 1 SOS active
5: Drive group 1 SLS active
6: Drive group 1 SSM feedback signal active
7: Drive group 1 safe state
8: Drive group 1 SOS selected
9: Drive group 1 internal event
10: Drive group 1 active SLS stage bit 0
11: Drive group 1 active SLS stage bit 1
12: Drive group 1 SDI positive active
13: Drive group 1 SDI negative active
14: Drive group 1 SLP active
15: Drive group 1 active SLP area
257: Drive group 2 STO active
258: Drive group 2 SS1 active
259: Drive group 2 SS2 active
260: Drive group 2 SOS active
261: Drive group 2 SLS active
262: Drive group 2 SSM feedback signal active
263: Drive group 2 safe state
264: Drive group 2 SOS selected
265: Drive group 2 internal event
266: Drive group 2 active SLS stage bit 0
267: Drive group 2 active SLS stage bit 1
268: Drive group 2 SDI positive active
269: Drive group 2 SDI negative active
270: Drive group 2 SLP active
271: Drive group 2 active SLP area
513: Drive group 3 STO active
514: Drive group 3 SS1 active
515: Drive group 3 SS2 active
516: Drive group 3 SOS active

517: Drive group 3 SLS active
518: Drive group 3 SSM feedback signal active
519: Drive group 3 safe state
520: Drive group 3 SOS selected
521: Drive group 3 internal event
522: Drive group 3 active SLS stage bit 0
523: Drive group 3 active SLS stage bit 1
524: Drive group 3 SDI positive active
525: Drive group 3 SDI negative active
526: Drive group 3 SLP active
527: Drive group 3 active SLP area
769: Drive group 4 STO active
770: Drive group 4 SS1 active
771: Drive group 4 SS2 active
772: Drive group 4 SOS active
773: Drive group 4 SLS active
774: Drive group 4 SSM feedback signal active
775: Drive group 4 safe state
776: Drive group 4 SOS selected
777: Drive group 4 internal event
778: Drive group 4 active SLS stage bit 0
779: Drive group 4 active SLS stage bit 1
780: Drive group 4 SDI positive active
781: Drive group 4 SDI negative active
782: Drive group 4 SLP active
783: Drive group 4 active SLP area

Index:
[0] = AND logic operation input 1
[1] = AND logic operation input 2
[2] = AND logic operation input 3
[3] = AND logic operation input 4
[4] = AND logic operation input 5
[5] = AND logic operation input 6

Note: F-DO: Failsafe Digital Output

p10045[0...5] SI TM54F F-DO 3 signal sources / SI F-DO 3 S_src

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2857
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	783	0

Description: Sets the signal sources for F-DO 3.

The 6 signal sources in p10045[0...5] are AND'ed and the result is output at F-DO 3.

Value:
0: No function
1: Drive group 1 STO active
2: Drive group 1 SS1 active
3: Drive group 1 SS2 active
4: Drive group 1 SOS active
5: Drive group 1 SLS active
6: Drive group 1 SSM feedback signal active
7: Drive group 1 safe state
8: Drive group 1 SOS selected
9: Drive group 1 internal event
10: Drive group 1 active SLS stage bit 0
11: Drive group 1 active SLS stage bit 1
12: Drive group 1 SDI positive active
13: Drive group 1 SDI negative active
14: Drive group 1 SLP active
15: Drive group 1 active SLP area
257: Drive group 2 STO active
258: Drive group 2 SS1 active
259: Drive group 2 SS2 active
260: Drive group 2 SOS active

261: Drive group 2 SLS active
262: Drive group 2 SSM feedback signal active
263: Drive group 2 safe state
264: Drive group 2 SOS selected
265: Drive group 2 internal event
266: Drive group 2 active SLS stage bit 0
267: Drive group 2 active SLS stage bit 1
268: Drive group 2 SDI positive active
269: Drive group 2 SDI negative active
270: Drive group 2 SLP active
271: Drive group 2 active SLP area
513: Drive group 3 STO active
514: Drive group 3 SS1 active
515: Drive group 3 SS2 active
516: Drive group 3 SOS active
517: Drive group 3 SLS active
518: Drive group 3 SSM feedback signal active
519: Drive group 3 safe state
520: Drive group 3 SOS selected
521: Drive group 3 internal event
522: Drive group 3 active SLS stage bit 0
523: Drive group 3 active SLS stage bit 1
524: Drive group 3 SDI positive active
525: Drive group 3 SDI negative active
526: Drive group 3 SLP active
527: Drive group 3 active SLP area
769: Drive group 4 STO active
770: Drive group 4 SS1 active
771: Drive group 4 SS2 active
772: Drive group 4 SOS active
773: Drive group 4 SLS active
774: Drive group 4 SSM feedback signal active
775: Drive group 4 safe state
776: Drive group 4 SOS selected
777: Drive group 4 internal event
778: Drive group 4 active SLS stage bit 0
779: Drive group 4 active SLS stage bit 1
780: Drive group 4 SDI positive active
781: Drive group 4 SDI negative active
782: Drive group 4 SLP active
783: Drive group 4 active SLP area

Index:
[0] = AND logic operation input 1
[1] = AND logic operation input 2
[2] = AND logic operation input 3
[3] = AND logic operation input 4
[4] = AND logic operation input 5
[5] = AND logic operation input 6

Note: F-DO: Failsafe Digital Output

p10046 SI TM54F F-DO feedback signal input activation / SI F-DO FS act

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Activates the readback input for the safety digital outputs (F-DO)
The test mode for the particular safety digital output is set in p10047.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Read back F-DO 0	Test active	No test	-
01	Read back F-DO 1	Test active	No test	-

02	Read back F-DO 2	Test active	No test	-
03	Read back F-DO 3	Test active	No test	-

Dependency: Refer to: p10047

Note: F-DO: Failsafe Digital Output

p10047[0...3] SI TM54F F-DO test stop mode / SI F-DO test mode

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1	3	2

Description: Sets the test stop mode for the particular safety digital output (F-DO)

Index 0: F-DO 0

Index 1: F-DO 1

Index 2: F-DO 2

Index 3: F-DO 3

Value:
1: Test mode 1 evaluation of int. diagnostic signal (passive load)
2: Test mode 2 read back F-DO in DI (relay circuit)
3: Test mode 3 read back F-DO in DI (actuator with feedback signal)

Note: If value = 1:

When this test mode is being used, and excessive resistance of the load between DO+ and DO- can lead to problems during the test stop. It is therefore important to make sure that the load resistance at an individual F-DO does not exceed 10 kOhm.

p10048 SI TM54F F-DI F-DO test stop configuration / SI teststop config

TM54F_MA

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Configures the test stop for F-DI and F-DO of the TM54F.

If the automatic test stop is activated, then the test stop can still be started using binector input p10007.

Note:

The automatic test stop is started after power up, partial power up or a warm restart.

Value:
0: Manual test stop via BICO p10007
1: Automatic test stop

r10051.0...9 CO/BO: SI TM54F digital inputs status / SI DI status

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2850, 2851
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the single-channel, logical, and debounced status of the safety digital inputs F-DI 0 ... 9 at Terminal Module 54F (TM54F).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	F-DI 0	Logical 1	Logical 0	2850
01	F-DI 1	Logical 1	Logical 0	2850
02	F-DI 2	Logical 1	Logical 0	2850
03	F-DI 3	Logical 1	Logical 0	2850
04	F-DI 4	Logical 1	Logical 0	2850
05	F-DI 5	Logical 1	Logical 0	2851
06	F-DI 6	Logical 1	Logical 0	2851

07	F-DI 7	Logical 1	Logical 0	2851
08	F-DI 8	Logical 1	Logical 0	2851
09	F-DI 9	Logical 1	Logical 0	2851

Dependency: Refer to: p10017, p10040

Note: If a safety function is assigned to an input (e.g. via p10022), then the following applies:

- logical "0": Safety function is selected
- logical "1": Safety function is de-selected

The interrelationship between the logical level and the external voltage level at the input depends on the parameterization (refer to p10040) of the input as either NC or NO contact and is aligned to the use of a safety function:

With 24 V at the input, NC contacts have a logical "1" level, for 0 V at the input, a logical "0" level.

This means that an NC/NC contact parameterization of 0 V at both inputs of the F-DI selects the safety function, for 24 V at both inputs, de-selects the safety function.

With 24 V at the input, NO contacts have a logical "0" level, for 0 V at the input, a logical "1" level.

This means that for an NC/NO contact parameterization, the level 0 V/24 V selects the safety function, the level 24 V/0 V de-selects the safety function.

F-DI: Failsafe Digital Input

r10052.0...3 CO/BO: SI TM54F digital outputs status / SI DO status

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital outputs at the Terminal Module 54F (TM54F).

TM54F_MA (master): display of DO-

TM54F_SL (slave): display of DO+

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0	High	Low	2853
01	DO 1	High	Low	2853
02	DO 2	High	Low	2853
03	DO 3	High	Low	2853

Note: F-DO: Failsafe Digital Output

r10053.0...3 CO/BO: SI TM54F digital inputs 20 ... 23 status / SI DI 20...23 stat

TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2848
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the status of the digital inputs at the Terminal Module 54F (TM54F).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 20	High	Low	2853
01	DI 21	High	Low	2853
02	DI 22	High	Low	2853
03	DI 23	High	Low	2853

r10054 SI TM54F failsafe events active / SI failsafe act

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the events that lead to the transfer of failsafe signals to all drives assigned to the TM54F. If the second channel of the TM54F transmits failsafe signals, then these are synchronized to the other channel. In this particular case, p10054 of the other TM54F channel should be evaluated.

Possibilities of resolving the situation:

- error during test stop: correctly perform the test stop.
- internal software error: no possibility of resolving this problem, POWER ON.
- internal synchronization problem: no possibility of resolving this problem, POWER ON.
- internal status error: no possibility of resolving this problem, POWER ON.
- parameterizing error: evaluate description of alarms F35004 or F35006. Resolve parameterizing error. POWER ON. After updating the firmware of the TM54F it is possible that a power on is required.
- all other causes: remove the cause of the error and carry out a safe acknowledgment (p10006).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Commissioning mode active (p0010 = 95)	Yes	No	2847
01	Checksum error of the safety parameters	Yes	No	-
02	Internal synchronization problem within TM54F	Yes	No	-
03	Internal software error	Yes	No	-
04	Overvoltage in the TM54F	Yes	No	-
05	Undervoltage in the TM54F	Yes	No	-
06	Error at test stop	Yes	No	-
07	Error for crosswise data comparison within TM54F	Yes	No	-
08	Overtemperature in the TM54F	Yes	No	-
09	Internal status error	Yes	No	-
10	Param error	Yes	No	-
31	Failsafe events active on another channel	Yes	No	-

r10055 SI TM54F communication status drive-specific / SI comm_stat drv

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the communication status of the individual drives with the Terminal Module 54F (TM54F).

For r10055 = 0, the following applies:

All drives assigned in p10010 communicate with the TM54F.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Communication between drive 1 and TM54F	Not configured	Configured	-
01	Communication between drive 2 and TM54F	Not configured	Configured	-
02	Communication between drive 3 and TM54F	Not configured	Configured	-
03	Communication between drive 4 and TM54F	Not configured	Configured	-
04	Communication between drive 5 and TM54F	Not configured	Configured	-
05	Communication between drive 6 and TM54F	Not configured	Configured	-

r10056.0 CO/BO: SI TM54F status / SI stat

TM54F_MA

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the status of the Terminal Module 54F (TM54F).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Test stop status	Active	Inactive	-

p10061 SI TM54F password input / SI password inp

TM54F_MA, TM54F_SL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2847
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Enters the Safety Integrated password for the Terminal Module 54F (TM54F).
This password is required to change the safety-relevant parameters.

p10062 SI TM54F password new / SI password new

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2847
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Enters the new Safety Integrated password for the Terminal Module 54F (TM54F).

Dependency: A change made to the Safety Integrated password must be acknowledged in the following parameter:
Refer to: p10063

p10063 SI TM54F password acknowledgement / SI ackn password

TM54F_MA, TM54F_SL

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2847
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0000 hex	FFFF FFFF hex	0000 hex

Description: Acknowledgement of the new Safety Integrated password for the Terminal Module 54F (TM54F).

Dependency: Refer to: p10062

Note: The new password entered into p10062 must be re-entered in order to acknowledge.
p10062 = p10063 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.

r10070 SI TM54F module identifier / SI module ID

TM54F_MA

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	4294967295	-

Description: CRC via Node Identifier of the TM54F

r10090[0...3] SI TM54F version / SI Version

TM54F_MA, TM54F_SL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the Safety Integrated version for the Terminal Module 54F (TM54F).

Index:
[0] = Safety Version (major release)
[1] = Safety Version (minor release)
[2] = Safety Version (baselevel or patch)
[3] = Safety Version (hotfix)

Dependency: Refer to: r9390, r9590, r9770, r9870, r9890

Note: Example:
r10090[0] = 2, r10090[1] = 60, r10090[2] = 1, r10090[3] = 0 --> SI TM54F version V02.60.01.00

p10201 SI Motion SBT enable / SBT enable

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0000 bin

Description: Sets the enable for the safe brake test.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable safe brake test	Yes	No	-

Note: SBT: Safe Brake Test

p10202[0...1] SI Motion SBT brake selection / SBT brake select

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Selects the brakes to be tested.

Value:
0: Inhibit
1: Test motor holding brake
2: Test external brake

Index:
[0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10203, p10230, p10235

Note: It is not possible to test two motor holding brakes. An appropriate message is output for an incorrect parameterization.
The brake to be tested is selected using p10230[2] or p10235.2.

p10203 SI Motion SBT control selection / SBT control select

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2837
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	2	0

Description: Selects the control for the safe brake test.

Value:
0: SBT via SCC (p10235)
1: SBT via BICO (p10230)
2: SBT for test stop selection (p9705/p10250.8)

Dependency: Refer to: p9705, p10230, p10235, p10250

Note: SCC: Safety Control Channel
For a value = 2, the following applies:
Brake 1 with sequence 1 (p10210[0], p10211[0], p10212[0], p10218) is tested. Brake 1 must be configured as motor holding brake (p10202[0] = 1).

p10204 SI Motion SBT motor type / SBT motor type

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	1	0

Description: Selects the motor type for the safe brake test.

Value:
0: Rotating
1: Linear

Note: For safe functions that are not enabled (p9501 = 0), the following applies:
- p10204 is automatically set the same as r0108.12 when the system boots.
When the safe brake test is enabled (10201.0 = 1), the following applies:
- p10204 is checked when the system boots to see that it matches r0108.12.

p10208[0...1] SI Motion SBT test torque ramp time / SBT M_test t_ramp

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
20 [ms]	10000 [ms]	1000 [ms]

Description: Sets the time, during which the test torque is ramped up against the closed brake.
The test torque is then ramped down after the safe brake test.

Index:
[0] = Brake 1
[1] = Brake 2

Note: The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p10209[0...1] SI Motion SBT brake holding torque / SBT brake M_stop

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
1.00 [Nm]	60000.00 [Nm]	10.00 [Nm]

Description: Sets the effective holding torque on the motor side of the brake to be tested.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: The holding torque of an external brake should be converted to the motor side.
Conversion factor:
- motor type = rotary and axis type = linear: p9522 / (p9521 x p9520)
- otherwise: p9522 / p9521
Further, the efficiency of the mechanical system should be taken into account.
Refer to: p10210, p10220

Note: The test torque effective for the brake test can be set for each sequence using a factor (p10210, p10220).

p10210[0...1] SI Motion SBT test torque factor sequence 1 / SBT M_test fact 1

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0.30	1.00	1.00

Description: Sets the factor for the test torque of sequence 1 for the safe brake test.
The factor is referred to the holding torque of the brake (p10209).

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10209, p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10211[0...1] SI Motion SBT test duration sequence 1 / SBT t_test seq 1

VECTOR_G

Can be changed: C2(95)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
20 [ms]	10000 [ms]	1000 [ms]

Description: Sets the test duration for sequence 1 for the safe brake test.
The test torque is available for this time at the closed brake.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p10212[0...1]	SI Motion SBT position tolerance sequence 1 / SBT pos_tol seq 1		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [mm]	360.000 [mm]	1.000 [mm]

Description: Sets the tolerated position deviation for sequence 1 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10212[0...1]	SI Motion SBT position tolerance sequence 1 / SBT pos_tol seq 1		
VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [°]	360.000 [°]	1.000 [°]

Description: Sets the tolerated position deviation for sequence 1 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10218	SI Motion SBT test torque sign / SBT M_test sign		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2837
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0	1	0

Description: Sets the sign for the test torque for the safe brake test.
This parameter is only valid for "SBT for test stop selection" (p10203 = 2).

Value:
0: Positive
1: Negative

Dependency: Refer to: p10203

p10220[0...1]	SI Motion SBT test torque factor sequence 2 / SBT M_test fact 2		
VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.30	1.00	1.00

Description: Sets the factor for the test torque of sequence 2 for the safe brake test.
The factor is referred to the holding torque of the brake (p10209).

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10209, p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10221[0...1] SI Motion SBT test duration sequence 2 / SBT t_test seq 2

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	20 [ms]	10000 [ms]	1000 [ms]

Description: Sets the test duration for sequence 2 for the safe brake test.
The test torque is available for this time at the closed brake.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p10222[0...1] SI Motion SBT position tolerance sequence 2 / SBT pos_tol seq 2

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [mm]	360.000 [mm]	1.000 [mm]

Description: Sets the tolerated position deviation for sequence 2 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10222[0...1] SI Motion SBT position tolerance sequence 2 / SBT pos_tol seq 2

VECTOR_G (Safety rot)	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	0.001 [°]	360.000 [°]	1.000 [°]

Description: Sets the tolerated position deviation for sequence 2 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: Refer to: p10230, p10235

Note: The test sequence is selected using p10230[4] or p10235.4.

p10230[0...5] BI: SI Motion SBT control word / SBT STW

VECTOR_G	**Can be changed:** C2(95)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Func. diagram:** 2837
	P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min	**Max**	**Factory setting**
	-	-	0

Description: Sets the signal sources for the control word of the safe brake test
This parameter is only valid for "SBT via BICO" (p10203 = 1).

Index: [0] = Select brake test
[1] = Start brake test
[2] = Select brake

[3] = Select test torque sign
[4] = Select test sequence
[5] = External brake status

Note: Re BI: p10230[0]:
0/1 signal: select brake test.
0 signal: inactive.
Re BI: p10230[1]:
0/1 signal: start brake test.
Re BI: p10230[2]:
1 signal: select brake 2.
0 signal: select brake 1.
Re BI: p10230[3]:
1 signal: select negative test torque.
0 signal: select positive test torque.
Re BI: p10230[4]:
1 signal: select test sequence 2.
0 signal: select test sequence 1.
Re BI: p10230[5]:
1 signal: external brake closed.
0 signal: external brake open.

r10231 SI Motion SBT control word diagnostics / SBT STW diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2836, 2837
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays the diagnostic bits for the control word of the safe brake test

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Select brake test	Yes	No	-
01	Start brake test	Yes	No	-
02	Select brake	Brake 2	Brake 1	-
03	Select test torque sign	Negative	Positive	-
04	Select test sequence	Test sequence 2	Test sequence 1	-
05	External brake status	Closed	Open	-

Dependency: Refer to: p10203

Note: The bits indicate the actual control signals of the control set in p10203.

r10234.0...15 CO/BO: SI Safety Info Channel status word S_ZSW3B / SIC S_ZSW3B

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for status word S_ZSW3B of the safety information channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Brake test selected	Yes	No	-
01	Setpoint input drive/external	Drive	External	-
02	Active brake	Brake 2	Brake 1	-
03	Brake test active	Yes	No	-
04	Brake test result	Successful	With error	-
05	Brake test completed	Yes	No	-
06	External brake request	Close	Open	-
07	Actual load sign	Negative	Positive	-

14	Acceptance test SLP (SE) active	Yes	No	-
15	Acceptance test mode selected	Yes	No	-

Note: SIC: Safety Info Channel
SLP: Safely-Limited Position / SE: Safe software limit switches

p10235 CI: SI Safety Control Channel control word S_STW3B / SCC S_STW3B

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** 2837
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for control word S_STW3B of the Safety Control Channel.

Dependency: This parameter is used as control word for the safe brake test only for "SBT via SCC" (p10203 = 0).
Refer to: p10203

Note: SBT: Safe Brake Test
SCC: Safety Control Channel

r10240 SI Motion SBT test torque diagnostics / SBT M_test diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the effective maximum test torque on the motor side for a safe brake test.

Dependency: The test torque for an external brake should be converted to the load side.
Conversion factor:
- motor type = rotary and axis type = linear: (p9521 x p9520) / p9522
- otherwise: p9521 / p9522
Further, the efficiency of the mechanical system should be taken into account.
Refer to: p10210, p10220

Note: The value remains displayed until the start of the next test sequence.

r10241 SI Motion SBT load torque diagnostics / SBT M_load diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Func. diagram:** 2836
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the load torque for a safe brake test.
When initializing the brake test, this load torque is available at the drive.

Note: The value remains displayed until the brake test is deselected.

r10242 SI Motion SBT state diagnostics / SBT state diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	16	-

Description: Displays the actual state of the safe brake test.

Value:

0: Brake test inactive, wait for SBT selection
1: Setpoint input drive
2: Determining the load
3: Brake test is initialized, wait for start of test sequence
4: Start test seq
5: Closing the brake, establishing the test torque
6: Brake test active, wait for test duration sequence
7: Reduce test torque
8: Wait for the brake to open
9: Brake test successfully completed, wait for start deselection
10: Change to brake test initialized - fault acknowledgment
11: Brake test canceled, torque is reduced
12: Brake test canceled, wait for brake to open
13: Brake test ended with error, wait for acknowledgment
14: Brake opening timer elapsed
15: Error when initializing the brake test, wait for acknowledgment
16: Change to brake test inactive, acknowledgment active

p10250 CI: SI Safety Control Channel control word S_STW1B / SCC S_STW1B

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for control word S_STW1B of the Safety Control Channel.

Dependency: Refer to: p10203, r10251

Note: SCC: Safety Control Channel

r10251.8...12 CO/BO: SI Safety Control Channel control word S_STW1B diagnostics / SCC S_STW1B diag

VECTOR_G

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Func. diagram:** -
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Display and BICO output for the diagnostics of control word S_STW1B of the safety control channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	Extended functions test stop selection	Selected	Not selected	2837
09	Extended Functions referencing trigger	Selected	Not selected	-
10	Extended Functions referencing reset	Selected	Not selected	-
12	Extended Functions premature SOS after STOP D	Selected	Not selected	-

Dependency: Refer to: p10250

Note: SCC: Safety Control Channel

p60022 PROFIsafe telegram selection / Ps telegram_sel

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Func. diagram:** -
P-Group: Safety Integrated	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
0	902	0

Description: Sets the telegram number for PROFIsafe.

Value:
0: No PROFIsafe telegram selected
30: PROFIsafe standard telegram 30, PZD-1/1
31: PROFIsafe standard telegram 31, PZD-2/2
901: PROFIsafe SIEMENS telegram 901, PZD-3/5
902: PROFIsafe SIEMENS telegram 902, PZD-3/6

Dependency: Refer to: p9611, p9811

Note: For p9601.3 = p9801.3 = 1 (PROFIsafe enabled), the following variants exist when parameterizing PROFIsafe telegram 30:

- p9611 = p9811 = 998 and p60022 = 0
- p9611 = p9811 = 998 and p60022 = 30
- p9611 = p9811 = 30 and p60022 = 30

p60122 IF1 PROFIdrive SIC/SCC telegram selection / IF1 SIC/SCC telegr

VECTOR_G

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Func. diagram:** 2423
P-Group: Communications	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
700	999	999

Description: Sets the telegram for the safety information channel (SIC) / safety control channel (SCC).

The SIC/SCC telegram p60122 is attached directly to the PZD telegram p0922/p2079.

Value:
700: Supplementary telegram 700, PZD-0/3
701: Supplementary telegram 701, PZD-2/5
999: Free telegram configuration with BICO

Note: The clearance to the PZD telegram can be increased using p2070/p2071.

After changing p0922/p2079 or p2070/p2071, then p60122 must be set again.

The telegram interconnections can only be changed if p60122 and p0922 are both set to 999.

r61000[0...239] PROFINET Name of Station / PN Name of Station

CU_G130_DP (PROFINET CBE20), CU_G130_PN, CU_G150_DP (PROFINET CBE20), CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays PROFINET Name of Station.

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r61001[0...3] PROFINET IP of Station / PN IP of Station

CU_G130_DP (PROFINET CBE20), CU_G130_PN, CU_G150_DP (PROFINET CBE20), CU_G150_PN

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Func. diagram:** 2410
P-Group: -	**Units group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min	**Max**	**Factory setting**
-	-	-

Description: Displays PROFINET IP of Station.

2.3 Parameters for data sets

2.3.1 Parameters for command data sets (CDS)

The following list contains the parameters that are dependent on the command data sets.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: CDS

p0641[0...n]	CI: Current limit variable / Curr lim var
p0700[0...n]	Macro Binector Input (BI) / Macro BI
p0820[0...n]	BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0
p0821[0...n]	BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1
p0822[0...n]	BI: Drive Data Set selection DDS bit 2 / DDS select., bit 2
p0823[0...n]	BI: Drive Data Set selection DDS bit 3 / DDS select., bit 3
p0824[0...n]	BI: Drive Data Set selection DDS bit 4 / DDS select., bit 4
p0828[0...n]	BI: Motor changeover feedback signal / Mot_chng fdbk sig
p0840[0...n]	BI: ON / OFF (OFF1) / ON / OFF (OFF1)
p0844[0...n]	BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1
p0845[0...n]	BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2
p0848[0...n]	BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1
p0849[0...n]	BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2
p0852[0...n]	BI: Enable operation/inhibit operation / Operation enable
p0854[0...n]	BI: Control by PLC/no control by PLC / Master ctrl by PLC
p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake
p0856[0...n]	BI: Speed controller enable / n_ctrl enable
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake
p1000[0...n]	Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set
p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1022[0...n]	BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1023[0...n]	BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
p1035[0...n]	BI: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n]	BI: Motorized potentiometer lower setpoint / Mop lower
p1039[0...n]	BI: Motorized potentiometer inversion / MotP inv
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1043[0...n]	BI: Motorized potentiometer accept setting value / MotP acc set val
p1044[0...n]	CI: Motorized potentiometer setting value / Mop set val
p1051[0...n]	CI: Speed limit RFG positive direction of rotation / n_limit RFG pos
p1052[0...n]	CI: Speed limit RFG negative direction of rotation / n_limit RFG neg
p1055[0...n]	BI: Jog bit 0 / Jog bit 0
p1056[0...n]	BI: Jog bit 1 / Jog bit 1
p1070[0...n]	CI: Main setpoint / Main setpoint
p1071[0...n]	CI: Main setpoint scaling / Main setp scal
p1075[0...n]	CI: Supplementary setpoint / Suppl setp
p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal
p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos
p1088[0...n]	CI: Speed limit in negative direction of rotation / n_limit neg
p1098[0...n]	CI: Skip speed scaling / n_skip scal
p1106[0...n]	CI: Minimum speed signal source / n_min s_src
p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir
p1113[0...n]	BI: Setpoint inversion / Setp inv
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG
p1138[0...n]	CI: Ramp-function generator ramp-up time scaling / RFG t_RU scal

p1139[0...n]	CI: Ramp-function generator ramp-down time scaling / RFG t_RD scal
p1140[0...n]	BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable
p1141[0...n]	BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG
p1142[0...n]	BI: Enable setpoint/inhibit setpoint / Setpoint enable
p1143[0...n]	BI: Ramp-function generator, accept setting value / RFG accept set v
p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value
p1155[0...n]	CI: Speed controller speed setpoint 1 / n_ctrl n_set 1
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2
p1201[0...n]	BI: Flying restart enable signal source / Fly_res enab S_src
p1230[0...n]	BI: Armature short-circuit / DC braking activation / ASC/DCBRK act
p1235[0...n]	BI: External armature short-circuit contactor feedback signal / ASC ext feedback
p1330[0...n]	CI: U/f control independent voltage setpoint / Uf U_set independ.
p1356[0...n]	CI: U/f control angular setpoint / Uf ang setpoint
p1437[0...n]	CI: Speed controller reference model I component input / n_ctrRefMod I_comp
p1440[0...n]	CI: Speed controller speed actual value / n_ctrl n_act
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal
p1475[0...n]	CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal
p1479[0...n]	CI: Speed controller integrator setting value scaling / n_ctrl I_val scal
p1486[0...n]	CI: Droop compensation torque / Droop M_comp
p1492[0...n]	BI: Droop feedback enable / Droop enable
p1495[0...n]	CI: Acceleration pre-control / a_prectrl
p1497[0...n]	CI: Moment of inertia scaling signal source / M_inert scal s_src
p1500[0...n]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
p1502[0...n]	BI: Freeze moment of inertia estimator / J_estim freeze
p1503[0...n]	CI: Torque setpoint / M_set
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2
p1522[0...n]	CI: Torque limit upper / M_max upper
p1523[0...n]	CI: Torque limit lower / M_max lower
p1528[0...n]	CI: Torque limit upper scaling / M_max upper scal
p1529[0...n]	CI: Torque limit lower scaling / M_max lower scal
p1540[0...n]	CI: Torque limit speed controller upper scaling / M_max n-ctr upScal
p1541[0...n]	CI: Torque limit. speed controller lower scaling / M_max nctr lowScal
p1545[0...n]	BI: Activates travel to a fixed stop / TfS activation
p1551[0...n]	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up w/o offs
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low w/o offs
p1555[0...n]	CI: Power limit / P_max
p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3
p1571[0...n]	CI: Supplementary flux setpoint / Suppl flux setp
p1640[0...n]	CI: Excitation current actual value signal source / I_exc_ActVal S_src
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge
p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge
p2106[0...n]	BI: External fault 1 / External fault 1
p2107[0...n]	BI: External fault 2 / External fault 2
p2108[0...n]	BI: External fault 3 / External fault 3
p2112[0...n]	BI: External alarm 1 / External alarm 1
p2116[0...n]	BI: External alarm 2 / External alarm 2

p2117[0...n]	BI: External alarm 3 / External alarm 3
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg
p2148[0...n]	BI: RFG active / RFG active
p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg
p2154[0...n]	CI: Speed setpoint 2 / n_set 2
p2200[0...n]	BI: Technology controller enable / Tec_ctrl enable
p2220[0...n]	BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
p2221[0...n]	BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
p2222[0...n]	BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
p2223[0...n]	BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower
p2253[0...n]	CI: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n]	CI: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val
p2286[0...n]	BI: Hold technology controller integrator / Tec_ctr integ hold
p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctr prectr_sig
p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n]	CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src
p2298[0...n]	CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s
p2299[0...n]	CI: Technology controller limit offset / Tech_ctrl lim offs
p3111[0...n]	BI: External fault 3 enable / Ext fault 3 enab
p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg
p3802[0...n]	BI: Sync-line-drive enable / Sync enable

2.3.2 Parameters for drive data sets (DDS)

The following list contains the parameters that are dependent on the drive data sets.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: DDS

p0186[0...n]	Motor Data Sets (MDS) number / MDS number
p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number
p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number
p0189[0...n]	Encoder 3 encoder data set number / Enc 3 EDS number
p0340[0...n]	Automatic calculation motor/control parameters / Calc auto par
p0572[0...n]	Activate/de-activate inhibit list / Inh_list act/deact
p0578[0...n]	Calculate technology-dependent parameters / Calc tec par
p0640[0...n]	Current limit / Current limit
p0644[0...n]	Current limit excitation induction motor / Imax excitat ASM
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1
p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5
p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9
p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11
p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13
p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15

p1030[0...n]	Motorized potentiometer configuration / Mop configuration
p1037[0...n]	Motorized potentiometer maximum speed / MotP n_max
p1038[0...n]	Motorized potentiometer minimum speed / MotP n_min
p1040[0...n]	Motorized potentiometer starting value / Mop start value
p1047[0...n]	Motorized potentiometer ramp-up time / Mop ramp-up time
p1048[0...n]	Motorized potentiometer ramp-down time / Mop ramp-down time
p1058[0...n]	Jog 1 speed setpoint / Jog 1 n_set
p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set
p1063[0...n]	Speed limit setpoint channel / n_limit setp
p1080[0...n]	Minimum speed / n_min
p1082[0...n]	Maximum speed / n_max
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
p1086[0...n]	CO: Speed limit in negative direction of rotation / n_limit neg
p1091[0...n]	Skip speed 1 / n_skip 1
p1092[0...n]	Skip speed 2 / n_skip 2
p1093[0...n]	Skip speed 3 / n_skip 3
p1094[0...n]	Skip speed 4 / n_skip 4
p1101[0...n]	Skip speed bandwidth / n_skip bandwidth
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time
p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round
p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_end_delay
p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type
p1135[0...n]	OFF3 ramp-down time / OFF3 t_RD
p1136[0...n]	OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd
p1137[0...n]	OFF3 final rounding-off time / RFG OFF3 t_end_del
p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens
p1148[0...n]	Ramp-function gen. tolerance for ramp-up and ramp-down active / RFG tol HL/RL act
p1151[0...n]	Ramp-function generator configuration / RFG config
p1189[0...n]	Speed setpoint configuration / n_ctrl config
p1200[0...n]	Flying restart operating mode / FlyRest op_mode
p1202[0...n]	Flying restart search current / FlyRest I_srch
p1203[0...n]	Flying restart search rate factor / FlyRst v_Srch Fact
p1226[0...n]	Threshold for zero speed detection / n_standst n_thresh
p1240[0...n]	Vdc controller or Vdc monitoring configuration / Vdc ctrl config
p1243[0...n]	Vdc_max controller dynamic factor / Vdc_max dyn_factor
p1245[0...n]	Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level
p1247[0...n]	Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor
p1249[0...n]	Vdc_max controller speed threshold / Vdc_max n_thresh
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp
p1251[0...n]	Vdc controller integral time / Vdc_ctrl Tn
p1252[0...n]	Vdc controller rate time / Vdc_ctrl t_rate
p1255[0...n]	Vdc_min controller time threshold / Vdc_min t_thresh
p1256[0...n]	Vdc_min controller response (kinetic buffering) / Vdc_min response
p1257[0...n]	Vdc_min controller speed threshold / Vdc_min n_thresh
p1262[0...n]	Bypass dead time / Bypass t_dead
p1271[0...n]	Flying restart maximum frequency for the inhibited direction / FlyRes f_max dir
p1280[0...n]	Vdc controller or Vdc monitoring configuration (U/f) / Vdc_ctr config U/f
p1283[0...n]	Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor
p1284[0...n]	Vdc_max controller time threshold (U/f) / Vdc_max t_thresh
p1285[0...n]	Vdc_min controller switch-in level (kinetic buffering) (U/f) / Vdc_min on_level
p1287[0...n]	Vdc_min controller dynamic factor (kinetic buffering) (U/f) / Vdc_min dyn_factor
p1288[0...n]	Vdc_max controller feedback coupling factor ramp-fct. gen. (U/f) / Vdc_max factor RFG
p1289[0...n]	Vdc_max controller speed threshold (U/f) / Vdc_max n_thresh
p1290[0...n]	Vdc controller proportional gain (U/f) / Vdc_ctrl Kp

p1291[0...n]	Vdc controller integral time (U/f) / Vdc_ctrl Tn
p1292[0...n]	Vdc controller rate time (U/f) / Vdc_ctrl t_rate
p1293[0...n]	Vdc min controller output limit (U/f) / Vdc_min outp_lim
p1295[0...n]	Vdc_min controller time threshold (U/f) / Vdc_min t_thresh
p1296[0...n]	Vdc_min controller response (kinetic buffering) (U/f / Vdc_min response
p1297[0...n]	Vdc_min controller speed threshold (U/f) / Vdc_min n_thresh
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1302[0...n]	U/f control configuration / U/f config
p1310[0...n]	Starting current (voltage boost) permanent / I_start (Ua) perm
p1311[0...n]	Starting current (voltage boost) when accelerating / I_start accel
p1312[0...n]	Starting current (voltage boost) when starting / I_start start
p1320[0...n]	U/f control programmable characteristic frequency 1 / Uf char f1
p1321[0...n]	U/f control programmable characteristic voltage 1 / Uf char U1
p1322[0...n]	U/f control programmable characteristic frequency 2 / Uf char f2
p1323[0...n]	U/f control programmable characteristic voltage 2 / Uf char U2
p1324[0...n]	U/f control programmable characteristic frequency 3 / Uf char f3
p1325[0...n]	U/f control programmable characteristic voltage 3 / Uf char U3
p1326[0...n]	U/f control programmable characteristic frequency 4 / Uf char f4
p1327[0...n]	U/f control programmable characteristic voltage 4 / Uf char U4
p1331[0...n]	Voltage limiting / U_lim
p1333[0...n]	U/f control FCC starting frequency / U/f FCC f_start
p1334[0...n]	U/f control slip compensation starting frequency / Slip comp start
p1335[0...n]	Slip compensation scaling / Slip comp scal
p1336[0...n]	Slip compensation limit value / Slip comp lim val
p1338[0...n]	U/f mode resonance damping gain / Uf Res_damp gain
p1339[0...n]	U/f mode resonance damping filter time constant / Uf Res_damp T
p1340[0...n]	I_max frequency controller proportional gain / I_max_ctrl Kp
p1341[0...n]	I_max frequency controller integral time / I_max_ctrl Tn
p1345[0...n]	I_max voltage controller proportional gain / I_max_U_ctrl Kp
p1346[0...n]	I_max voltage controller integral time / I_max_U_ctrl Tn
p1349[0...n]	U/f mode resonance damping maximum frequency / Uf res_damp f_max
p1350[0...n]	U/f control soft start / U/f soft start
p1351[0...n]	CO: Motor holding brake starting frequency / Brake f_start
p1358[0...n]	Angular difference symmetrizing actual angle / Sym act angle
p1400[0...n]	Speed control configuration / n_ctrl config
p1401[0...n]	Flux control configuration / Flux ctrl config
p1402[0...n]	Closed-loop current control and motor model configuration / I_ctrl config
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D
p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead
p1441[0...n]	Actual speed smoothing time / n_act T_smooth
p1442[0...n]	Speed controller speed actual value smoothing time / n_ctr n_act T_smth
p1451[0...n]	Motor model speed actual value smoothing time sensorless / Mot_mod n_act t_sm
p1452[0...n]	Speed controller speed actual value smoothing time (sensorless) / n_C n_act T_s SL
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up
p1458[0...n]	Adaptation factor lower / Adapt_factor lower
p1459[0...n]	Adaptation factor upper / Adapt_factor upper
p1460[0...n]	Speed controller P gain adaptation speed lower / n_ctrl Kp n lower
p1461[0...n]	Speed controller Kp adaptation speed upper scaling / n_ctr Kp n up scal
p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower
p1463[0...n]	Speed controller Tn adaptation speed upper scaling / n_ctr Tn n up scal

p1464[0...n]	Speed controller adaptation speed lower / n_ctrl n lower
p1465[0...n]	Speed controller adaptation speed upper / n_ctrl n upper
p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SL Kp
p1472[0...n]	Speed controller encoderless operation integral time / n_ctrl SL Tn
p1487[0...n]	Droop compensation torque scaling / Droop M_comp scal
p1488[0...n]	Droop input source / Droop input source
p1489[0...n]	Droop feedback scaling / Droop scal
p1496[0...n]	Acceleration pre-control scaling / a_prectrl scal
p1498[0...n]	Load moment of inertia / Load M_inertia
p1499[0...n]	Accelerating for torque control scaling / a for M_ctrl scal
p1514[0...n]	Supplementary torque 2 scaling / M_suppl 2 scal
p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth
p1520[0...n]	CO: Torque limit upper / M_max upper
p1521[0...n]	CO: Torque limit lower / M_max lower
p1524[0...n]	CO: Torque limit upper scaling / M_max upper scal
p1525[0...n]	CO: Torque limit lower scaling / M_max lower scal
p1530[0...n]	Power limit motoring / P_max mot
p1531[0...n]	Power limit regenerative / P_max gen
p1553[0...n]	Stall limit scaling / Stall limit scal
p1556[0...n]	Power limit scaling / P_max scal
p1560[0...n]	Moment of inertia estimator accelerating torque threshold value / J_est M thresh
p1561[0...n]	Moment of inertia estimator change time moment of inertia / J_est t J
p1562[0...n]	Moment of inertia estimator change time load / J_est t load
p1563[0...n]	CO: Mom. of inertia estimator load torque direction of rotation pos. / J_est M pos
p1564[0...n]	CO: Mom. of inertia estimator load torque direction of rotation neg. / J_est M neg
p1570[0...n]	CO: Flux setpoint / Flex setp
p1572[0...n]	Supplementary flux setpoint / Suppl flux setp
p1573[0...n]	Flux threshold value magnetizing / Flux thresh magnet
p1574[0...n]	Voltage reserve dynamic / U_reserve dyn
p1575[0...n]	Voltage target value limit / U_tgt val lim
p1576[0...n]	Flux boost adaptation speed, lower / Flux boost n lower
p1577[0...n]	Flux boost adaptation speed upper / Flux boost n upper
p1580[0...n]	Efficiency optimization / Efficiency opt.
p1582[0...n]	Flux setpoint smoothing time / Flux setp T_smth
p1584[0...n]	Field weakening operation flux setpoint smoothing time / Field weak T_smth
p1585[0...n]	Flux actual value smoothing time / Flux actVal T_smth
p1586[0...n]	Field weakening characteristic scaling / Field weak scal
p1590[0...n]	Flux controller P gain / Flux controller Kp
p1592[0...n]	Flux controller integral time / Flux controller Tn
p1594[0...n]	Field-weakening controller P gain / Field_ctrl Kp
p1595[0...n]	Field weakening controller additional setpoint / Field_ctr add_setp
p1596[0...n]	Field weakening controller integral-action time / Field_ctrl Tn
p1599[0...n]	Flux controller excitation current difference / Flux ctr I_exc_dif
p1600[0...n]	P flux controller P gain / P flux ctrl Kp
p1604[0...n]	Pulse technique current limit / Pulse current lim
p1605[0...n]	Pulse technique pattern configuration / Puls pattrn config
p1607[0...n]	Pulse technique stimulus / Puls stimulus
p1609[0...n]	I/f operation current setpoint / I/f op I_setp
p1610[0...n]	Torque setpoint static (sensorless) / M_set static
p1611[0...n]	Additional acceleration torque (sensorless) / M_suppl_accel
p1612[0...n]	Current setpoint magnetizing open-loop controlled / Id_set ctrl
p1616[0...n]	Current setpoint smoothing time / I_set T_smooth
p1619[0...n]	Setpoint/actual value tracking threshold / SetAct track thrsh
p1620[0...n]	Stator current minimum / I_stator min
p1621[0...n]	Changeover speed inner cos phi = 1 / n_chngov cos phi=1

p1622[0...n]	Field-generating current setpoint smoothing time constant / Id_setp T_smth
p1625[0...n]	Excitation current setpoint calibration / I_exc_setp cal
p1628[0...n]	Current model controller dynamic factor / I_mod_ctr dyn_fact
p1629[0...n]	Current model controller P gain / I_mod_ctrl Kp
p1630[0...n]	Current model controller integral time / I_mod_ctrl Tn
p1642[0...n]	Minimum excitation current / Min I_exc
p1643[0...n]	Minimum excitation current closed-loop control gain factor / I_exc_min Kp
p1653[0...n]	Current setpoint torque-generating smoothing time minimum / Isq_s T_smth min
p1654[0...n]	Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW
p1656[0...n]	Current setpoint/Speed actual value filter activation / I_setp_filt act
p1657[0...n]	Current setpoint filter 1 type / I_set_filt 1 type
p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_d
p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_d
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_n
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_n
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 type
p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_d
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_d
p1665[0...n]	Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_n
p1666[0...n]	Current setpoint filter 2 numerator damping / I_set_filt 2 D_n
p1677[0...n]	Speed actual value filter 5 type / n_act_filt 5 type
p1678[0...n]	Speed actual value filter 5 denominator natural frequency / n_act_filt 5 fn_d
p1679[0...n]	Speed actual value filter 5 denominator damping / n_act_filt 5 D_d
p1680[0...n]	Speed actual value filter 5 numerator natural frequency / n_act_filt 5 fn_n
p1681[0...n]	Speed actual value filter 5 numerator damping / n_act_filt 5 D_n
p1702[0...n]	Isd current controller pre-control scaling / Isd_ctr_prectrScal
p1703[0...n]	Isq current controller pre-control scaling / Isq_ctr_prectrScal
p1704[0...n]	Isq current controller pre-control EMF scaling / Isq_ctrl EMF scal
p1705[0...n]	Flux setpoint/actual value tracking threshold / Flux track thresh
p1715[0...n]	Current controller P gain / I_ctrl Kp
p1717[0...n]	Current controller integral-action time / I_ctrl Tn
p1726[0...n]	Quadrature arm decoupling scaling / Transv_decpl scal
p1727[0...n]	Quadrature arm decoupling at voltage limit scaling / TrnsvDecplVmaxScal
p1730[0...n]	Isd controller integral component shutdown threshold / Isd ctrl Tn shutd
p1731[0...n]	Isd controller combination current time component / Isd ctr I_combi T1
p1740[0...n]	Gain resonance damping for encoderless closed-loop control / Gain res_damp
p1744[0...n]	Motor model speed threshold stall detection / MotMod n_thr stall
p1745[0...n]	Motor model error threshold stall detection / MotMod ThreshStall
p1748[0...n]	Motor model lower changeover speed n_set -> n_act / MotMod low n_chng
p1749[0...n]	Motor model upper changeover speed / increase changeover speed / Up/incr n_chngov
p1750[0...n]	Motor model configuration / MotMod config
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc
p1753[0...n]	Motor model changeover speed hysteresis operation with encoder / MotMod n_chgovHysE
p1754[0...n]	Flux angle difference smoothing time / Angle diff T_smth
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorl
p1757[0...n]	Motor model w/o enc. op./cl.-loop controlled stab. controller Kp / MotMod w/o enc Kp
p1758[0...n]	Motor model changeover delay time closed/open-loop control / MotMod t cl_op
p1759[0...n]	Motor model changeover delay time open/closed-loop control / MotMod t op_cl
p1760[0...n]	Motor model with encoder speed adaptation Kp / MotMod wE n_ada Kp
p1761[0...n]	Motor model with encoder speed adaptation Tn / MotMod wE n_ada Tn
p1764[0...n]	Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp
p1766[0...n]	Motor model voltage model calculation enable / U_mod calc enab
p1767[0...n]	Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn
p1774[0...n]	Motor model offset voltage compensation alpha / MotMod offs comp A
p1775[0...n]	Motor model offset voltage compensation beta / MotMod offs comp B

p1780[0...n]	Motor model adaptation configuration / MotMod adapt conf
p1784[0...n]	Motor model feedback scaling / MotMod fdbk scal
p1785[0...n]	Motor model Lh adaptation Kp / MotMod Lh Kp
p1786[0...n]	Motor model Lh adaptation integral time / MotMod Lh Tn
r1787[0...n]	Motor model Lh adaptation corrective value / MotMod Lh corr
p1795[0...n]	Motor model kT adaptation integral time / MotMod kT Tn
r1797[0...n]	Motor model kT adaptation corrective value / MotMod kT corr
p1798[0...n]	Motor model pulse technique speed adaptation Kp / MotMod PulsTech Kp
p1800[0...n]	Pulse frequency setpoint / Pulse freq setp
p1802[0...n]	Modulator mode / Modulator mode
p1803[0...n]	Maximum modulation depth / Modulat depth max
p1804[0...n]	Filter time constant smoothed modulation index / T_filt mod_idxSmth
p1806[0...n]	Filter time constant Vdc correction / T_filt Vdc_corr
p1811[0...n]	Pulse frequency wobbulation amplitude / Puls wobb ampl
p1820[0...n]	Reverse the output phase sequence / Outp_ph_seq rev
p1821[0...n]	Dir of rot / Dir of rot
p1840[0...n]	Actual value correction configuration / ActVal_corr conf
p1845[0...n]	Actual value correction evaluation factor Lsig / ActVal_cor ev Lsig
p1846[0...n]	Actual value correction damping factor / ActV_corr D_factor
p1959[0...n]	Rotating measurement configuration / Rot meas config
p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2
p2141[0...n]	Speed threshold 1 / n_thresh val 1
p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1
p2149[0...n]	Monitoring configuration / Monit config
p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3
p2153[0...n]	Speed actual value filter time constant / n_act_filt T
p2155[0...n]	Speed threshold 2 / n_thresh val 2
p2156[0...n]	On delay comparison value reached / t_on cmpr val rchd
p2161[0...n]	Speed threshold 3 / n_thresh val 3
p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max
p2163[0...n]	Speed threshold 4 / n_thresh val 4
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4
p2166[0...n]	Off delay n_act = n_set / t_del_off n_i=n_so
p2167[0...n]	Switch-on delay n_act = n_set / t_on n_act=n_set
p2174[0...n]	Torque threshold value 1 / M_thresh val 1
p2175[0...n]	Motor blocked speed threshold / Mot lock n_thresh
p2177[0...n]	Motor blocked delay time / Mot lock t_del
p2178[0...n]	Motor stalled delay time / Mot stall t_del
p2181[0...n]	Load monitoring response / Load monit resp
p2182[0...n]	Load monitoring speed threshold value 1 / n_thresh 1
p2183[0...n]	Load monitoring speed threshold value 2 / n_thresh 2
p2184[0...n]	Load monitoring speed threshold value 3 / n_thresh 3
p2185[0...n]	Load monitoring torque threshold 1 upper / M_thresh 1 upper
p2186[0...n]	Load monitoring torque threshold 1 lower / M_thresh 1 lower
p2187[0...n]	Load monitoring torque threshold 2 upper / M_thresh 2 upper
p2188[0...n]	Load monitoring torque threshold 2 lower / M_thresh 2 lower
p2189[0...n]	Load monitoring torque threshold 3 upper / M_thresh 3 upper
p2190[0...n]	Load monitoring torque threshold 3 lower / M_thresh 3 lower
p2192[0...n]	Load monitoring delay time / Load monit t_del
p2194[0...n]	Torque threshold value 2 / M_thresh val 2
p2195[0...n]	Torque utilization switch-off delay / M_util t_off
p2196[0...n]	Torque utilization scaling / M_util scal
p2201[0...n]	CO: Technology controller fixed value 1 / Tec_ctrl fix val1
p2202[0...n]	CO: Technology controller fixed value 2 / Tec_ctr fix val 2
p2203[0...n]	CO: Technology controller fixed value 3 / Tec_ctr fix val 3

p2204[0...n]	CO: Technology controller fixed value 4 / Tec_ctr fix val 4
p2205[0...n]	CO: Technology controller fixed value 5 / Tec_ctr fix val 5
p2206[0...n]	CO: Technology controller fixed value 6 / Tec_ctr fix val 6
p2207[0...n]	CO: Technology controller fixed value 7 / Tec_ctr fix val 7
p2208[0...n]	CO: Technology controller fixed value 8 / Tec_ctr fix val 8
p2209[0...n]	CO: Technology controller fixed value 9 / Tec_ctr fix val 9
p2210[0...n]	CO: Technology controller fixed value 10 / Tec_ctr fix val 10
p2211[0...n]	CO: Technology controller fixed value 11 / Tec_ctr fix val 11
p2212[0...n]	CO: Technology controller fixed value 12 / Tec_ctr fix val 12
p2213[0...n]	CO: Technology controller fixed value 13 / Tec_ctr fix val 13
p2214[0...n]	CO: Technology controller fixed value 14 / Tec_ctr fix val 14
p2215[0...n]	CO: Technology controller fixed value 15 / Tec_ctr fix val 15
p2216[0...n]	Technology controller fixed value selection method / Tec_ctr FixVal sel
p2230[0...n]	Technology controller motorized potentiometer configuration / Tec_ctr mop config
p2237[0...n]	Technology controller motorized potentiometer maximum value / Tec_ctrl mop max
p2238[0...n]	Technology controller motorized potentiometer minimum value / Tec_ctrl mop min
p2240[0...n]	Technology controller motorized potentiometer starting value / Tec_ctrl mop start
p2247[0...n]	Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up
p2248[0...n]	Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown
p2720[0...n]	Load gear configuration / Load gear config
p2721[0...n]	Load gear rotary absolute encoder revolutions virtual / Abs rot rev
p2722[0...n]	Load gear position tracking tolerance window / Pos track tol
r2723[0...n]	CO: Load gear absolute value / Load gear abs_val
r2724[0...n]	CO: Load gear position difference / Load gear pos diff
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]
p3201[0...n]	Excitation current outside the tolerance threshold value / I_exc n Tol thresh
p3202[0...n]	Excitation current outside the tolerance hysteresis / I_exc n Tol hyst
p3203[0...n]	Excitation current outside the tolerance delay time / I_exc n Tol t_del
p3204[0...n]	Flux outside the tolerance threshold value / Flux n tol thresh
p3205[0...n]	Flux outside the tolerance hysteresis / Flux n tol hyst
p3206[0...n]	Flux outside tolerance delay time / Flux n tol t_del
p3207[0...n]	Zero current signal threshold value / I_0_sig thresh
p3208[0...n]	Zero current signal hysteresis / I_0_sig hyst
p3209[0...n]	Zero current signal delay time / I_0_sig t_del
p3233[0...n]	Torque actual value filter time constant / M_act_filt T
p3236[0...n]	Speed threshold 7 / n_thresh val 7
p3237[0...n]	Hysteresis speed 7 / n_hysteresis 7
p3238[0...n]	OFF delay n_act_motor model = n_act external / t_del n_a = n_ext
p3320[0...n]	Fluid flow machine power point 1 / Fluid_mach P1
p3321[0...n]	Fluid flow machine speed point 1 / Fluid_mach n1
p3322[0...n]	Fluid flow machine power point 2 / Fluid_mach P2
p3323[0...n]	Fluid flow machine speed point 2 / Fluid_mach n2
p3324[0...n]	Fluid flow machine power point 3 / Fluid_mach P3
p3325[0...n]	Fluid flow machine speed point 3 / Fluid_mach n3
p3326[0...n]	Fluid flow machine power point 4 / Fluid_mach P4
p3327[0...n]	Fluid flow machine speed point 4 / Fluid_mach n4
p3328[0...n]	Fluid flow machine power point 5 / Fluid_mach P5
p3329[0...n]	Fluid flow machine speed point 5 / Fluid_mach n5
p3800[0...n]	Sync-line-drive activation / Sync act
p3801[0...n]	Sync-line-drive drive object number / Sync DO_no
p3806[0...n]	Sync-line-drive frequency difference threshold value / Sync f_diff thresh
p3809[0...n]	Sync-line-drive phase setpoint / Sync phase setp
p3811[0...n]	Sync-line-drive frequency limiting / Sync f_lim

p3813[0...n]	Sync-line-drive phase synchronism threshold value / Sync Ph_sync thrsh
p3815[0...n]	Sync-line-drive voltage difference threshold value / Sync U_diff thresh
p3820[0...n]	Friction characteristic value n0 / Friction n0
p3821[0...n]	Friction characteristic value n1 / Friction n1
p3822[0...n]	Friction characteristic value n2 / Friction n2
p3823[0...n]	Friction characteristic value n3 / Friction n3
p3824[0...n]	Friction characteristic value n4 / Friction n4
p3825[0...n]	Friction characteristic value n5 / Friction n5
p3826[0...n]	Friction characteristic value n6 / Friction n6
p3827[0...n]	Friction characteristic value n7 / Friction n7
p3828[0...n]	Friction characteristic value n8 / Friction n8
p3829[0...n]	Friction characteristic value n9 / Friction n9
p3830[0...n]	Friction characteristic value M0 / Friction M0
p3831[0...n]	Friction characteristic value M1 / Friction M1
p3832[0...n]	Friction characteristic value M2 / Friction M2
p3833[0...n]	Friction characteristic value M3 / Friction M3
p3834[0...n]	Friction characteristic value M4 / Friction M4
p3835[0...n]	Friction characteristic value M5 / Friction M5
p3836[0...n]	Friction characteristic value M6 / Friction M6
p3837[0...n]	Friction characteristic value M7 / Friction M7
p3838[0...n]	Friction characteristic value M8 / Friction M8
p3839[0...n]	Friction characteristic value M9 / Friction M9
p3843[0...n]	Friction characteristic frictional torque diff. smoothing time / Frict M_diff t_sm
p3844[0...n]	Friction characteristic number changeover point upper / FricNo chng_pt up
p3846[0...n]	Friction characteristic record ramp-up/ramp-down time / Frict rec t_RU/RD
p3847[0...n]	Friction characteristic record warm-up time / Frict rec t_warm
r3925[0...n]	Identification final display / Ident final_disp
r3927[0...n]	Motor data identification control word / MotID STW
r3928[0...n]	Rotating measurement configuration / Rot meas config
r3998[0...n]	First drive commissioning / First drv_comm
p5300[0...n]	Autotuning selection / Autotuning select
p5301[0...n]	One Button Tuning configuration / OBT config
p5302[0...n]	Online tuning configuration / OT config
p6700[0...n]	Voltage model angle smoothing / Volt_mod angle sm
p7035[0...n]	Par_circuit circulating current control operating mode / I_cct_ctrl mode
p7036[0...n]	Par_circuit circulating current control proportional gain / Circ_I Kp
p7037[0...n]	Par_circuit circulating current control integral time / I_circ Tn
p7038[0...n]	Par_circuit circulating current control limit / I_circ limit

2.3.3 Parameters for encoder data sets (EDS)

The following list contains the parameters that are dependent on the encoder data sets.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: EDS

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact
r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact
r0147[0...n]	Sensor Module EEPROM data version / SM EEPROM version
r0148[0...n]	Sensor Module firmware version / SM FW version
p0400[0...n]	Encoder type selection / Enc_typ sel
p0401[0...n]	Encoder type OEM selection / Enc type OEM sel
p0402[0...n]	Gearbox type selection / Gearbox type sel
p0404[0...n]	Encoder configuration effective / Enc_config eff
p0405[0...n]	Square-wave encoder track A/B / Sq-wave enc A/B
p0407[0...n]	Linear encoder grid division / Enc grid div
p0408[0...n]	Rotary encoder pulse number / Rot enc pulse No.
p0410[0...n]	Encoder inversion actual value / Enc inv act value
p0411[0...n]	Measuring gear configuration / Meas gear config
p0412[0...n]	Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev
p0413[0...n]	Measuring gear position tracking tolerance window / Pos track window
p0414[0...n]	Redundant coarse position value relevant bits (identified) / Relevant bits
p0415[0...n]	Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB
p0416[0...n]	Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1
p0417[0...n]	Encoder safety comparison algorithm (detected) / Safety comp_algo
p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1
p0419[0...n]	Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2
p0420[0...n]	Encoder connection / Enc_connection
p0421[0...n]	Absolute encoder rotary multiturn resolution / Enc abs multiturn
p0422[0...n]	Absolute encoder linear measuring step resolution / Enc abs meas step
p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn
p0424[0...n]	Encoder linear zero mark distance / Enc lin ZM_dist
p0425[0...n]	Encoder rotary zero mark distance / Enc rot dist ZM
p0426[0...n]	Encoder zero mark differential distance / Enc ZM Dif_dist
p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate
p0428[0...n]	Encoder SSI monoflop time / Enc SSI t_monoflop
p0429[0...n]	Encoder SSI configuration / Enc SSI config
p0430[0...n]	Sensor Module configuration / SM config
p0431[0...n]	Angular commutation offset / Ang_com offset
p0432[0...n]	Gearbox factor encoder revolutions / Grbx_fact enc_rev
p0433[0...n]	Gearbox factor motor/load revolutions / Grbx_fact mot_rev
p0434[0...n]	Encoder SSI error bit / Enc SSI error bit
p0435[0...n]	Encoder SSI alarm bit / Enc SSI alarm bit
p0436[0...n]	Encoder SSI parity bit / Enc SSI parity bit
p0437[0...n]	Sensor Module configuration extended / SM config ext
p0438[0...n]	Squarewave encoder filter time / Enc t_filt
p0439[0...n]	Encoder ramp-up time / Enc ramp-up time
p0440[0...n]	Copy encoder serial number / Copy enc ser_no
p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1
p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2
p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3
p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4
p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5
p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before

p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val
p0448[0...n]	Encoder SSI number of bits after the absolute value / Enc SSI bit after
p0449[0...n]	Encoder SSI number of bits filler bits / Enc SSI fill bits
p0453[0...n]	Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas
p0493[0...n]	Zero mark selection input terminal / ZM_sel inp_term
p0494[0...n]	Equivalent zero mark input terminal / ZM_equiv inp_term
p4600[0...n]	Motor temperature sensor 1 sensor type / Temp_sens 1 type
p4601[0...n]	Motor temperature sensor 2 sensor type / Temp_sens 2 type
p4602[0...n]	Motor temperature sensor 3 sensor type / Temp_sens 3 type
p4603[0...n]	Motor temperature sensor 4 sensor type / Temp_sens 4 type
p4662[0...n]	Encoder characteristic type / Enc char_type
p4663[0...n]	Encoder characteristic K0 / Enc char K0
p4664[0...n]	Encoder characteristic K1 / Enc char K1
p4665[0...n]	Encoder characteristic K2 / Enc char K2
p4666[0...n]	Encoder characteristic K3 / Enc char K3
p4670[0...n]	Analog sensor configuration / Ana_sens config
p4671[0...n]	Analog sensor input / Ana_sens inp
p4672[0...n]	Analog sensor channel A voltage at actual value zero / Ana_sens A U at 0
p4673[0...n]	Analog sensor channel A voltage per encoder period / Ana_sens A U/per
p4674[0...n]	Analog sensor channel B voltage at actual value zero / Ana_sens B U at 0
p4675[0...n]	Analog sensor channel B voltage per encoder period / Ana_sens B U/per
p4676[0...n]	Analog sensor range limit threshold / Ana_sens lim thr
p4677[0...n]	Analog sensor LVDT configuration / Ana_sens LVDT conf
p4678[0...n]	Analog sensor LVDT ratio / An_sens LVDT ratio
p4679[0...n]	Analog sensor LVDT phase / An_sens LVDT ph
p4680[0...n]	Zero mark monitoring tolerance permissible / ZM_monit tol perm
p4681[0...n]	Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos
p4682[0...n]	Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg
p4683[0...n]	Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos
p4684[0...n]	Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg
p4685[0...n]	Speed actual value mean value generation / n_act mean val
p4686[0...n]	Zero mark minimum length / ZM min length

2.3.4 Parameters for motor data sets (MDS)

The following list contains the parameters that are dependent on the motor data sets.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: MDS

p0131[0...n]	Motor component number / Mot comp_no
p0133[0...n]	Motor configuration / Motor config
p0300[0...n]	Motor type selection / Mot type sel
p0301[0...n]	Motor code number selection / Mot code No. sel
r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Mot code mot w/ DQ
r0303[0...n]	Motor with DRIVE-CLiQ status word / Motor w DQ ZSW
p0304[0...n]	Rated motor voltage / Mot U_rated
p0305[0...n]	Rated motor current / Mot I_rated
p0306[0...n]	Number of motors connected in parallel / Motor qty
p0307[0...n]	Rated motor power / Mot P_rated
p0308[0...n]	Rated motor power factor / Mot cos phi rated
p0309[0...n]	Rated motor efficiency / Mot eta_rated
p0310[0...n]	Rated motor frequency / Mot f_rated
p0311[0...n]	Rated motor speed / Mot n_rated
r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act
p0314[0...n]	Motor pole pair number / Mot pole pair No.
p0316[0...n]	Motor torque constant / Mot kT
p0318[0...n]	Motor stall current / Mot I_standstill
p0320[0...n]	Motor rated magnetizing current/short-circuit current / Mot I_mag_rated
p0322[0...n]	Maximum motor speed / Mot n_max
p0323[0...n]	Maximum motor current / Mot I_max
p0324[0...n]	Winding maximum speed / Winding n_max
p0325[0...n]	Motor pole position identification current 1st phase / Mot PolID I 1st ph
p0327[0...n]	Optimum motor load angle / Mot phi_load opt
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance
p0329[0...n]	Motor pole position identification current / Mot PolID current
r0330[0...n]	Rated motor slip / Mot slip_rated
r0331[0...n]	Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act
r0332[0...n]	Rated motor power factor / Mot cos phi rated
r0333[0...n]	Rated motor torque / Mot M_rated
r0334[0...n]	Actual motor-torque constant / Mot kT act
p0335[0...n]	Motor cooling type / Mot cool type
r0336[0...n]	Actual rated motor frequency / Mot f_rated act
r0337[0...n]	Rated motor EMF / Mot EMF_rated
r0339[0...n]	Rated motor voltage / Mot U_rated
p0341[0...n]	Motor moment of inertia / Mot M_mom of inert
p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio
r0343[0...n]	Rated motor current identified / Mot I_rated ident
p0344[0...n]	Motor weight (for the thermal motor model) / Mot weight th mod
r0345[0...n]	Nominal motor starting time / Mot t_start_rated
p0346[0...n]	Motor excitation build-up time / Mot t_excitation
p0347[0...n]	Motor de-excitation time / Mot t_de-excitat
p0350[0...n]	Motor stator resistance cold / Mot R_stator cold
p0352[0...n]	Cable resistance / R_cable
p0353[0...n]	Motor series inductance / Mot L_series
p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d
p0355[0...n]	Motor damping resistance q axis / Mot R_damp q
p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.
p0357[0...n]	Motor stator inductance d axis / Mot L_stator d
p0358[0...n]	Motor rotor leakage inductance / damping inductance d axis / Mot L_r leak / LDd
p0359[0...n]	Motor damping inductance q axis / Mot L_damp q

p0360[0...n]	Motor magnetizing inductance/magn. inductance d axis saturated / Mot Lh/Lh d sat
p0361[0...n]	Motor magnetizing inductance q axis saturated / Mot L_magn q sat
p0362[0...n]	Motor saturation characteristic flux 1 / Mot saturat.flux 1
p0363[0...n]	Motor saturation characteristic flux 2 / Mot saturat.flux 2
p0364[0...n]	Motor saturation characteristic flux 3 / Mot saturat.flux 3
p0365[0...n]	Motor saturation characteristic flux 4 / Mot saturat.flux 4
p0366[0...n]	Motor saturation characteristic I_mag 1 / Mot sat. I_mag 1
p0367[0...n]	Motor saturation characteristic I_mag 2 / Mot sat. I_mag 2
p0368[0...n]	Motor saturation characteristic I_mag 3 / Mot sat. I_mag 3
p0369[0...n]	Motor saturation characteristic I_mag 4 / Mot sat. I_mag 4
r0370[0...n]	Motor stator resistance cold / Mot R_stator cold
r0372[0...n]	Cable resistance / Mot R_cable
r0373[0...n]	Motor rated stator resistance / Mot R_stator rated
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d
r0375[0...n]	Motor damping resistance q axis / Mot R_damp q
r0376[0...n]	Rated motor rotor resistance / Mot rated R_rotor
r0377[0...n]	Motor leakage inductance total / Mot L_leak total
r0378[0...n]	Motor stator inductance d axis / Mot L_stator d
r0380[0...n]	Motor damping inductance d axis / Mot L_damp d
r0381[0...n]	Motor damping inductance q axis / Mot L_damp q
r0382[0...n]	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat
r0383[0...n]	Motor magnetizing inductance q axis saturated / Mot L_magn q sat
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd
r0385[0...n]	Motor damping time constant q axis / Mot L_damping q
r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak
r0387[0...n]	Motor stator leakage time constant q axis / Mot T_Sleak /T_Sq
p0389[0...n]	Excitation rated no-load current / Exc I_noload_rated
p0390[0...n]	Rated excitation current / Exc I_rated
p0391[0...n]	Current controller adaptation starting point KP / I_adapt pt KP
p0392[0...n]	Current controller adaptation starting point KP adapted / I_adapt pt KP adap
p0393[0...n]	Current controller adaptation P gain scaling / I_adapt Kp scal
r0395[0...n]	Actual stator resistance / R_stator act
r0396[0...n]	Actual rotor resistance / R_rotor act
p0397[0...n]	Angle magnetic decoupling maximum angle / Magn decpl max_ang
p0398[0...n]	Angle magn decoupling (cross saturation) coeff 1 / Magn decoupl C1
p0399[0...n]	Angle magn decoupling (cross saturation) coeff 3 / Magn decoupl C3
p0530[0...n]	Bearing version selection / Bearing vers sel
p0531[0...n]	Bearing code number selection / Bearing codeNo sel
p0532[0...n]	Bearing maximum speed / Bearing n_max
p0600[0...n]	Motor temperature sensor for monitoring / Mot temp_sensor
p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type
p0604[0...n]	Mot_temp_mod 2/KTY alarm threshold / Mod 2/KTY A thresh
p0605[0...n]	Mot_temp_mod 1/2 threshold / Mod 1/2 threshold
p0606[0...n]	Mot_temp_mod 2/KTY timer / Mod 2/KTY t_timer
p0607[0...n]	Temperature sensor fault timer / Sensor fault time
p0610[0...n]	Motor overtemperature response / Mot temp response
p0611[0...n]	I2t motor model thermal time constant / I2t mot_mod T
p0612[0...n]	Mot_temp_mod activation / Mot_temp_mod act
p0614[0...n]	Thermal resistance adaptation reduction factor / Therm R_adapt red
p0615[0...n]	Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh
p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
p0621[0...n]	Identification stator resistance after restart / Rst_ident Restart
p0622[0...n]	Motor excitation time for Rs_ident after powering up again / t_excit Rs_id
p0624[0...n]	Motor temperature offset PT100 / Mot T_offset PT100

p0625[0...n]	Motor ambient temperature during commissioning / Mot T_ambient
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core
p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator
p0628[0...n]	Motor overtemperature rotor winding / Mot T_over rotor
p0629[0...n]	Stator resistance reference / R_stator ref
r0630[0...n]	Mot_temp_mod ambient temperature / Mod T_ambient
r0631[0...n]	Mot_temp_mod stator iron temperature / Mod T_stator
r0632[0...n]	Mot_temp_mod stator winding temperature / Mod T_winding
r0633[0...n]	Mot_temp_mod rotor temperature / Mod rotor temp
p0634[0...n]	Q flux flux constant unsaturated / PSIQ KPSI UNSAT
p0635[0...n]	Q flux quadrature axis current constant unsaturated / PSIQ KIQ UNSAT
p0636[0...n]	Q flux direct axis current constant unsaturated / PSIQ KID UNSAT
p0637[0...n]	Q flux flux gradient saturated / PSIQ Grad SAT
p0643[0...n]	Overvoltage protection for synchronous motors / Overvolt_protect
p0650[0...n]	Actual motor operating hours / Mot t_oper act
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint
p0652[0...n]	Motor stator resistance scaling / Mot R_stator scal
p0653[0...n]	Motor stator leakage inductance scaling / Mot L_S_leak scal
p0655[0...n]	Motor magnetizing inductance d axis saturated scaling / Mot L_m d sat scal
p0656[0...n]	Motor magnetizing inductance q axis saturated scaling / Mot L_m q sat scal
p0657[0...n]	Motor damping inductance d axis scaling / Mot L_damp d scal
p0658[0...n]	Motor damping inductance q axis scaling / Mot L_damp q scal
p0659[0...n]	Motor damping resistance d axis scaling / Mot R_damp d scal
p0660[0...n]	Motor damping resistance q axis scaling / Mot R_damp q scal
p0826[0...n]	Motor changeover motor number / Mot_chng mot No.
p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.
p1231[0...n]	Armature short-circuit / DC braking configuration / ASC/DCBRK config
p1232[0...n]	DC braking braking current / DCBRK I_brake
p1233[0...n]	DC braking time / DCBRK time
p1234[0...n]	Speed at the start of DC braking / DCBRK n_start
p1236[0...n]	Ext. armature short-cct. contactor feedback signal monit. time / ASC ext t_monit
p1237[0...n]	External armature short-circuit delay time when opening / ASC ext t_wait
p1909[0...n]	Motor data identification control word / MotID STW
p1980[0...n]	PolID technique / PolID technique
p1982[0...n]	PolID selection / PolID selection
p1991[0...n]	Motor changeover angular commutation correction / Ang_com corr
p1999[0...n]	Ang. commutation offset calibr. and PolID scaling / Com_ang_offs scal
p4610[0...n]	Motor temperature sensor 1 sensor type MDS / Temp sens1 typ MDS
p4611[0...n]	Motor temperature sensor 2 sensor type MDS / Temp sens2 typ MDS
p4612[0...n]	Motor temperature sensor 3 sensor type MDS / Temp sens3 typ MDS
p4613[0...n]	Motor temperature sensor 4 sensor type MDS / Temp sens4 typ MDS
r5398[0...n]	Mot_temp_mod 3 alarm threshold image p5390 / A thr image p5390
r5399[0...n]	Mot_temp_mod 3 fault threshold image p5391 / F thr image p5391

2.3.5 Parameters for power unit data sets (PDS)

The following list contains the parameters that are dependent on the power unit data sets.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: PDS

p0121[0...n]	Power unit component number / PU comp_no
p0124[0...n]	Power unit detection via LED / PU detection LED
p0125[0...n]	Activate/de-activate power unit components / PU_comp act/deact
r0126[0...n]	Power unit components active/inactive / PU comp act/inact
r0127[0...n]	Power unit EEPROM data version / PU EEPROM version
r0128[0...n]	Power unit firmware version / PU FW version
r0200[0...n]	Power unit code number actual / PU code no. act
p0201[0...n]	Power unit code number / PU code no
r0203[0...n]	Actual power unit type / PU actual type
r0204[0...n]	Power unit hardware properties / PU HW property
p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper
p0254[0...n]	Operating hours counter power unit fan inside the converter / PU inner fan t_op
p0895[0...n]	BI: Activate/de-activate power unit components / PU_comp act/deact
p3901[0...n]	Power unit EEPROM Vdc offset calibration / PU EEPROM Vdc offs
p7001[0...n]	Par_circuit power units enable / PU enable
r7002[0...n]	CO: Par_circuit status power units / Status PU
r7020[0...n]	CO: Par_circuit deviation current in phase U / Phase U curr dev
r7021[0...n]	CO: Par_circuit deviation current in phase V / Phase V curr dev
r7022[0...n]	CO: Par_circuit deviation current in phase W / Phase W curr dev
r7030[0...n]	CO: Par_circuit DC link voltage deviation / Vdc deviation
p7040[0...n]	Par_circuit correction valve lockout time phase U / Comp t_lockout U
p7042[0...n]	Par_circuit correction valve lockout time phase V / Comp t_lockout V
p7044[0...n]	Par_circuit correction valve lockout time phase W / Comp t_lockout W
r7050[0...n]	Par_circuit circulating current phase U / Circ_I_phase U
r7051[0...n]	Par_circuit circulating current phase V / Circ_I_phase V
r7052[0...n]	Par_circuit circulating current phase W / Circ_I_phase W
r7200[0...n]	Par_circuit power unit overload I2t / PU overload I2t
r7201[0...n]	CO: Par_circuit power unit temperatures max. inverter / PU temp max inv
r7202[0...n]	Par_circuit power unit temperatures max. depletion layer / PU TempMaxDepLayer
r7203[0...n]	CO: Par_circuit power unit temperatures max. rectifier / PU temp max rect
r7204[0...n]	CO: Par_circuit power unit temperatures air intake / PU temp air intake
r7205[0...n]	Par_circuit power unit temperatures electronics / PU temp electr
r7206[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp inv 1
r7207[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp inv 2
r7208[0...n]	Par_circuit power unit temperatures inverter 3 / PU temp inv 3
r7209[0...n]	Par_circuit power unit temperatures inverter 4 / PU temp inv 4
r7210[0...n]	Par_circuit power unit temperatures inverter 5 / PU temp inv 5
r7211[0...n]	Par_circuit power unit temperatures inverter 6 / PU temp inv 6
r7212[0...n]	Par_circuit power unit temperatures inverter 1 / PU temp rect 1
r7213[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp rect 2
r7214[0...n]	Par_circuit power unit temperatures depletion layer 1 / PU temp DepLayer 1
r7215[0...n]	Par_circuit power unit temperatures depletion layer 2 / PU temp DepLayer 2
r7216[0...n]	Par_circuit power unit temperatures depletion layer 3 / PU temp DepLayer 3
r7217[0...n]	Par_circuit power unit temperatures depletion layer 4 / PU temp DepLayer 4
r7218[0...n]	Par_circuit power unit temperatures depletion layer 5 / PU temp DepLayer 5
r7219[0...n]	Par_circuit power unit temperatures depletion layer 6 / PU temp DepLayer 6
r7220[0...n]	CO: Par_circuit drive output current maximum / Drv I_outp max
r7222[0...n]	CO: Par_circuit absolute current actual value / I_act abs val
r7223[0...n]	CO: Par_circuit phase current actual value phase U / I_phase U act val
r7224[0...n]	CO: Par_circuit phase current actual value phase V / I_phase V act val
r7225[0...n]	CO: Par_circuit phase current actual value phase W / I_phase W act val

r7226[0...n]	CO: Par_circuit phase current actual value phase U offset / I_phase U offset
r7227[0...n]	CO: Par_circuit phase current actual value phase V offset / I_phase V offset
r7228[0...n]	CO: Par_circuit phase current actual value phase W offset / I_phase W offset
r7229[0...n]	CO: Par_circuit phase current actual value sum U, V, W / I_phase sum UVW
r7230[0...n]	CO: Par_circuit DC link voltage actual value / Vdc_act
r7231[0...n]	CO: Par_circuit phase voltage actual value phase U / U_phase U act val
r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / U_phase V act val
r7233[0...n]	CO: Par_circuit phase voltage actual value phase W / U_phase W act val
r7240[0...n]	Par_circuit gating unit status word 1 / Gating unit ZSW1
r7740[0...n]	IGBT power cycling counter valve 1 / IGBT load count 1
r7741[0...n]	IGBT power cycling counter valve 2 / IGBT load count 2
r7742[0...n]	IGBT power cycling counter valve 3 / IGBT load count 3
r7743[0...n]	IGBT power cycling counter valve 4 / IGBT load count 4
r7744[0...n]	IGBT power cycling counter valve 5 / IGBT load count 5
r7745[0...n]	IGBT power cycling counter valve 6 / IGBT load count 6
p7786[0...n]	Service report / Service report
r9671[0...n]	SI module identifier Motor Module / Module ID MM

2.4 Parameters for write protection and know-how protection

2.4.1 Parameters with "WRITE_NO_LOCK"

The following list contains the parameters with the "WRITE_NO_LOCK" attribute.

These parameters are not affected by the write protection.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: WRITE_NO_LOCK

p0003	BOP access level / BOP acc_level
p0009	Device commissioning parameter filter / Dev comm par_filt
p0124[0...n]	Power unit detection via LED / PU detection LED
p0124[0...n]	Main component detection using LED / M_comp detect LED
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0154	DRIVE-CLiQ Hub Module detection via LED / Hub detection LED
p0154	Terminal Module detection via LED / TM detection LED
p0972	Drive unit reset / Drv_unit reset
p0976	Reset and load all parameters / Reset load all par
p0977	Save all parameters / Save all par
p2035	Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no
p2102	BI: Acknowledge all faults / Ackn all faults
p2111	Alarm counter / Alarm counter
p3100	RTC time stamp mode / RTC t_stamp mode
p3101[0...1]	RTC set UTC time / RTC set UTC
p3103	RTC synchronization source / RTC sync_source
p3950	Service parameter / Serv par
p3981	Faults acknowledge drive object / Faults ackn DO
p3985	Master control mode selection / PcCtrl mode select
p4700[0...1]	Trace control / Trace control
p4701	Measuring function control / Meas fct ctrl
p4703[0...1]	Trace options / Trace options
p4707	Measurement function configuration / Meas fct config
p4710[0...1]	Trace trigger condition / Trace Trig_cond
p4711[0...5]	Trace trigger signal / Trace trig_signal
p4712[0...1]	Trace trigger threshold / Trace trig_thresh
p4713[0...1]	Trace tolerance band trigger threshold 1 / Trace trig thr 1
p4714[0...1]	Trace tolerance band trigger threshold 2 / Trace trig thr 2
p4715[0...1]	Trace bit mask trigger, bit mask / Trace trig mask
p4716[0...1]	Trace bit mask trigger trigger condition / Trace Trig_cond
p4717	Measuring function number of averaging operations / Meas fct avg qty
p4718	Measuring function number of stabilizing periods / MeasFct StabPerQty
p4720[0...1]	Trace recording cycle / Trace record_cyc
p4721[0...1]	Trace recording time / Trace record_time
p4722[0...1]	Trace trigger delay / Trace trig_delay
p4723[0...1]	Trace time slice cycle / Trace cycle
p4724[0...1]	Trace average in the time range / Trace average
p4730[0...5]	Trace record signal 0 / Trace record sig 0
p4731[0...5]	Trace record signal 1 / Trace record sig 1
p4732[0...5]	Trace record signal 2 / Trace record sig 2
p4733[0...5]	Trace record signal 3 / Trace record sig 3
p4734[0...5]	Trace record signal 4 / Trace record sig 4
p4735[0...5]	Trace record signal 5 / Trace record sig 5
p4736[0...5]	Trace record signal 6 / Trace record sig 6
p4737[0...5]	Trace record signal 7 / Trace record sig 7

p4780[0...1]	Trace physical address signal 0 / Trace PhyAddr Sig0
p4781[0...1]	Trace physical address signal 1 / Trace PhyAddr Sig1
p4782[0...1]	Trace physical address signal 2 / Trace PhyAddr Sig2
p4783[0...1]	Trace physical address signal 3 / Trace PhyAddr Sig3
p4784[0...1]	Trace physical address signal 4 / Trace PhyAddr Sig4
p4785[0...1]	Trace physical address signal 5 / Trace PhyAddr Sig5
p4786[0...1]	Trace physical address signal 6 / Trace PhyAddr Sig6
p4787[0...1]	Trace physical address signal 7 / Trace PhyAddr Sig7
p4789[0...1]	Trace physical address trigger signal / Trace PhyAddr Trig
p4795	Trace memory bank changeover / Trace mem changeov
p4800	Function generator control / FG control
p4810	Function generator mode / FG operating mode
p4812	Function generator physical address / FG phys address
p4813	Function generator physical address reference value / FG phys addr ref
p4815[0...2]	Function generator drive number / FG drive number
p4816	Function generator output signal integer number scaling / FG outp integ scal
p4819	BI: Function generator control / FG control
p4820	Function generator signal shape / FG signal shape
p4821	Function generator period / FG period duration
p4822	Function generator pulse width / FG pulse width
p4823	Function generator bandwidth / FG bandwidth
p4824	Function generator amplitude / FG amplitude
p4825	Function generator 2nd amplitude / FG 2nd amplitude
p4826	Function generator offset / FG offset
p4827	Function generator ramp-up time to offset / FG ramp-up offset
p4828	Function generator lower limit / FG lower limit
p4829	Function generator upper limit / FG upper limit
p4830	Function generator time slice cycle / FG time slice
p4831	Function generator amplitude scaling / FG amplitude scal
p4832[0...2]	Function generator amplitude scaling / FG amplitude scal
p4833[0...2]	Function generator offset scaling / FG offset scal
p4835[0...4]	Function generator free measurement function scaling / FG fr MeasFct scal
p4840[0...1]	MTrace cycle number setting / Cycle number
p7761	Write protection / Write protection
p7770	NVRAM action / NVRAM action
p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE
p8805	Identification and maintenance 4 configuration / I&M 4 config
p8806[0...53]	Identification and Maintenance 1 / I&M 1
p8807[0...15]	Identification and Maintenance 2 / I&M 2
p8808[0...53]	Identification and Maintenance 3 / I&M 3
p8809[0...53]	Identification and Maintenance 4 / I&M 4
p8829	CBE2x remote controller number / CBE2x rem ctrl num
p9210	Flashing component number / Flash comp_no
p9211	Flash function / Flash fct.
p9484	BICO interconnections search signal source / BICO S_src srch

2.4.2 Parameters with "KHP_WRITE_NO_LOCK"

The following list contains the parameters with the "KHP_WRITE_NO_LOCK" attribute.

These parameters are not affected by the know-how protection.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: KHP_WRITE_NO_LOCK

p0003	BOP access level / BOP acc_level
p0009	Device commissioning parameter filter / Dev comm par_filt
p0124[0...n]	Power unit detection via LED / PU detection LED
p0124[0...n]	Main component detection using LED / M_comp detect LED
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0154	DRIVE-CLiQ Hub Module detection via LED / Hub detection LED
p0154	Terminal Module detection via LED / TM detection LED
p0972	Drive unit reset / Drv_unit reset
p0976	Reset and load all parameters / Reset load all par
p0977	Save all parameters / Save all par
p2035	Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no
p2040	Fieldbus interface monitoring time / Fieldbus t_monit
p2102	BI: Acknowledge all faults / Ackn all faults
p2111	Alarm counter / Alarm counter
p3100	RTC time stamp mode / RTC t_stamp mode
p3101[0...1]	RTC set UTC time / RTC set UTC
p3103	RTC synchronization source / RTC sync_source
p3950	Service parameter / Serv par
p3981	Faults acknowledge drive object / Faults ackn DO
p3985	Master control mode selection / PcCtrl mode select
p7761	Write protection / Write protection
p7770	NVRAM action / NVRAM action
p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE
p8805	Identification and maintenance 4 configuration / I&M 4 config
p8806[0...53]	Identification and Maintenance 1 / I&M 1
p8807[0...15]	Identification and Maintenance 2 / I&M 2
p8808[0...53]	Identification and Maintenance 3 / I&M 3
p8809[0...53]	Identification and Maintenance 4 / I&M 4
p8829	CBE2x remote controller number / CBE2x rem ctrl num
p8835	CBE20 firmware selection / CBE20 FW sel
p8839[0...1]	PZD interface hardware assignment / PZD IF HW assign
p8840	COMM BOARD monitoring time / CB t_monit
p9210	Flashing component number / Flash comp_no
p9211	Flash function / Flash fct.
p9484	BICO interconnections search signal source / BICO S_src srch

2.4.3 Parameters with "KHP_ACTIVE_READ"

The following list contains the parameters with the "KHP_ACTIVE_READ" attribute.

These parameters can also be read with activated know-how protection.

Product: SINAMICS G130/G150, Version: 4702900, Language: eng, Type: KHP_ACTIVE_READ

p0015	Macro drive object / Macro DO
p0015	Macro drive unit / Macro drv unit
p0100	IEC/NEMA mot stds / IEC/NEMA mot stds
p0101[0...n]	Drive object numbers / DO numbers
p0103[0...n]	Application-specific view / Appl_spec view
p0105	Activate/de-activate drive object / DO act/deact
p0107[0...n]	Drive object type / DO type
p0108[0...n]	Drive objects function module / DO fct_mod
p0120	Number of Power unit Data Sets (PDS) / PDS count
p0121[0...n]	Power unit component number / PU comp_no
p0125[0...n]	Activate/de-activate power unit components / PU_comp act/deact
p0130	Number of Motor Data Sets (MDS) / MDS count
p0131[0...n]	Motor component number / Mot comp_no
p0140	Number of Encoder Data Sets (EDS) / EDS count
p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact
p0150	Number of VSM data sets / VSM dat_sets qty.
p0151[0...1]	DRIVE-CLiQ Hub Module component number / Hub comp_no
p0151	Terminal Module component number / TM comp_no
p0151[0...n]	Voltage Sensing Module component number / VSM comp_no
p0161	Option board component number / Opt board comp_no
p0170	Number of Command Data Sets (CDS) / CDS count
p0180	Number of Drive Data Sets (DDS) / DDS count
p0199[0...24]	Drive object name / DO name
p0300[0...n]	Motor type selection / Mot type sel
p0304[0...n]	Rated motor voltage / Mot U_rated
p0305[0...n]	Rated motor current / Mot I_rated
p0349	System of units motor equivalent circuit diagram data / Unit_sys mot ESB
p0400[0...n]	Encoder type selection / Enc_typ sel
p0505	Selecting the system of units / Unit sys select
p0595	Technological unit selection / Tech unit select
p0806	BI: Inhibit master control / PcCtrl inhibit
p0864	BI: Infeed operation / INF operation
p0922	IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr
p0978[0...n]	List of drive objects / List of the DO
p1080[0...n]	Minimum speed / n_min
p1082[0...n]	Maximum speed / n_max
p1520[0...n]	CO: Torque limit upper / M_max upper
p2000	Reference frequency / f_ref
p2000	Reference speed reference frequency / n_ref f_ref
p2000	Reference velocity reference frequency / v_ref f_ref
p2001	Reference voltage / Reference voltage
p2002	Reference current / I_ref
p2003	Reference torque / M_ref
p2005	Reference angle / Reference angle
p2006	Reference temp / Ref temp
p2007	Reference acceleration / a_ref
p2030	Field bus int protocol selection / Field bus protocol
p2038	IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext
p4956[0...n]	OA DO-specific activation / OA DO act
p7763	KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764
p7764[0...n]	KHP OEM exception list / KHP OEM excep list
p7852	Number of indices for r7853 / Qty indices r7853
p8836	SINAMICS Link address / SINAMICS Link add
p8870[0...15]	SINAMICS Link receive telegram word PZD / Recv link word
p8871[0...15]	SINAMICS Link send telegram word PZD / Send link word
p8872[0...15]	SINAMICS Link address receive PZD / Link addr recv
p9500	SI Motion monitoring clock cycle (Control Unit) / SI Mtn clock CU
p9601	SI enable functions integrated in the drive (Control Unit) / SI enable fct CU
p9810	SI PROFIsafe address (Motor Module) / SI PROFIsafe MM
p9902	Target topology number of indices / TargetTopo indices

Function diagrams 3

Content

3.1 Table of contents

3.2 Explanation of the function diagrams

Function diagrams

Fig. 3-1 1020 – Explanation of the symbols (part 1)

Parameters

Symbol	Meaning
Parameter name [Unit] rxxxx [x...y]	Monitoring parameter (parameter may appear).
Parameter name [Unit] Index name rxxxx[x]	Monitoring parameter with index.
[aaaa.b] Parameter name from ... to [Unit] pxxxx[y...z] (Def)	Setting parameter (if the parameter appears a multiple number of times, then diagram references are specified).
[aaaa.b] Parameter name Index name from ... to [Unit] pxxxx[y] (Def)	Setting parameter with index (if the parameter appears a multiple number of times, then diagram references are specified).

Connectors

Symbol	Meaning
name pxxxx (xxxx)	Connector input CI.
name pxxxx[y] (xxxx [x])	Connector input CI with index [y].
name pxxxx[y...z] (xxxx [y])	Connector input CI with index range [y...z].
name [unit] rxxxx[y...z]	Connector output CO with [dimension unit] and index range [y...z].
name [unit] rxxxx[y]	Connector output CO [dimension unit] and with index [y].

Binectors

Symbol	Meaning
name pxxxx (Def)	Binector input BI with factory setting (Def).
name pxxxx[y] (Def)	Binector input BI with index [y] and factory setting (Def).
name pxxxx[y...z] (Def)	Binector input BI with index range [y...z] and factory setting (Def).
name rxxxx	Binector output BO.
name rxxxx.y	Binector output BO with bit y.

Connectors/binectors

Symbol	Meaning
Parameter name rxxxx rxxxx	Connector/binector output CO/BO

Cross references between diagrams

Symbol	Meaning
1 ... 8 Signal path 1 Signal path 8 [aaaa.b] ... [aaaa.b]	The function diagrams are sub-divided into 8 signal paths in order to facilitate orientation.
Text → [aaaa.b]	Text = Unique signal designation aaaa = Signal goes to target diagram aaaa b = Signal goes to signal path b
[cccc.d] → Text	Text = Unique signal designation cccc = Signal comes from source diagram cccc d = Signal comes from signal path d

To "function diagram name" [aaaa.b] = for binectors.

Cross references for control bits

Symbol	Meaning
pxxxx [aaaa.b]	pxxxx= Original parameter of signal aaaa = Signal comes from source diagram aaaa b = Signal comes from signal path b

Data sets

Symbol	Meaning
pxxxx[C]	Parameter belongs to the Command Data Set (CDS).
pxxxx[D]	Parameter belongs to the Drive Data Set (DDS).
pxxxx[E]	Parameter belongs to the Encoder Data Set (EDS).
pxxxx[M]	Parameter belongs to the Motor Data Set (MDS).
pxxxx[P]	Parameter belongs to the Power unit Data Set (PDS).

Information on parameters, binectors, connectors

Symbol	Meaning
Parameter name	Parameter name (up to 18 characters).
[Unit]	[dimension unit] rotatry axis, for linear axis see list of parameters.
rxxxx[y] or rxxxx[y...z] or rxxxx[y].ww or rxxxx.ww	"r" = monitoring parameter. These parameters are read-only "xxxx" stands for the parameter number, "[y]" specifies the valid index, "[y...z]" specifies the applicable index range ".ww" specifies the bit number (e.g. 0...15).
pxxxx[y] or pxxxx[y...z] or pxxxx[y].ww or pxxxx.ww	"p" = setting parameter. These parameters can be changed. "xxxx" stands for the parameter number, "[y]" specifies the applicable index, "[y...z]" specifies the applicable index range ".ww" specifies the bit number (e.g. 0...15).
from ... to	Value range.
(xxxx[y].ww)	Parameter number (xxxx) with Index number [y] and bit number .ww.
(Def)	Factory setting.
(Def.w)	Factory setting with bit number as prefix.
[aaaa.b]	Diagram references for setting parameters that occur a multiple number of times. [Function diagram number, signal path]

Sampling times

Symbol	Meaning
pxxxx[Y] (ZZZ.ZZ µs)	Setting parameter with factory setting to select the time slice.
p0115[y] (Drive Object)	Time slice depending on the pre-setting p0112 of the drive object. "[y]" specifies the applicable index.
p0115[y] (Motor Modules)	Time slice depending on the rated pulse frequency of the motor module. "[y]" specifies the applicable index.
PROFIdrive sampling time	Presetting for IF1 in p2048. Presetting for IF2 in p8848. The bus clock applies to a clock synchronized operate to IF1 or IF2.
CAN bus sampling time	Presetting in p8848.
Background	There is no fixed sampling time for this function. The processing takes place in background. The cycle time depends on the computational load of the control unit.
Not relevant	A static state is displayed here. The sampling time data is not relevant.

1	2	3	4	5	6	7	8

DO: All objects	fp_1020_51_eng.vsd	Function diagram	- 1020 -
Explanations on the function diagrams - Explanation of the symbols (part 1)	12.12.12 V04.07.00	SINAMICS	

Fig. 3-2 1021 – Explanation of the symbols (part 2)

Pre-assigned binectors and connectors

Fixed percentage values

-10 000.00...10 000.00 [%] p2900[D] (0.00) → Fixed value 1 [%] p2900[D]

-10 000.00...10 000.00 [%] p2901[D] (0.00) → Fixed value 2 [%] p2901[D]

p2902[0...14] (0.00) → Fixed values [%] r2902[0...14]

p2902[0] = +0 %	p2902[5] = +100 %	p2902[10] = -20 %
p2902[1] = +5 %	p2902[6] = +150 %	p2902[11] = -50 %
p2902[2] = +10 %	p2902[7] = +200 %	p2902[12] = -100 %
p2902[3] = +20 %	p2902[8] = -5 %	p2902[13] = -150 %
p2902[4] = +50 %	p2902[9] = -10 %	p2902[14] = -200 %

Fixed speed values

-210 000.000...210 000.000 [1/min] p1001[D] (0.000) → n_set_fixed 1 p1001[D]

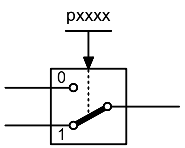
⋮

-210 000.000...210 000.000 [1/min] p1015[D] (0.000) → n_set_fixed 15 p1015[D]

Fixed torque value

-100 000.00...100 000.00 [Nm] p2930[D] (0.00) → Fixed value M [Nm] p2930[D]

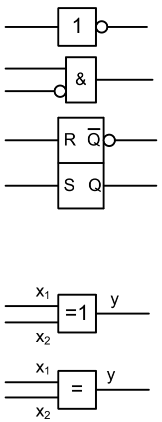
Switch symbol



Simple changeover switch

The switch position is shown according to the factory setting (in this case, switch position 1 in the default state on delivery).

Symbols for logic functions



Logical inversion

AND element with logical inversion of an input signal

R/S flip-flop

S = setting input
R = reset input
Q = non-inverted output
$\overline{Q}$ = inverted output
With a simultaneous 1-signal at the R and S inputs, the S input dominates.

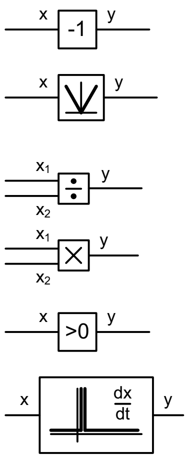
Exclusiv-OR/XOR

y = 1 when $x_1 \neq x_2$ is.

Comparator

y = 1 when $x_1 = x_2$ is.

Symbols for computational and closed-loop control functions



Sign reversal

y = -x

Absolute value generator

y = |x|

Divider

$y = \frac{x_1}{x_2}$

Multiplier

$y = x_1 * x_2$

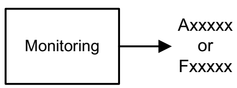
Comparator

y = 1 if the analog signal x > 0, i.e. is positive.

Differentiator

$Y = \frac{dx}{dt}$

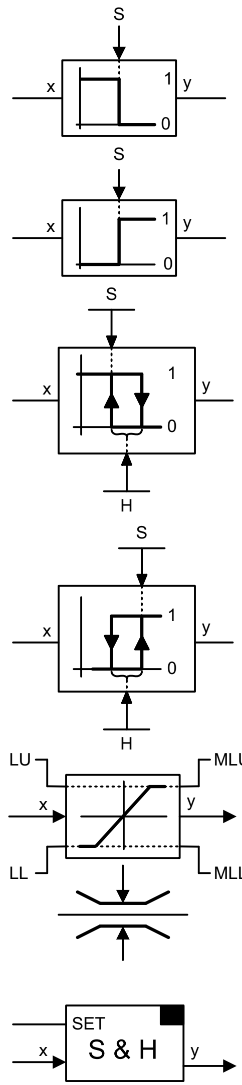
Symbol for monitoring



Monitoring

In the bottom right-hand corner of the diagram.

Symbols for computational and closed-loop control functions



Threshold value switch 1/0

Outputs at y a logical "1" if x < S.

Threshold value switch 0/1

Outputs at y a logical "1" if x > S.

Threshold value 1/0 with hysteresis

Outputs a logical "1" at y if x < S.

If x >= S + H then y returns to 0.

Threshold value 0/1 with hysteresis

Outputs a logical "1" at y if x > S.

If x <= S - H then y returns to 0.

Limiter

x is limited to the upper limit LU and the lower limit LL and output at y.
The digital signals MLU and MLL have the value "1", if the upper or lower limit is active.

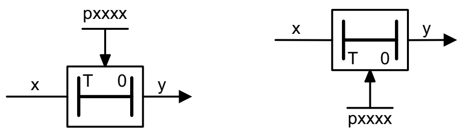
Sample & Hold element

Sample and hold element.
y = x if SET = 1
(not retentively saved at POWER OFF)

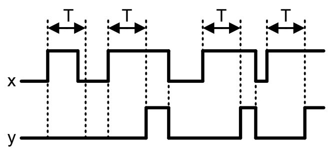
1	2	3	4	5	6	7	8

DO: All objects	fp_1021_51_eng.vsd	Function diagram	- 1021 -
Explanations on the function diagrams - Explanation of the symbols (part 2)	07.11.13 V04.07.00	SINAMICS	

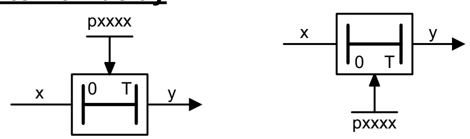
Switch-on delay



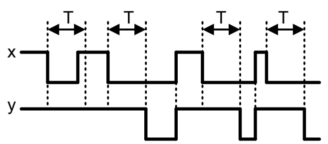
The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".



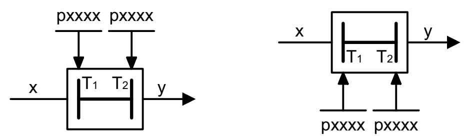
Switch-off delay



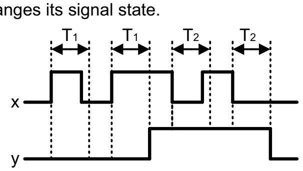
The digital signal x must have the value "0" without interruption during the time T before output y changes to "0".



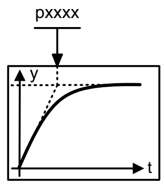
Delay (switch-on and switch-off)



The digital signal x must have the value "1" without interruption during time T_1 or must have the value "0" during time T_2 before output y changes its signal state.



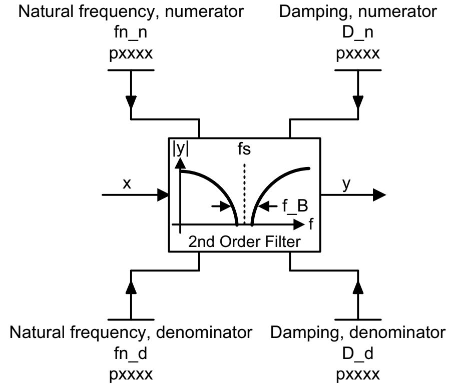
PT1 element



Delay element, first order.

pxxxx = time constant

2nd-order filter (bandstop/general filter)



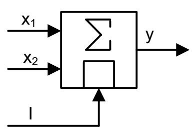
Used as bandstop filter - center frequency fs: fn_n = fs, fn_d = fs

- bandwidth f_B: D_n = 0, $D\_d = \frac{f\_B}{2 \cdot fs}$

Transfer function when used as general filter

$$H(s) = \frac{\left(\frac{s}{2\,\pi\,fn\_n}\right)^2 + \frac{2 \cdot D\_n}{2\,\pi\,fn\_n} \cdot s + 1}{\left(\frac{s}{2\,\pi\,fn\_d}\right)^2 + \frac{2 \cdot D\_d}{2\,\pi\,fn\_d} \cdot s + 1}$$

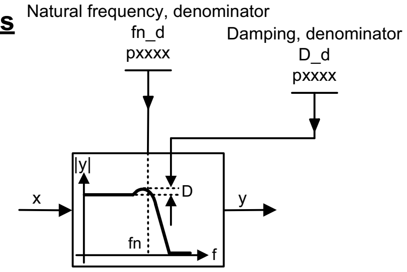
Analog adder can be activated



The following applies to I = 1 signal: $y = x_1 + x_2$

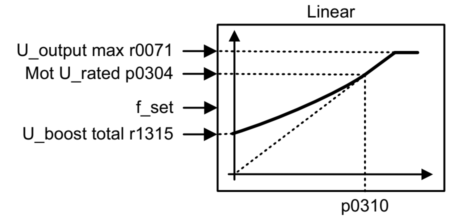
The following applies to I = 0 signal: $y = x_1$

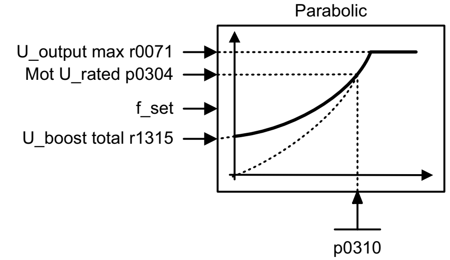
PT2 low pass

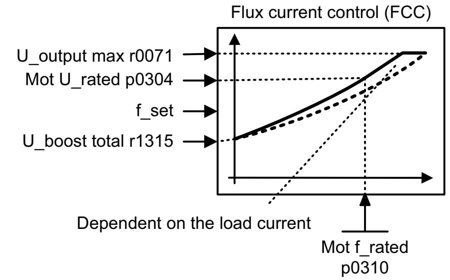


Transfer function

$$H(s) = \frac{1}{\left(\frac{s}{2\,\pi\,fn\_d}\right)^2 + \frac{2 \cdot D\_d}{2\,\pi\,fn\_d} \cdot s + 1}$$







1	2	3	4	5	6	7	8
DO: All objects					fp_1022_51_eng.vsd	Function diagram	- 1022 -
Explanations on the function diagrams - Explanation of the symbols (part 3)					17.07.13 V04.07.00	SINAMICS	

Fig. 3-3 1022 – Explanation of the symbols (part 3)

Handling BICO technology

Binector: r0723.15 — Binectors are binary signals that can be freely interconnected (BO = Binector Output). They represent a bit of a "BO:" display parameter (e.g. bit 15 from r0723).

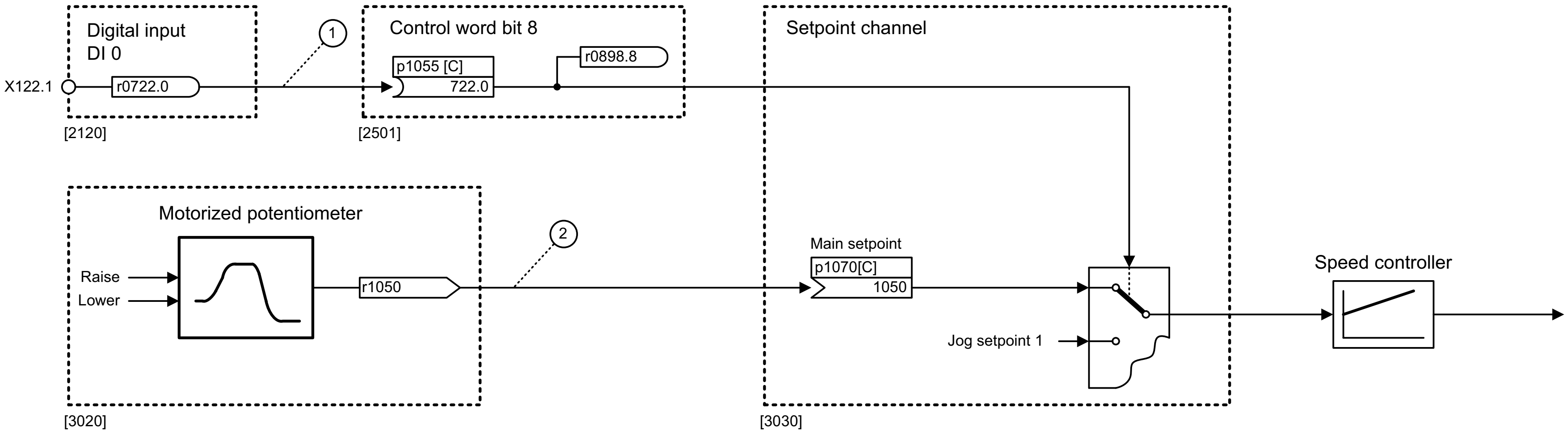
Connector: r0723 — Connectors are bit fields or numerical values that can be freely interconnected (e.g. "analog signals", like percentage variables, speeds or torques). Connectors are also "CO:" display parameters (CO = Connector Output).

Parameterization:

At the signal destination, the required binector or connector is selected using appropriate parameters:
"BI:" parameter for binectors (BI = Binector Input)
or
"CI:" parameter for connectors (CI = Connector Input)

Example:

The main setpoint for the speed controller (CI: p1070) should be received from the output of the motorized potentiometer (CO: r1050) and the "jog" command (BI: p1055) from digital input DI 0 (BO: r0722.0, X122.1 terminal) on the CU320.



Parameterizing steps:

1. p1055[0] = 722.0 — Terminal X122.1 acts as "Jog bit 0".
2. p1070[0] = 1050 — The output of the motorized potentiometer acts as main setpoint for the speed controller.

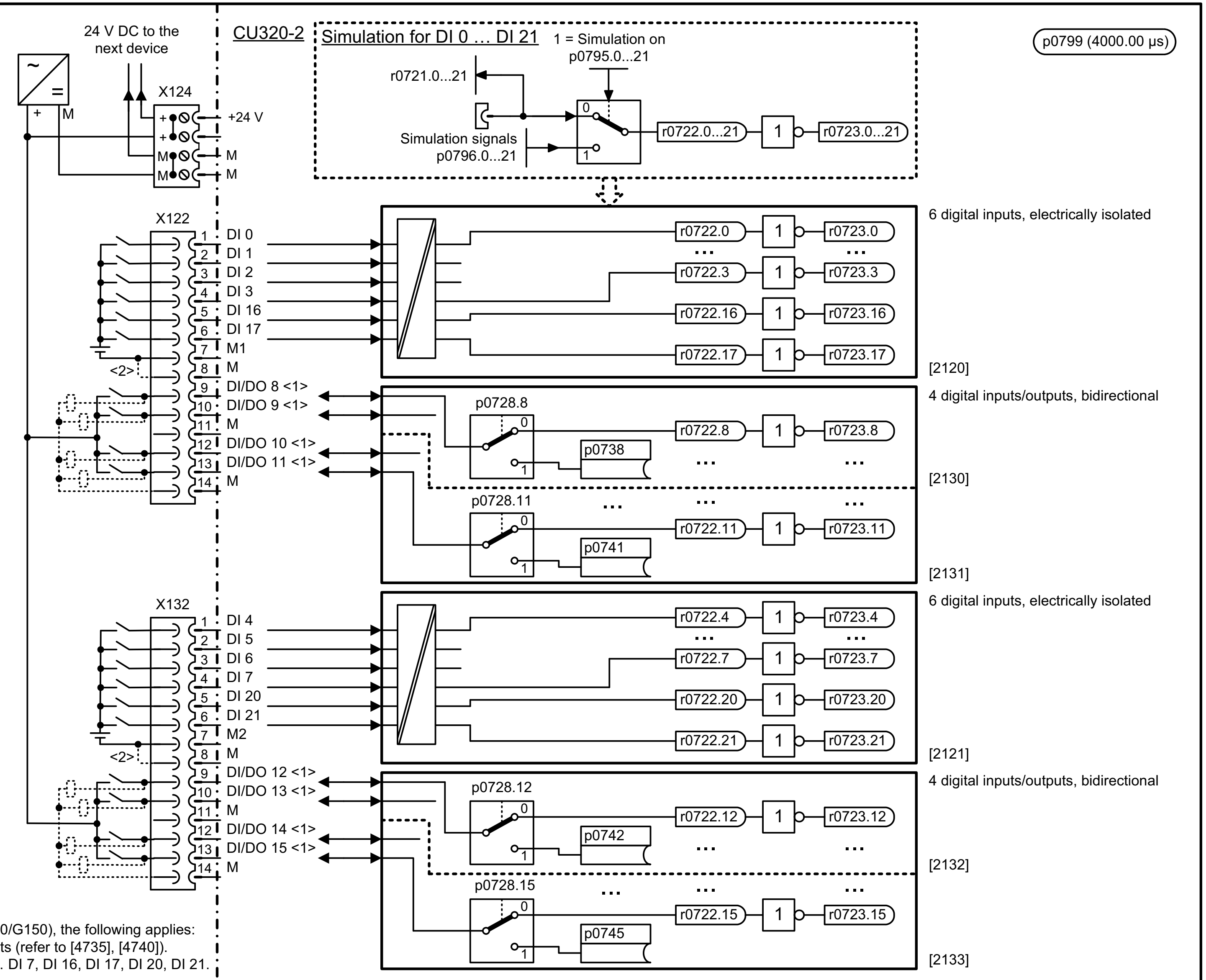
1	2	3	4	5	6	7	8
DO: All objects					fp_1030_51_eng.vsd	Function diagram	- 1030 -
Explanations on the function diagrams - Handling BICO technology					10.05.11 V04.07.00	SINAMICS	

Fig. 3-4 1030 – Handling BICO technology

3.3 CU320-2 input/output terminals

Function diagrams

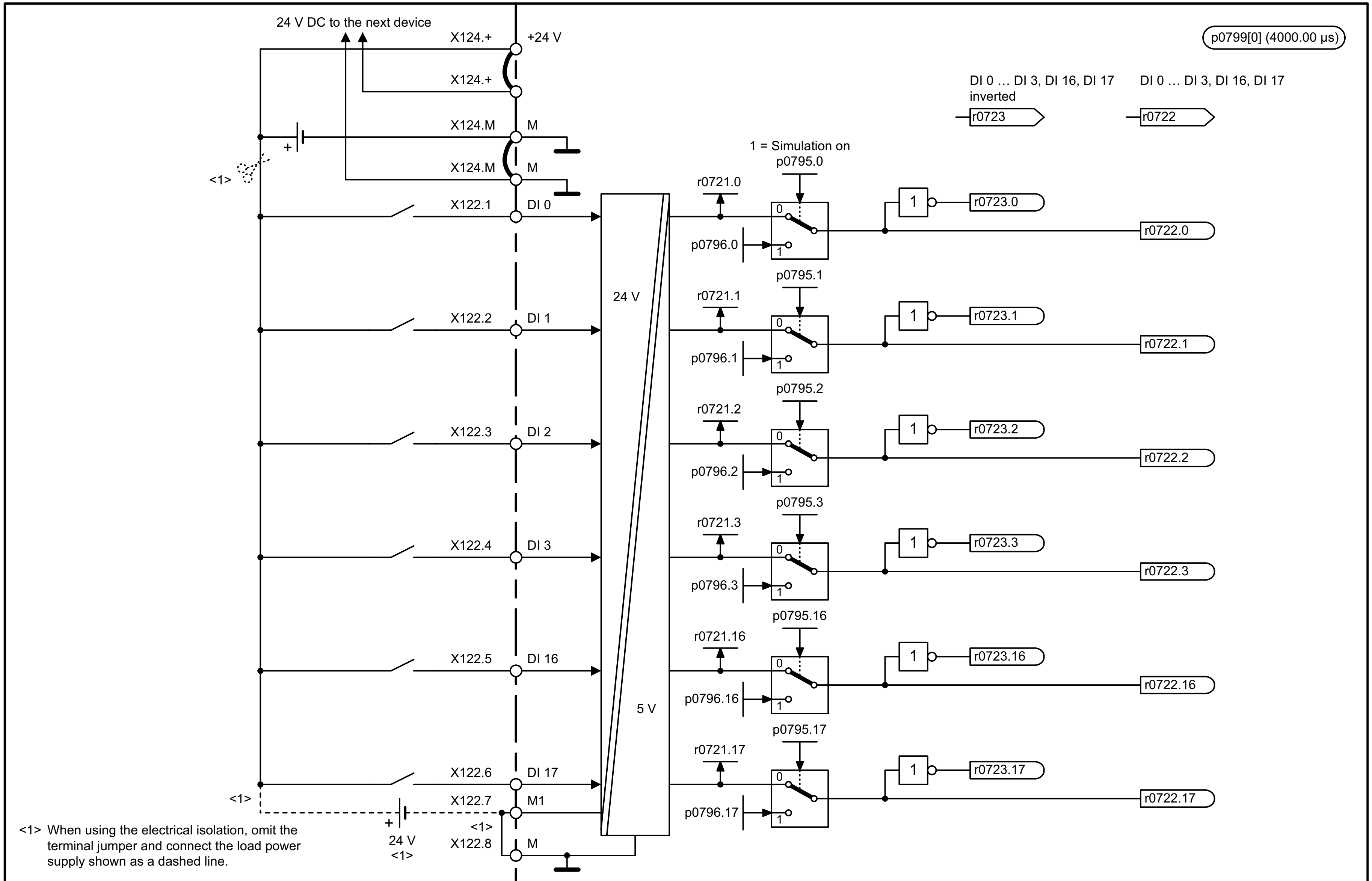
Fig. 3-5 2119 – Overview



<1> For SERVO and VECTOR (except for G130/G150), the following applies:
Can be used as fast measuring probe inputs (refer to [4735], [4740]).
<2> Jumper open, electrical isolation for DI 0 … DI 7, DI 16, DI 17, DI 20, DI 21.

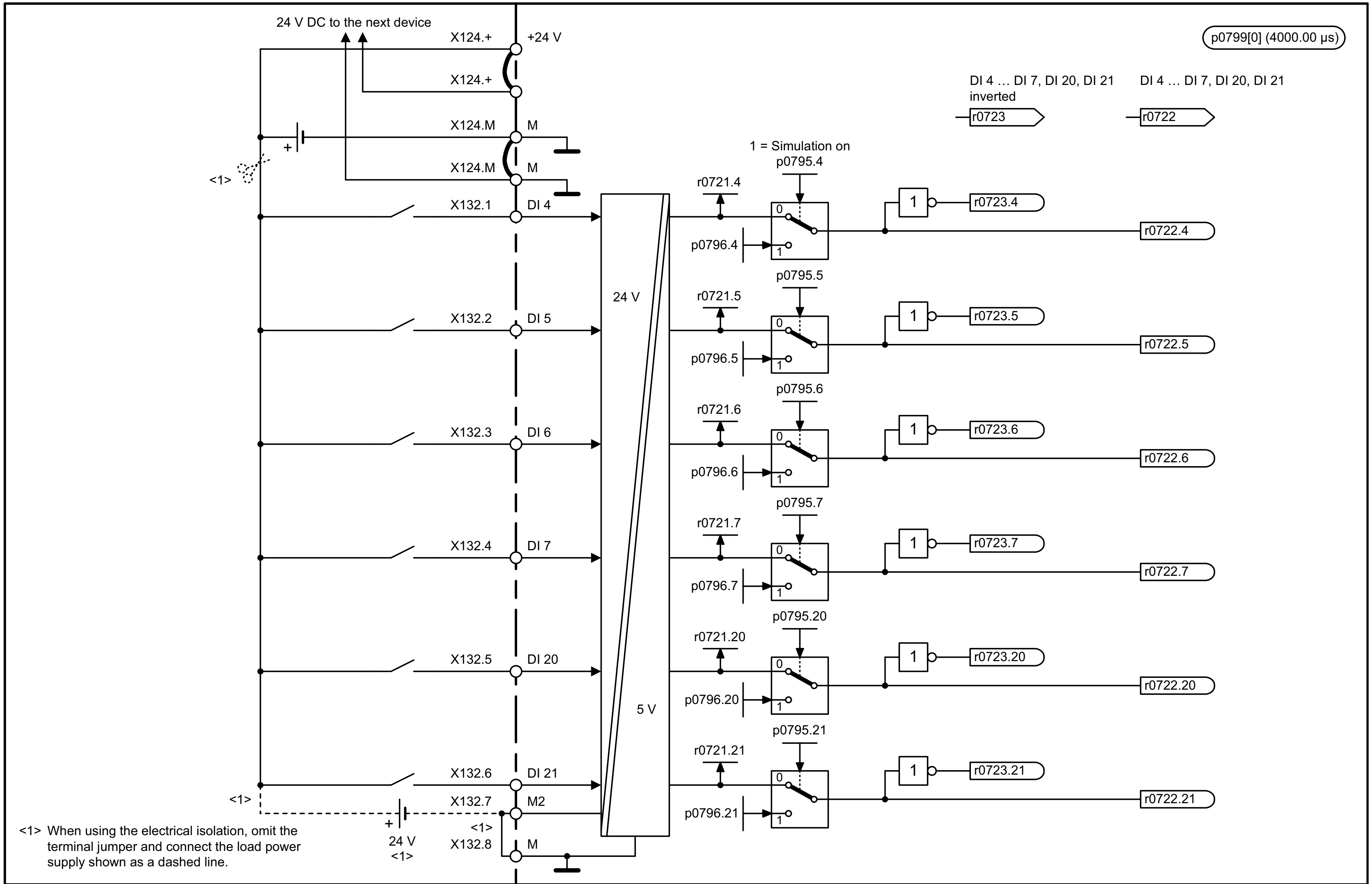
1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2119_51_eng.vsd	Function diagram	- 2119 -
CU320-2 input/output terminals - Overview					12.03.13 V04.07.00	SINAMICS	

Fig. 3-6 2120 – Digital inputs, electrically isolated (DI 0 ... DI 3, DI 16, DI 17)



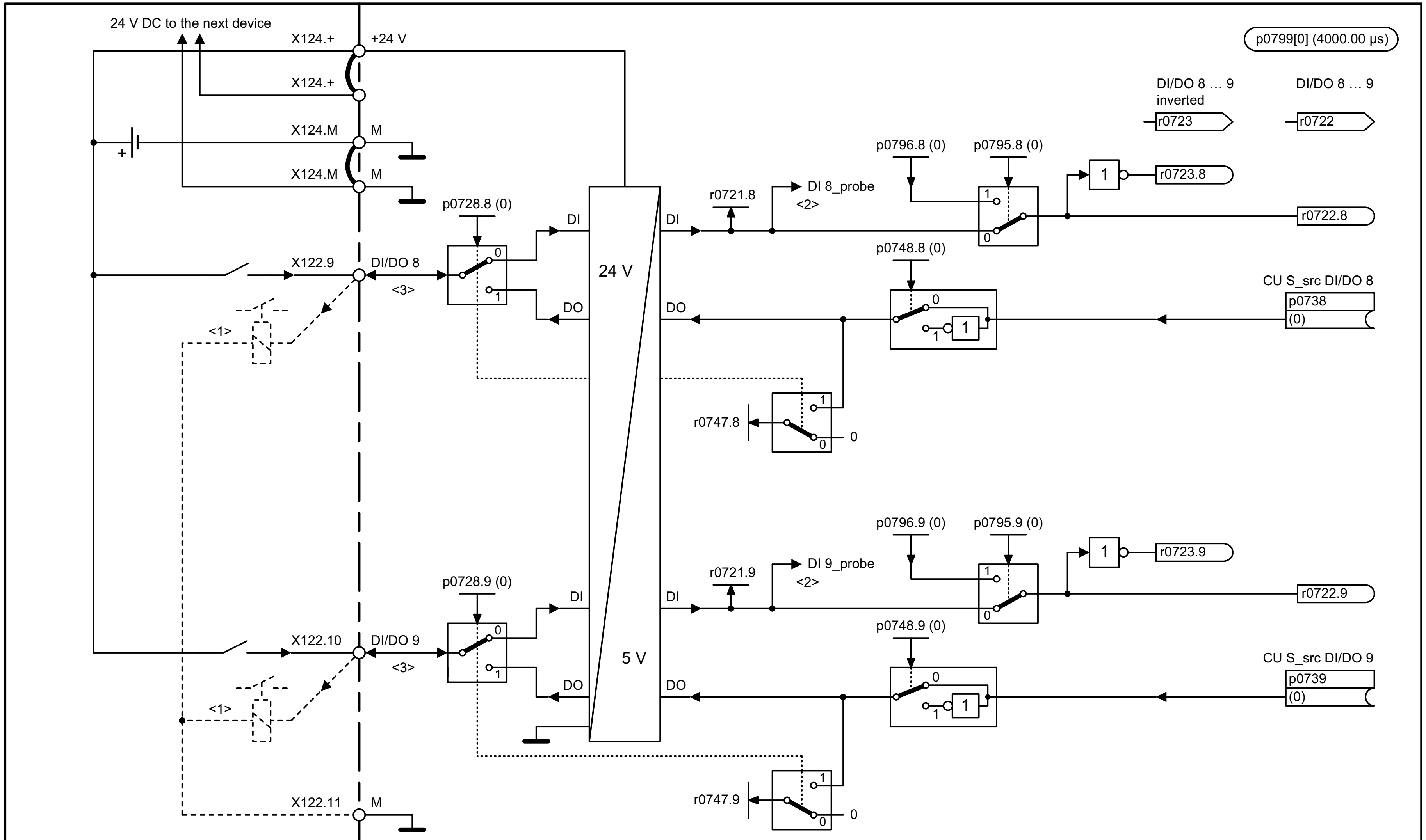
1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2120_51_eng.vsd	Function diagram	- 2120 -
CU320-2 input/output terminals - Digital inputs, electrically isolated (DI 0 ... DI 3, DI 16, DI 17)					12.07.12 V04.07.00	SINAMICS	

Fig. 3-7 2121 – Digital inputs, electrically isolated (DI 4 ... DI 7, DI 20, DI 21)



1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2121_51_eng.vsd	Function diagram	- 2121 -
CU320-2 input/output terminals - Digital inputs, electrically isolated (DI 4 ... DI 7, DI 20, DI 21)					12.07.12 V04.07.00	SINAMICS	

Fig. 3-8 2130 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

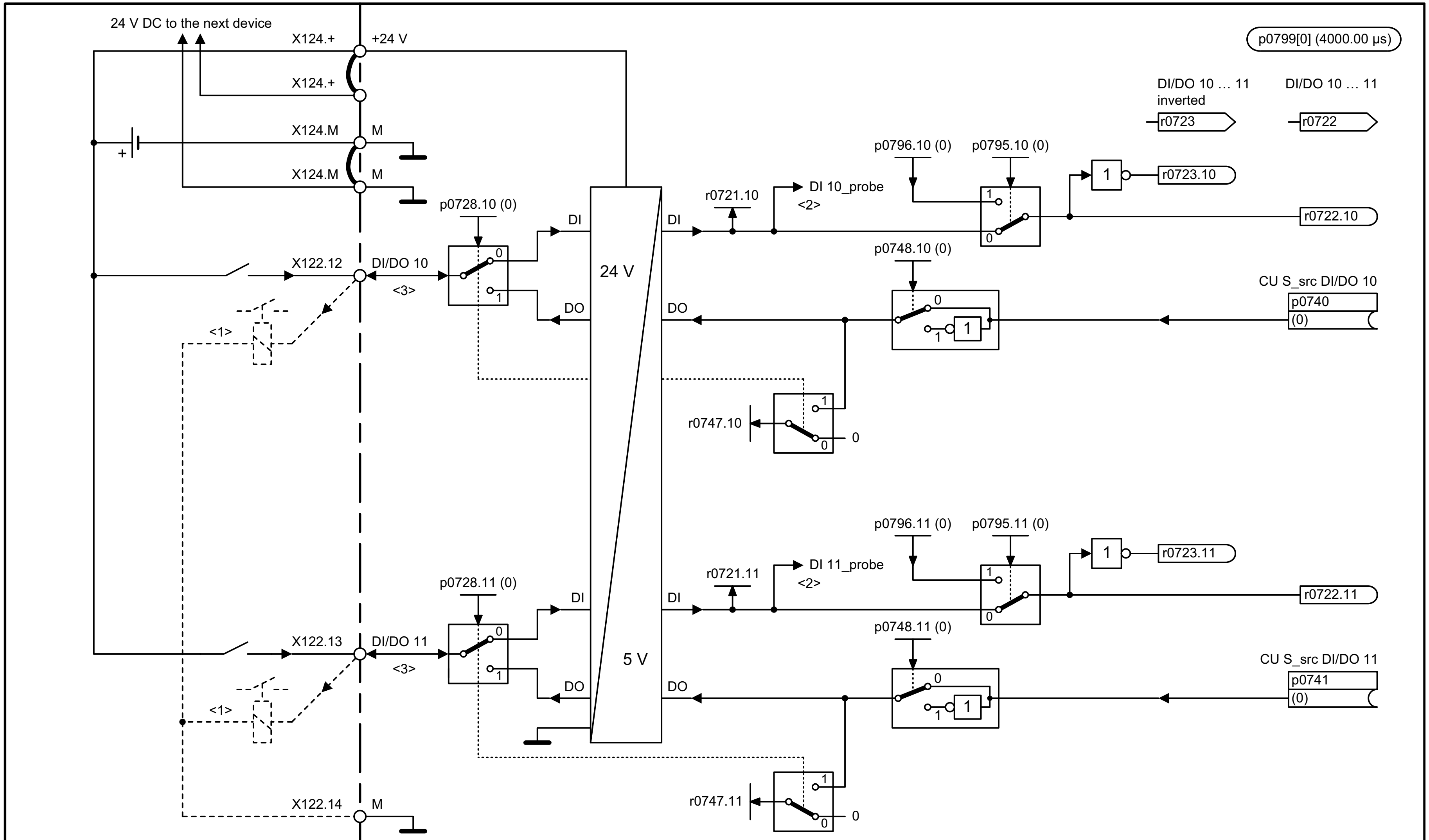


<1> The connection shown as a dashed line applies when used as digital output (p0728.x = 1).

<2> For SERVO and VECTOR (except for SINAMICS G130/G150), the following applies: Can be used as fast measuring probe inputs (refer to [4735], [4740]).
<3> The digital output access authority is displayed in r0729.

1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2130_51_eng.vsd	Function diagram	- 2130 -
CU320-2 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)					12.07.12 V04.07.00	SINAMICS	

Fig. 3-9 2131 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)



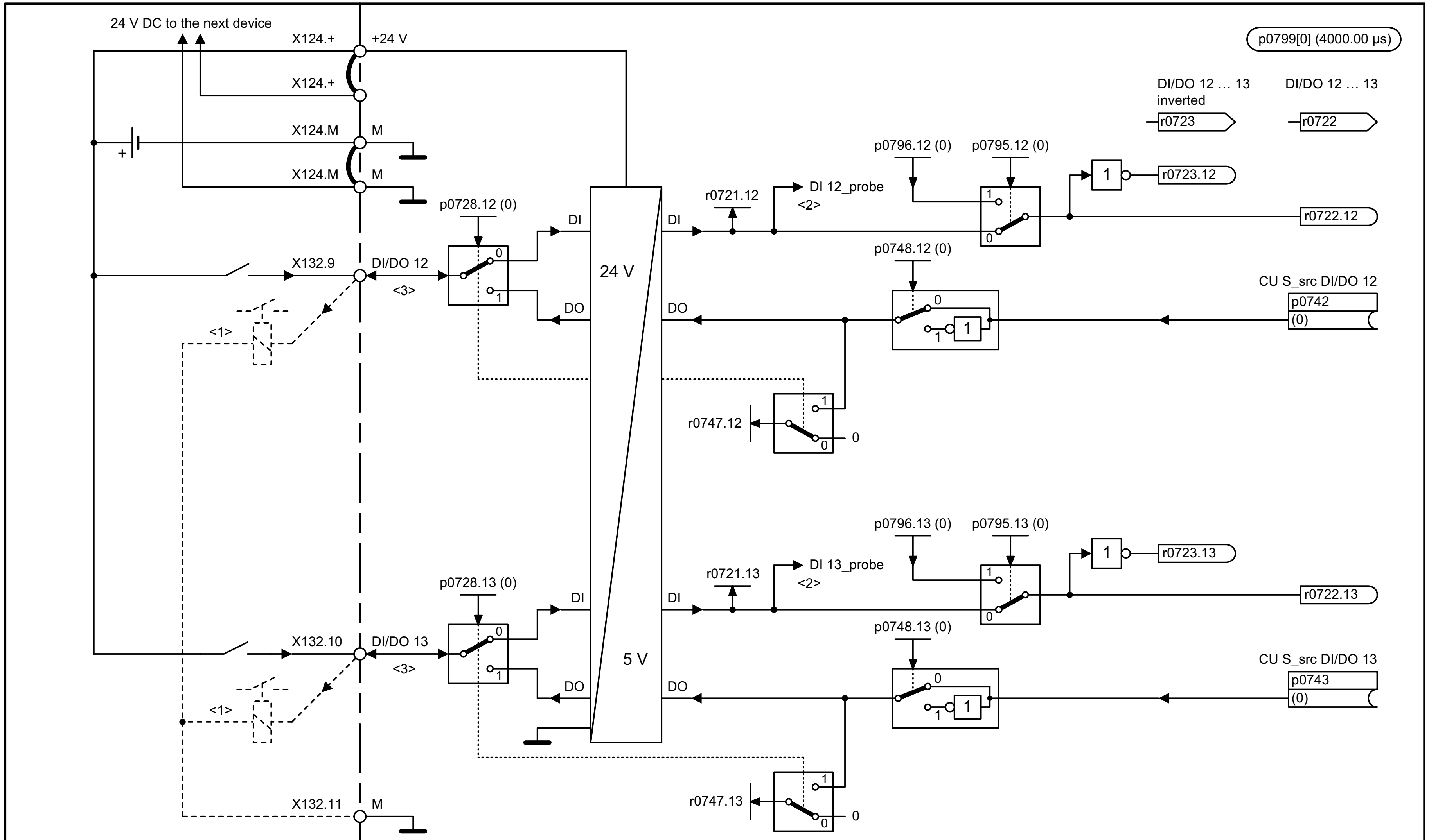
<1> The connection shown as a dashed line applies when used as digital output (p0728.x = 1).

<2> For SERVO and VECTOR (except for SINAMICS G130/G150), the following applies: Can be used as fast measuring probe inputs (refer to [4735], [4740]).

<3> The digital output access authority is displayed in r0729.

1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2131_51_eng.vsd	Function diagram	- 2131 -
CU320-2 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)					12.07.12 V04.07.00	SINAMICS	

Fig. 3-10 2132 – Digital inputs/outputs, bidirectional (DI/DO 12 ... DI/DO 13)



<1> The connection shown as a dashed line applies when used as digital output (p0728.x = 1).

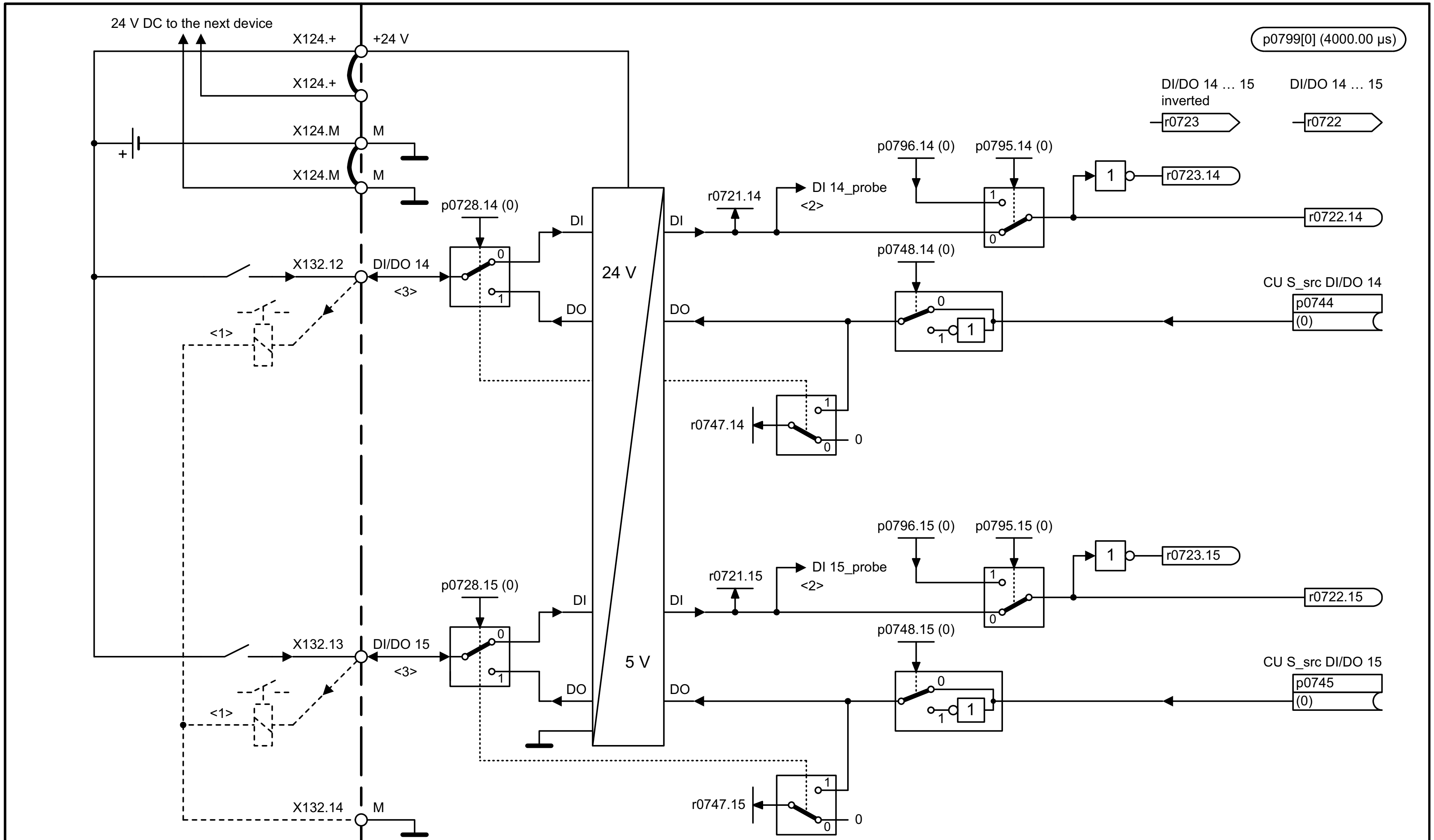
<2> For SERVO and VECTOR (except for SINAMICS G130/G150), the following applies: Can be used as fast measuring probe inputs (refer to [4735], [4740]).

<3> The digital output access authority is displayed in r0729.

1	2	3	4	5	6	7	8

DO: CU_G, CU_MV, CU_S	fp_2132_51_eng.vsd	Function diagram	- 2132 -
CU320-2 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 12 ... DI/DO 13)	12.07.12 V04.07.00	SINAMICS	

Fig. 3-11 2133 – Digital inputs/outputs, bidirectional (DI/DO 14 ... DI/DO 15)



<1> The connection shown as a dashed line applies when used as digital output (p0728.x = 1).

<2> For SERVO and VECTOR (except for SINAMICS G130/G150), the following applies: Can be used as fast measuring probe inputs (refer to [4735], [4740]).

<3> The digital output access authority is displayed in r0729.

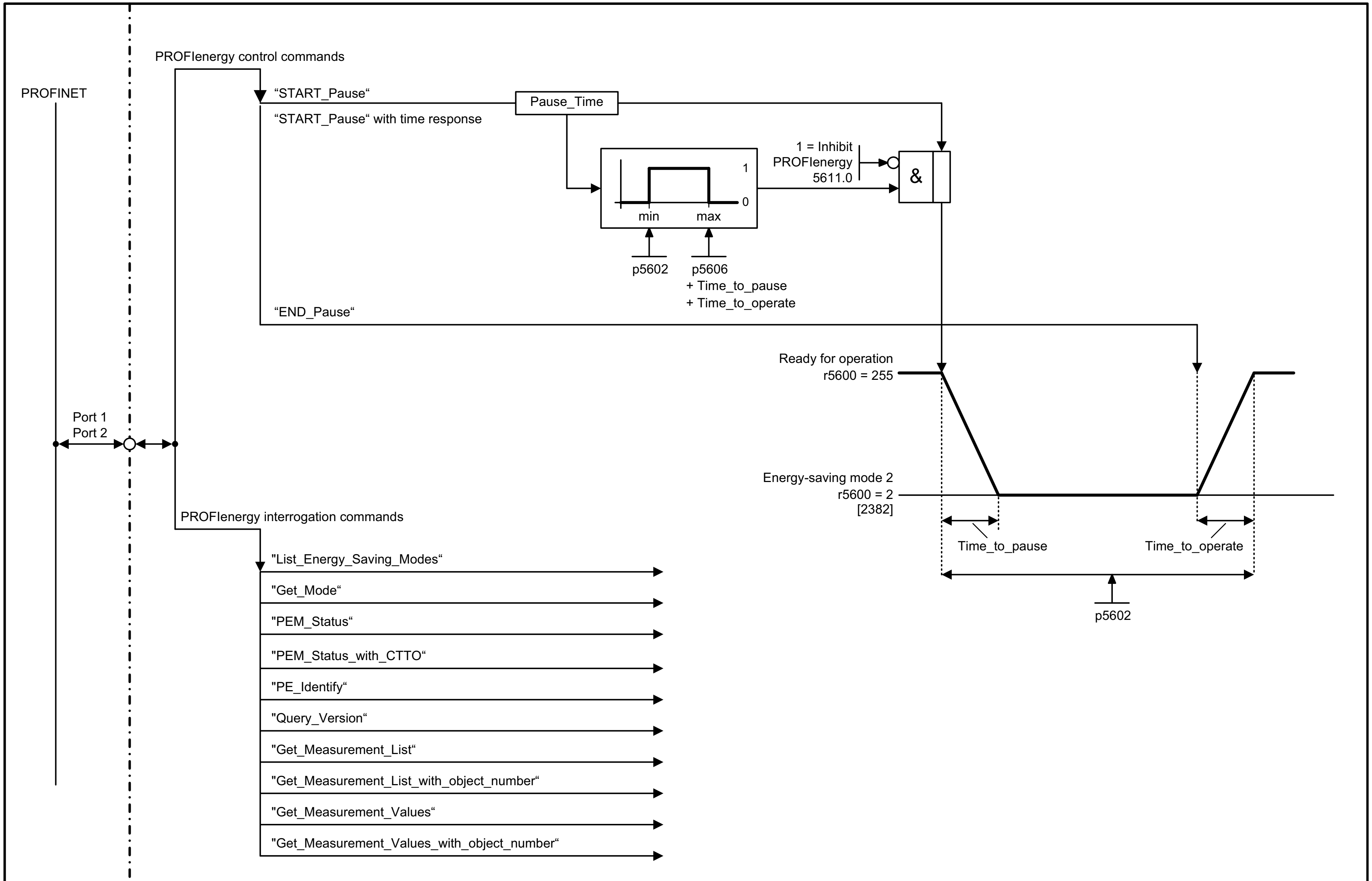
1	2	3	4	5	6	7	8

DO: CU_G, CU_MV, CU_S	fp_2133_51_eng.vsd	Function diagram	- 2133 -
CU320-2 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 14 ... DI/DO 15)	12.07.12 V04.07.00	SINAMICS	

3.4 PROIFIenergy

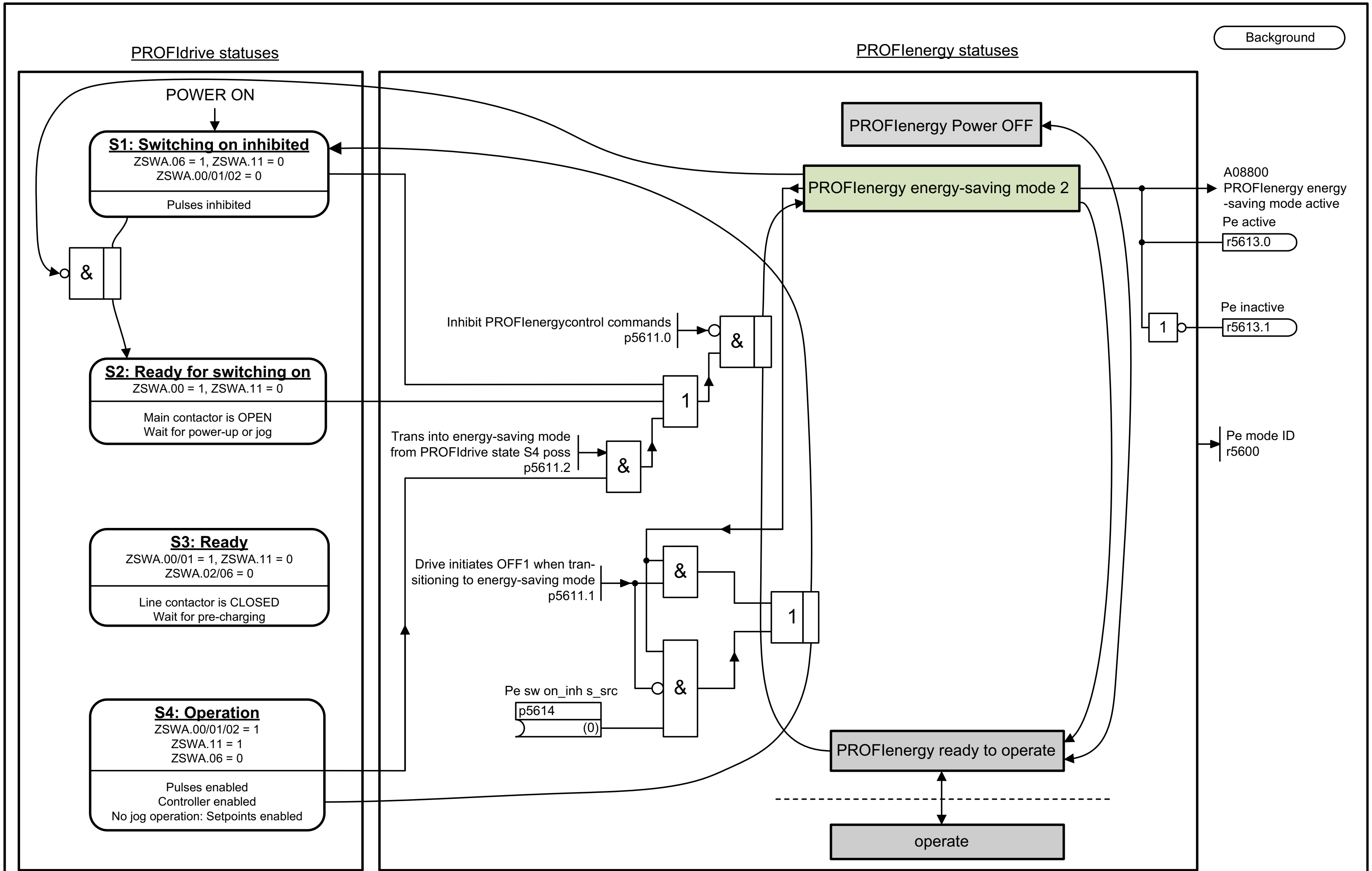
Function diagrams

Fig. 3-12 2381 – Control commands / interrogation commands



1	2	3	4	5	6	7	8
DO: A_INF, B_INF, SERVO, S_INF, VECTOR					fp_2381_54_eng.vsd	Function diagram	- 2381 -
PROFIenergy - Control commands/interrogation commands					09.04.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-13 2382 – States



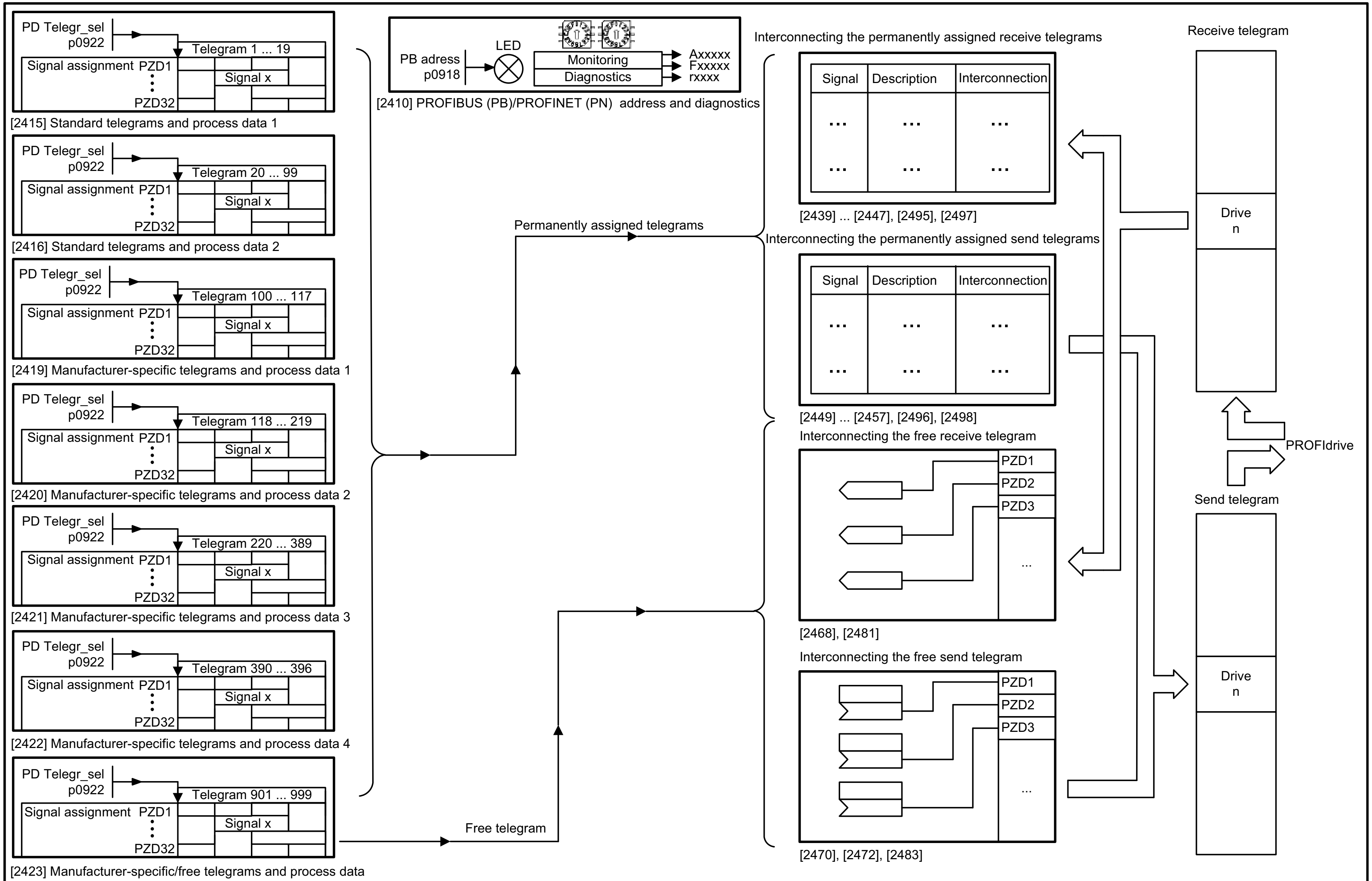
1	2	3	4	5	6	7	8

DO: B_INF, VECTOR	fp_2382_56_eng.vsd	Function diagram	- 2382 -
PROFIenergy - Statuses	04.03.14 V04.07.00	SINAMICS G130/G150	

3.5 PROFIdrive

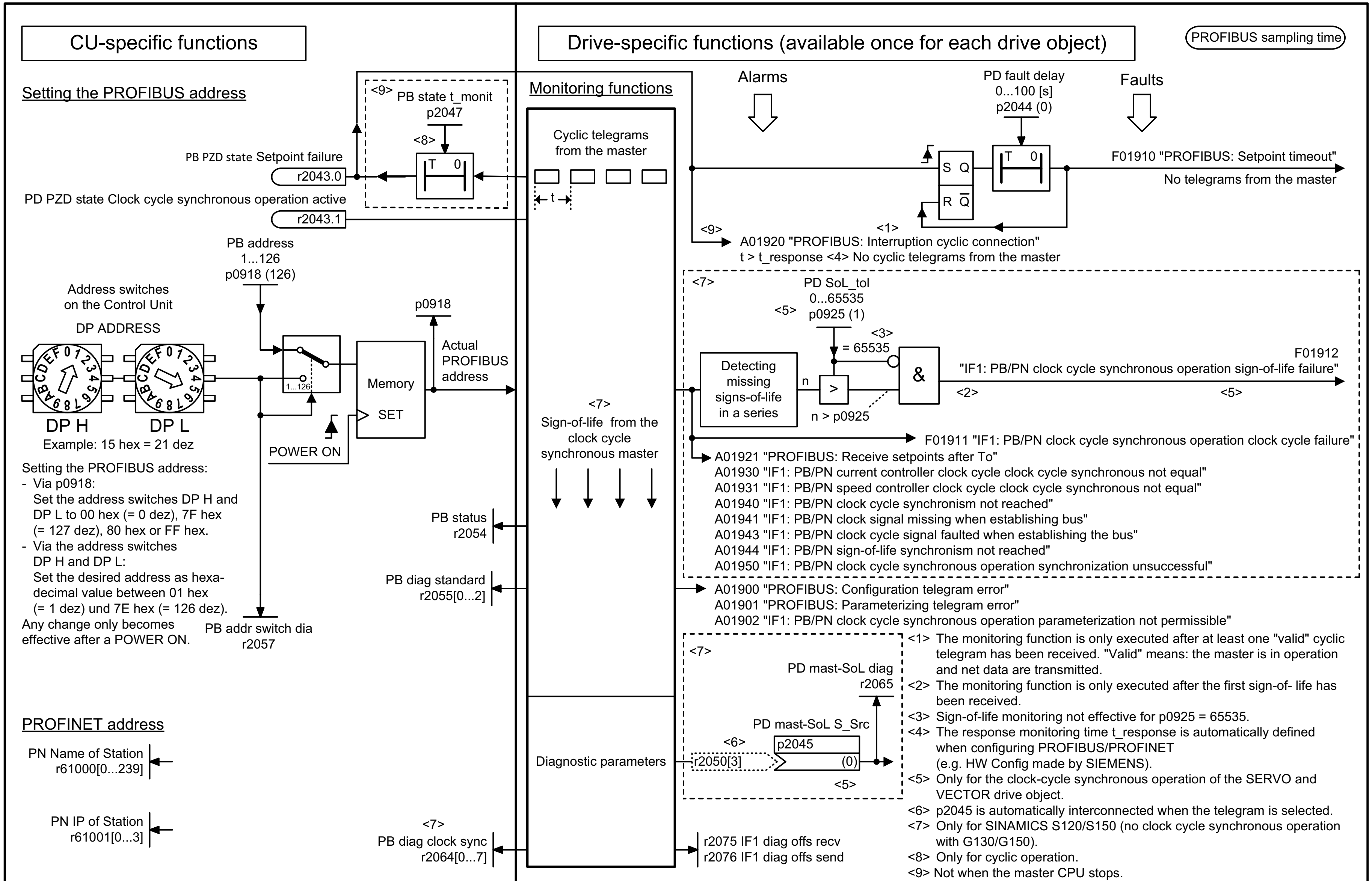
Function diagrams

Fig. 3-14 2401 – Overview



1	2	3	4	5	6	7	8
DO: All objects					fp_2401_54_eng.vsd	Function diagram	- 2401 -
PROFIdrive - Overview					12.03.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-15 2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics



1	2	3	4	5	6	7	8
DO: All objects					fp_2410_54_eng.vsd	Function diagram	- 2410 -
PROFIdrive - PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-16 2415 – Standard telegrams and process data 1

PROFIdrive sampling time

<1> <2> <3>
PD Telegram select
p0922 (999)

Interconnection is made according to: Not suitable for sensorless vector control (telegrams 3, 4); <4> (telegrams 5, 6); [2440] [2450] automatically <4> (telegram 9)

Telegram	1		2		3		4		5		6		7		9	
Appl. class	1		1		1, 4		1, 4		4 DSC		4 DSC		3		3	
PZD1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1
PZD2	NSOLL_A	NIST_A	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	SATZANW	AKTSATZ	SATZANW	AKTSATZ
PZD3															STW2	ZSW2
PZD4			STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2			MDI_ TARPOS	XIST_A
PZD5					G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW				
PZD6						G1_XIST1	G2_STW	G1_XIST1	XERR	G1_XIST1	G2_STW	G1_XIST1			MDI_ VELOCITY	
PZD7											XERR					
PZD8						G1_XIST2		G1_XIST2	KPC	G1_XIST2		G1_XIST2			MDI_ACC	
PZD9											KPC				MDI_DEC	
PZD10								G2_ZSW				G2_ZSW			MDI_MOD	
PZD11								G2_XIST1				G2_XIST1				
PZD12																
PZD13								G2_XIST2				G2_XIST2				
PZD14																
PZD15																
PZD16																
PZD17																
PZD18																
PZD19																
PZD20																
PZD21																
PZD22																
PZD23																
PZD24																
PZD25																
PZD26																
PZD27																
PZD28																
PZD29																
PZD30																
PZD31																
PZD32																
	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET

<1> Depending on the drive object, only specific telegrams can be used. Not suitable for sensorless vector control.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2424].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2424].
<3> The maximum number of PZD words depends on the drive object type.
<4> Only for SINAMICS S120/S150.

= Position encoder signal

1	2	3	4	5	6	7	8
DO: ENC, SERVO, VECTOR					fp_2415_54_eng.vsd	Function diagram	- 2415 -
PROFIdrive - Standard telegrams and process data 1					06.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-17 2416 – Standard telegrams and process data 2

<1> <2> <4>
PD Telegram select
p0922 (999)

PROFIdrive sampling time

Interconnection is made according to	[2440] [2450] automatically		<5>		<5>		<5>	
Telegram	20		81		82		83	
Appl. class	1		1		1		1	
PZD1	STW1	ZSW1	STW2_ENC	ZSW2_ENC	STW2_ENC	ZSW2_ENC	STW2_ENC	ZSW2_ENC
PZD2	NSOLL_A	NIST_A_GLATT	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW
PZD3		IAIST_GLATT		G1_XIST1		G1_XIST1		G1_XIST1
PZD4		MIST_GLATT						
PZD5		PIST_GLATT		G1_XIST2		G1_XIST2		G1_XIST2
PZD6		user <3>						
PZD7						NIST_A		NIST_B
PZD8								
PZD9								
PZD10								
PZD11								
PZD12								
PZD13								
PZD14								
PZD15								
PZD16								
PZD17								
PZD18								
PZD19								
PZD20								
PZD21								
PZD22								
PZD23								
PZD24								
PZD25								
PZD26								
PZD27								
PZD28								
PZD29								
PZD30								
PZD31								
PZD32	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET

<1> Depending on the drive object, only specific telegrams can be used. Not suitable for sensorless vector control.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423].
<3> Freely interconnectable (pre-setting: MELD_NAMUR).
<4> The maximum number of PZD words depends on the drive object type.
<5> Only for ENCODER.

= Position encoder signal

1	2	3	4	5	6	7	8
DO: ENC, SERVO, VECTOR					fp_2416_54_eng.vsd	Function diagram	- 2416 -
PROFIdrive - Standard telegrams and process data 2					06.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-18 2419 – Manufacturer-specific telegrams and process data 1

<1> <2> <4>
PD Telegr_select
p0922 (999)

PROFIdrive sampling time

Interconnection is made according to: [2440] [2450] automatically

	Receive	Send	Receive	Send	Receive	Send	Receive	Send	Receive	Send	Receive	Send	Receive	Send
Interconnection is made according to	<5>		<5>		<5>		<5>		<5>		<5>		<5>	
Telegram	102		103		105		106		110		111		116	
Appl. class	1, 4		1, 4		4 DSC		4 DSC		3		3		4 DSC	
PZD1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1
PZD2	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	SATZANW	AKTSATZ	POS_STW1	POS_ZSW1	NSOLL_B	NIST_B
PZD3	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	POS_STW	POS_ZSW	POS_STW2	POS_ZSW2	NSOLL_B	NIST_B
PZD4	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2
PZD5	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	OVERRIDE	MELDW	OVERRIDE	MELDW	MOMRED	MELDW
PZD6	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	MDI_TARPOS	XIST_A	MDI_TARPOS	XIST_A	G1_STW	G1_ZSW
PZD7		G1_XIST1	G2_STW	G1_XIST1	XERR	G1_XIST1	G2_STW	G1_XIST1	MDI_TARPOS	XIST_A	MDI_TARPOS	XIST_A	G2_STW	G1_XIST1
PZD8		G1_XIST1		G1_XIST1	XERR	G1_XIST1	XERR	G1_XIST1	MDI_VELOCITY		MDI_VELOCITY	NIST_B	XERR	G1_XIST1
PZD9		G1_XIST2		G1_XIST2	KPC	G1_XIST2	XERR	G1_XIST2	MDI_VELOCITY		MDI_VELOCITY	NIST_B	XERR	G1_XIST2
PZD10		G1_XIST2		G1_XIST2	KPC	G1_XIST2	KPC	G1_XIST2	MDI_ACC		MDI_ACC	FAULT_CODE	KPC	G1_XIST2
PZD11				G2_ZSW			KPC	G2_ZSW	MDI_DEC		MDI_DEC	WARN_CODE	KPC	G2_ZSW
PZD12				G2_XIST1				G2_XIST1	MDI_MODE		user <3>	user <3>		G2_XIST1
PZD13				G2_XIST1				G2_XIST1						G2_XIST1
PZD14				G2_XIST2				G2_XIST2						G2_XIST2
PZD15				G2_XIST2				G2_XIST2						G2_XIST2
PZD16														AIST_GLATT
PZD17														MSOLL_GLATT
PZD18														PIST_GLATT
PZD19														ITIST_GLATT
PZD20														
PZD21														
PZD22														
PZD23														
PZD24														
PZD25														
PZD26														
PZD27														
PZD28														
PZD29														
PZD30														
PZD31														
PZD32														
	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET

<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423]!
<3> Can be freely connected.
<4> The maximum number of PZD words depends on the drive object type.
<5> Only for SINAMICS S120/S150.

= Position encoder signal

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2419_54_eng.vsd	Function diagram	- 2419 -
PROFIdrive - Manufacturer-specific telegrams and process data 1	06.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-19 2420 – Manufacturer-specific telegrams and process data 2

<1> <2> <4>
PD Telegr_select
p0922 (999)

PROFIdrive sampling time

Interconnection is made according to	[2440] [2450] automatically <3>		<3>		<3>				<7>		<6>			
Telegram	118		125		126		136		138		139		166	
Appl. class	4 DSC		4 DSC		4 DSC		4 DSC		4 DSC		4 DSC		4 DSC	
PZD1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1
PZD2	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B
PZD3														
PZD4	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2
PZD5	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW	MOMRED	MELDW
PZD6	G2_STW	G2_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW	G2_STW	G1_ZSW	G2_STW	G2_ZSW	G1_STW	G1_ZSW	G1_STW	G1_ZSW
PZD7	G3_STW	G2_XIST1	XERR	G1_XIST1	G2_STW	G1_XIST1	G3_STW	G1_XIST1	G3_STW	G2_XIST1	res	G1_XIST1	G2_STW	G1_XIST1
PZD8	XERR				XERR		XERR		XERR		XERR		XERR	
PZD9		G2_XIST2	KPC	G1_XIST2		G1_XIST2		G1_XIST2		G2_XIST2		G1_XIST2		G1_XIST2
PZD10	KPC				KPC		KPC		KPC		KPC		KPC	
PZD11		G3_ZSW	M_VST			G2_ZSW		G2_ZSW		G3_ZSW		SP_ZSW		G2_ZSW
PZD12		G3_XIST1	DSC_STW <5>		M_VST	G2_XIST1	M_VST	G3_XIST1	M_VST	G2_XIST1	M_VST	SP_XIST_A	G1_MP	G2_XIST1
PZD13			res		DSC_STW <5>		DSC_STW <5>		DSC_STW <5>		DSC_STW <5>	SP_XIST_D		
PZD14		G3_XIST2	T_SYMM <5>		res	G2_XIST2	res	G3_XIST2	res	G2_XIST2	res	SP_KONFIG	G1_MP_ZSW	G2_XIST2
PZD15					T_SYMM <5>		T_SYMM <5>		T_SYMM <5>		T_SYMM <5>	res		
PZD16		AIST_GLATT						AIST_GLATT		AIST_GLATT		AIST_GLATT		VA_VALVELIFT
PZD17		MSOLL_GLATT						MSOLL_GLATT		MSOLL_GLATT		MSOLL_GLATT		VA_TORQUE
PZD18		PIST_GLATT						PIST_GLATT		PIST_GLATT		PIST_GLATT		VA_POWER
PZD19		ITIST_GLATT						ITIST_GLATT		ITIST_GLATT		ITIST_GLATT		VA_PRESSURE_A
PZD20														VA_PRESSURE_B
PZD21	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET
PZD22														
PZD23														
PZD24														
PZD25														
PZD26														
PZD27														
PZD28														
PZD29														
PZD30														
PZD31														
PZD32														

<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423].
<3> Only for SINAMICS S120/S150.
<4> The maximum number of PZD words depends on the drive object type.

= Position encoder signal

<5> Only if the “DSC with Spline“ function module is active (r0108.6 = 1).
<6> Only if the “Spindle diagnostics“ function module is active (r0108.11 = 1).
<7> Only for SINAMICS S120.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2420_54_eng.vsd	Function diagram	- 2420 -
PROFIdrive - Manufacturer-specific telegrams and process data 2					06.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-20 2421 – Manufacturer-specific telegrams and process data 3

<1> <2> <4>
PD Telegram select
p0922 (999)

PROFIdrive sampling time

Interconnection is made according to	[2440] [2450] automatically		<10>		<8>			
Telegram	220		352		370		371	
Appl. class	1		1		-		-	
PZD1<5>	STW1_BM	ZSW1_BM	STW1	ZSW1	E_STW1	E_ZSW1	E_STW1_BM	E_ZSW1_BM
PZD2	NSOLL_B	NIST_A /NIST_A_GLATT user <3> <9>	NSOLL_A	NIST_A_GLATT			user <3>	IAIST
PZD3		IAIST/IAIST_GLATT user <3> <9>	<3>	IAIST_GLATT			user <3>	WARN_CODE
PZD4	STW2_BM	MIST/MIST_GLATT user <3> <9>	<3>	MIST_GLATT			user <3>	FAULT_CODE
PZD5	M_ADD <7><10>	WARN_CODE	<3>	WARN_CODE			user <3>	user <3>
PZD6	M_LIM <6> <7>	FAULT_CODE	<3>	FAULT_CODE				user <3>
PZD7	user <3>	ZSW2_BM						user <3>
PZD8	user <3>	r1482 user <3>						user <3>
PZD9	user <3>	user <3>						
PZD10	user <3>	user <3>						
PZD11								
PZD12								
PZD13								
PZD14								
PZD15								
PZD16								
PZD17								
PZD18								
PZD19								
PZD20								
PZD21								
PZD22								
PZD23								
PZD24								
PZD25								
PZD26								
PZD27								
PZD28								
PZD29								
PZD30								
PZD31								
PZD32	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET

<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423]!
<3> Freely interconn.
<4> The maximum number of PZD words depends on the drive object type.
<5> In order to comply with the PROFIdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
p2037 = 2 should be set if STW1 is not transferred with PZD1 as specified in the PROFIdrive profile.
<6> Not for U/f control.
<7> Preassignment, not disabled.
<8> Only for S120/S150.
<9> Values smoothed at Vector, Values unsmooted at Servo.
<10> Not for SERVO.

1	2	3	4	5	6	7	8

DO: A_INF, B_INF, CU_G, CU_S, S_INF, SERVO, VECTOR	fp_2421_54_eng.vsd	Function diagram	- 2421 -
PROFIdrive - Manufacturer-specific telegrams and process data 3	06.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-21 2422 – Manufacturer-specific telegrams and process data 4

<1> <2> <3>
PD Telegram select
p0922 (999)

PROFIdrive sampling time

Interconnection is made according to: [2440] [2450] automatically

<4> (applies to telegram 396)

Telegram	390		391		392		393		394		395		396	
Appl. class	-		-		-		-		-		-		-	
PZD1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1
PZD2	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL
PZD3			MT_STW	MT_ZSW	MT_STW	MT_ZSW	A_DIGITAL_1	E_DIGITAL_1	A_DIGITAL_1	E_DIGITAL_1	A_DIGITAL_1	E_DIGITAL_1	A_DIGITAL_1	E_DIGITAL_1
PZD4				MT1_ZS_F		MT1_ZS_F	MT_STW	MT_ZSW			MT_STW	MT_ZSW	MT_STW	MT_ZSW
PZD5				MT1_ZS_S		MT1_ZS_S		MT1_ZS_F				MT_DIAG	NOCKEN1_ZS_F	MT1_ZS_F
PZD6				MT2_ZS_F		MT2_ZS_F		MT1_ZS_S				MT_ZS_1	NOCKEN1_ZS_S	MT1_ZS_S
PZD7				MT2_ZS_S		MT2_ZS_S		MT2_ZS_F				MT_ZS_2	NOCKEN2_ZS_F	MT2_ZS_F
PZD8						MT3_ZS_F		MT2_ZS_S				MT_ZS_3	NOCKEN2_ZS_S	MT2_ZS_S
PZD9						MT3_ZS_S		MT3_ZS_F				MT_ZS_4	NOCKEN3_ZS_F	MT3_ZS_F
PZD10						MT4_ZS_F		MT3_ZS_S				MT_ZSB1	NOCKEN3_ZS_S	MT3_ZS_S
PZD11						MT4_ZS_S		MT4_ZS_F				MT_ZS_5	NOCKEN4_ZS_F	MT4_ZS_F
PZD12						MT5_ZS_F		MT4_ZS_S				MT_ZS_6	NOCKEN4_ZS_S	MT4_ZS_S
PZD13						MT5_ZS_S		MT5_ZS_F				MT_ZS_7	NOCKEN5_ZS_F	MT5_ZS_F
PZD14						MT6_ZS_F		MT5_ZS_S				MT_ZS_8	NOCKEN5_ZS_S	MT5_ZS_S
PZD15						MT6_ZS_S		MT6_ZS_F				MT_ZSB2	NOCKEN6_ZS_F	MT6_ZS_F
PZD16								MT6_ZS_S				MT_ZS_9	NOCKEN6_ZS_S	MT6_ZS_S
PZD17								MT7_ZS_F				MT_ZS_10	NOCKEN7_ZS_F	MT7_ZS_F
PZD18								MT7_ZS_S				MT_ZS_11	NOCKEN7_ZS_S	MT7_ZS_S
PZD19								MT8_ZS_F				MT_ZS_12	NOCKEN8_ZS_F	MT8_ZS_F
PZD20								MT8_ZS_S				MT_ZSB3	NOCKEN8_ZS_S	MT8_ZS_S
PZD21								E_ANALOG				MT_ZS_13		E_ANALOG
PZD22												MT_ZS_14		
PZD23												MT_ZS_15		
PZD24												MT_ZS_16		
PZD25												MT_ZSB4		
PZD26														
PZD27														
PZD28														
PZD29														
PZD30														
PZD31														
PZD32														
	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET	Receive telegram from PROFIBUS/ PROFINET	Send telegram to PROFIBUS/ PROFINET

<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423].
<3> The maximum number of PZD words depends on the drive object type.
<4> Only for CU_I_D410.
<5> (grey) Connected Only for CU_S_AC or CU_I_D410.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_G, CU_S, S_INF, SERVO, VECTOR					fp_2422_54_eng.vsd	Function diagram	- 2422 -
PROFIdrive - Manufacturer-specific telegrams and process data 4					07.03.14 V04.07.00	S120/S150/G130/G150	

PROFIdrive sampling time

<4>
Telegr SIC/SCC
p60122

<1> <2> <4>
PD Telegram select
p0922 (999)

Interconnection is made according to					[2481] [2483]	
Telegram	700		701		999	
Appl. class	-		-		<3> - <3>	
PZD1		S_ZSW1B (r9734)	S_STW1B (p10250)	S_ZSW1B (r9734)	STW1	ZSW1
PZD2		S_V_LIMIT_B (r9733[2])	S_STW3B (p10235)	S_ZSW2B (r9743)		
PZD3				S_V_LIMIT_B (r9733[2])		
PZD4						
PZD5				S_ZSW3B (r10234)		
. . .						
PZD30						
PZD31						
PZD32						
	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Receive telegram length freely selectable via central PROFIdrive configuration in the master <4> / Send telegram to PROFIBUS/PROFINET	Transmit telegram length freely selectable via central PROFIdrive configuration in the master <4> / Receive telegram from PROFIBUS/PROFINET

The arrangement of process data (PZD) for the telegram 700/701 depends on the telegram selection (p0922, p2079) and the receive and send words reserved (p2070, p2071).
The telegram 700 resp. 701 is appended to the telegram selected resp. the words reserved.

<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2415] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2415] - [2423].
<3> In order to comply with the PROFIdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
p2037 = 2 should be set if STW1 is not transferred with PZD1 as specified in the PROFIdrive profile.
<4> The maximum number of PZD words depends on the drive object type.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2423_54_eng.vsd	Function diagram	- 2423 -
PROFIdrive - Manufacturer-specific/free telegrams and process data					07.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-22 2423 – Manufacturer-specific/free telegrams and process data

Fig. 3-23 2425 – STW1_BM control word, metal industry interconnection

Signal targets for STW1_BM

<1>

PROFIdrive sampling time

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	**0 = OFF (OFF1)** ↑ = ON	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	**0 = OFF2** (immediate pulse suppression and switch on inhibit) 1 = No OFF2 (enable is possible)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	0 = OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switch on inhibit) **1 = No OFF3** (enable is possible)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	0 = Inhibit operation **1 = Enable operation**	p2816[0] = r2090.3	[2501.3]	[2634.3]	-
STW1.4	0 = Inhibit ramp-function generator **1 = Operating condition**	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	0 = Stop the ramp-function generator **1 = Enable the ramp-function generator**	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	0 = Inhibit setpoint = 0 **1 = Enable setpoint**	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	**↑ = Acknowledge faults**	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	**Reserved**	-	-	-	-
STW1.9	**Reserved**	-	-	-	-
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	**Reserved**	-	-	-	-
STW1.12	**Reserved** <3>	<3>	-	-	-
STW1.13	**Reserved** <3>	<3>	-	-	-
STW1.14	**Reserved** <3>	<3>	-	-	-
STW1.15	**Reserved** <3>	<3>	-	-	-

<1> Used in telegram 220.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).
<3> Interconnection is not disabled.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2425_54_eng.vsd	Function diagram	- 2425 -
PROFIdrive - STW1_BM control word, metal industry interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Signal targets for STW2_BM <1>

PROFIdrive sampling time

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW2.0	**Command data set selection CDS, bit 0**	p0810 = r2093.0	-	[8560]	-
STW2.1	**Command data set selection CDS, bit 1** <3>	p0811 = r2093.1	-	[8560]	-
STW2.2	**Drive data set selection DDS, bit 0**	p0820[0] = r2093.2 <2>	-	[8565]	-
STW2.3	**Drive data set selection DDS, bit 1**	p0821[0] = r2093.3 <2>	-	[8565]	-
STW2.4	**Drive data set selection DDS, bit 2**	p0822[0] = r2093.4 <2>	-	[8565]	-
STW2.5	**1 = Bypass ramp-function generator** <4>	p1122[0] = r2093.5	-	-	-
STW2.6	**Reserved**	-	-	-	-
STW2.7	**1 = Speed controller set integrator value**	p1477[0] = r2093.7	-	-	-
STW2.8	**1 = Droop enabled** <3>	p1492[0] = r2093.8	-	[6030]	-
STW2.9	**1 = Speed controller enabled**	p0856[0] = r2093.9 <2>	-	-	-
STW2.10	**Reserved** <2>	<2>	-	-	-
STW2.11	**1 = Torque controlled operation** 0 = Speed controlled operation	p1501[0] = r2093.11	-	-	-
STW2.12	**Reserved** <2>	<2>	-	-	-
STW2.13	**Reserved** <2>	<2>	-	-	-
STW2.14	**Reserved** <2>	<2>	-	-	-
STW2.15	**Controller slave sign-of-life Toggle bit**	p2081[15] = r2093.15	-	-	-

<1> Used in telegram 220.
<2> Interconnection is not disabled.
<3> Only for Vector.
<4> Only for "extended setpoint channel".

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2426_54_eng.vsd	Function diagram	- 2426 -
PROFIdrive - STW2_BM control word metal industry interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-24 2426 – STW2_BM control word, metal industry interconnection

PROFIdrive sampling time

Signal targets for E_STW1_BM

<1> <7>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word			[Function diagram] signal target			Inverted
			A_INF	B_INF <7>	S_INF <5>	A_INF	B_INF <7>	S_INF <5>	
STW1.0	**= ON** (close pre-charging/line contactor, pulses can be enabled) 0 = OFF1 (reduce Vdc along a ramp, suppress pulse and open pre-charging/line contactor)	p0840[0] = r2090.0	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.1	**1 = No OFF2 (enable is possible)** 0 = OFF2 (immediate pulse suppression and power-on inhibit)	p0844[0] = r2090.1	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.2	**Reserved**	-	-	-	-	-	-	-	-
STW1.3	**1 = Enable operation (pulses can be enabled)** <3> 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[8920.3]	-	[8820.3]	[8932]	-	[8832]	-
STW1.4	**Reserved**	-	-	-	-	-	-	-	-
STW1.5	**1 = Infeed, inhibit motoring** <4>	p3532= r2090.5	[8920.3]	-	-	[8920]	-	-	-
STW1.6	**1 = Infeed, inhibit regenerative operation** <3>	p3533= r2090.6	[8920.3]	-	[8820.3]	[8920]	-	[8820]	-
STW1.7	**= Acknowledge faults**	p2103[0] = r2090.7	[2546.3]			[8060]			-
STW1.8	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.9	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[8920.3]	[8720.3]	[8820.3]	[8920]	[8720]	[8820]	-
STW1.11	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.12	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.13	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.14	**Reserved** <6>	<6>	-	-	-	-	-	-	-
STW1.15	**Controller-sign-of-life Toggle Bit**	p2080[15] = r2090.15	-	-	-	-	-	-	-

<1> Used in telegram 371.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).
<3> Only for A_INF, S_INF
<4> Only for A_INF
<5> B_INF and S_INF only for S120.
<6> Interconnection is not disabled.
<7> Only for S120 and G150.
<8> Not for G130.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF					fp_2427_54_eng.vsd	Function diagram	- 2427 -
PROFIdrive - E_STW1_BM control word infeed metal industry interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-25 2427 – E_STW1_BM control word, infeed metal industry interconnection

Fig. 3-26 2428 – ZSW1_BM status word, metal industry interconnection

Signal sources for ZSW1_BM <1>

PROFIdrive Abtastzeit

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
ZSW1.0	**1 = Ready for switching on**	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	**1 = Ready for operation**	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	**1 = Operation enabled**	p2080[2] = r2811.0	[2503.7]	[2610]	-
ZSW1.3	**1 = Fault present**	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	**1 = No coast down active (OFF2 inactive)**	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	**1 = No fast stop active (OFF3 inactive)**	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	**1 = Switching on inhibited active**	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	**1 = Alarm present**	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	**1 = Speed setpoint - actual value deviation within tolerance t_off**	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	**1 = Control requested** <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	**1 = f or n comparison value reached/exceeded**	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	**1 = I, M, or P limit not reached** <4>	p2080[11] = r1407.7	[2522.7]	[5610] [6060] <5>	✔
ZSW1.12	**1 = Open the holding brake**	p2080[12] = r0899.12	[2503.7]	[2701]	-
ZSW1.13	**Reserved** <6>	<6>	-	-	-
ZSW1.14	**Reserved** <6>	<6>	-	-	-
ZSW1.15	**Reserved** <6>	<6>	-	-	-

<1> Used in telegram 220.
<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)
<3> The drive object is ready to accept data.
<4> Not for VECTOR U/f.
<5> Only for SINAMICS S120.
<6> Interconnection is not disabled.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2428_54_eng.vsd	Function diagram	- 2428 -
PROFIdrive - ZSW1_BM status word, metal industry interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Signal sources for ZSW2_BM

<1>

PROFIdrive sampling time

Signal	Meaning	Interconnection parameters	[Function diagram] internal status word	[Function diagram] signal source	Inverted
ZSW2.0	**Reserved** <3>	<3>	-	-	-
ZSW2.1	**Reserved** <3>	<3>	-	-	-
ZSW2.2	**Reserved** <3>	<3>	-	-	-
ZSW2.3	**Reserved** <3>	<3>	-	-	-
ZSW2.4	**Reserved** <3>	<3>	-	-	-
ZSW2.5	**1 = Alarm class bit 0**	p2081[5] = r2139.11	-	[2548]	-
ZSW2.6	**1 = Alarm class bit 1**	p2081[6] = r2139.12	-	[2548]	-
ZSW2.7	**Reserved**	-	-	-	-
ZSW2.8	**Reserved**	-	-	-	-
ZSW2.9	**1 = Speed setpoint limited** <2>	p2081[9] = r1407.11	-	-	-
ZSW2.10	**1 = Upper torque limit** <2>	p2081[10] = r1407.8	-	-	-
ZSW2.11	**1 = Lower torque limit** <2>	p2081[11] = r1407.9	-	-	-
ZSW2.12	**1 = Encoderless operation due to fault**	p2081[12] = r1407.13	-	-	-
ZSW2.13	**1 = SS1 delay time active in the drive**	p2081[13] = r9773.2	-	-	-
ZSW2.14	**1 = STO active in drive**	p2081[14] = r9773.1	-	-	-
ZSW2.15	**Controller slave sign-of-life Toggle bit**	p2081[15] = r2093.15	-	-	-

<1> Used in telegram 220.
<2> Not for VECTOR U/f.
<3> Interconnection is not disabled.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2429_54_eng.vsd	Function diagram	- 2429 -
PROFIdrive - ZSW2_BM status word metal industry interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-27 2429 – ZSW2_BM status word, metal industry interconnection

Fig. 3-28 2430 – E_ZSW1_BM status word, infeed metal industry interconnection

PROFIdrive sampling time

Signal sources for E_ZSW1_BM

<1> <6>

Signal	Meaning	Interconnection parameters	[Function diagram] signal source			[Function diagram] internal status word			Inverted
			A_INF	B_INF <5>	S_INF <3>	A_INF	B_INF <5>	S_INF <3>	
ZSW1.0	**1 = Ready for switching on**	p2080[0] = r0899.0	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.1	**1 = Ready for operation**	p2080[1] = r0899.1	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.2	**1 = Operation enabled**	p2080[2] = r0899.2	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.3	**1 = Fault present**	p2080[3] = r2139.3	[8060]			[2548.7]			-
ZSW1.4	**1 = No OFF2 effective**	p2080[4] = r0899.4	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.5	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.6	**1 = Switching on inhibited**	p2080[6] = r0899.6	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.7	**1 = Alarm present**	p2080[7] = r2139.7	[8065]			[2548.7]			-
ZSW1.8	**Reserved** <4>	<4>	-	-	-	-	-	-	-
ZSW1.9	**1 = PLC requests control** <2>	p2080[9] = r0899.9	[8926]	[8726]	[8826]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.10	**Reserved** <4>	<4>	-	-	-	-	-	-	-
ZSW1.11	**1 = Pre-charging completed**	p2080[11] = r0899.11	[8950]	[8750]	[8850]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.12	**1 = Line contactor closed**	p2080[12] = r0899.12	[8934]	[8734]	[8834]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.13	**Reserved** <4>	<4>	-	-	-	-	-	-	-
ZSW1.14	**Reserved** <4>	<4>	-	-	-	-	-	-	-
ZSW1.15	**Controller sign-of-life Toggle bit**	r2080[15] = r2090.15	-	-	-	-	-	-	-

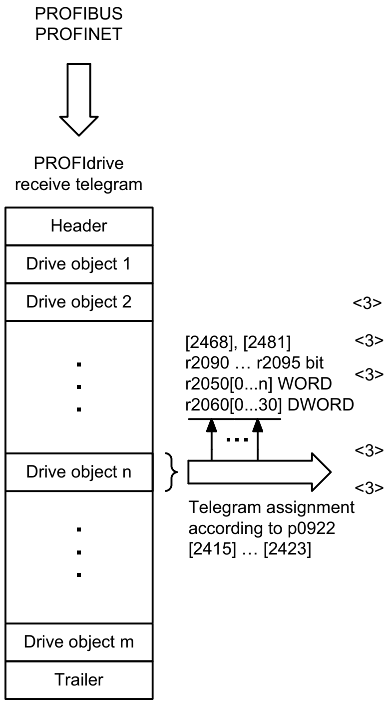
<1> Used in telegram 371.
<2> The drive object is ready to accept data.
<3> Only for S120.
<4> Interconnection is not disabled.
<5> Only for S120 and G150.
<6> Not for G130.

1	2	3	4	5	6	7	8

DO: A_INF, B_INF, S_INF	fp_2430_54_eng.vsd	Function diagram	- 2430 -
PROFIdrive - E_ZSW1_BM status word infeed metal industry interconnection	26.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-29 2439 – PZD receive signals interconnection, profile-specific

PROFIdrive sampling time



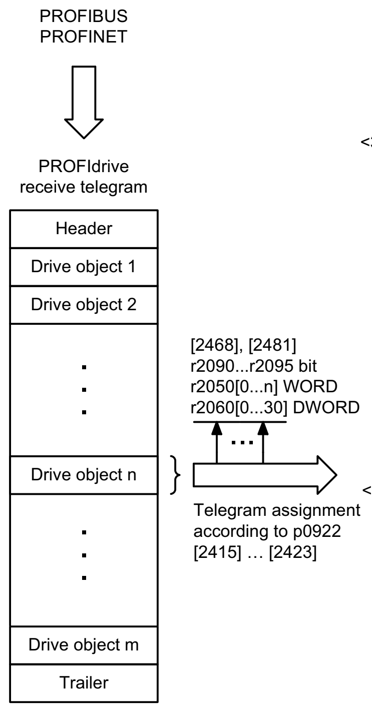
Signal receivers for PZD receive signals

	Signal	Meaning	PROFIdrive Signal No.	Interconnection parameter <1>	Function diagram	Data type <2>	Scaling
	STW1	Control word 1	1	(bitwise)	[2442], [2443] <3> [2475] <3>	U16	-
	STW2	Control word 2	3	(bitwise)	[2444] [2445]	U16	-
	NSOLL_A	Speed setpoint A (16-bit)	5	p1070 p1155	[3030.2] [3080.4] <3>	I16	4000 hex ≙ p2000
	NSOLL_B	Speed setpoint B (32-bit)	7	p1070 p1155 p1430 <3>	[3030.2] [3080.4] [3090.8] <3>	I32	4000 0000 hex ≙ p2000
<3>	G1_STW	Encoder 1 control word	9	p0480[0]	[4720]	U16	-
<3>	G2_STW	Encoder 2 control word	13	p0480[1]	[4720]	U16	-
<3>	G3_STW	Encoder 3 control word	17	p0480[2]	[4720]	U16	-
	A_DIGITAL	Digital output (16-bit)	22	(bitwise)	[2497]	U16	-
<3>	XERR	Position deviation	25	p1190	[3090.5]	I32	-
<3>	KPC	Position controller gain factor	26	p1191	[3090.5]	I32	-
	SATZANW	Pos block selection	32	(bitwise)	[2476]	U16	-
	MDI_TARPOS	MDI position	34	p2642	[3618]	I32	1 hex ≙ 1 LU
	MDI_VELOCITY	MDI velocity	35	p2643	[3618]	I32	1 hex ≙ 1000 LU/min
	MDI_ACC	MDI acceleration override	36	p2644	[3618]	I16	4000 hex ≙ 100%
	MDI_DEC	MDI deceleration override	37	p2645	[3618]	I16	4000 hex ≙ 100%
	MDI_MOD	MDI mode	38	(bitwise)	[2480]	U16	-
<4>	STW2_ENC	Control word 2 ENCODER	80	(bitwise)	[2433]	U16	-

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS0 are automatically set.
<2> Data type according to to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<3> Only for SINAMICS S120.
<4> Only for ENCODER.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_CX32, CU_G, CU_S, ENC, S_INF, SERVO, VECTOR					fp_2439_54_eng.vsd	Function diagram	- 2439 -
PROFIdrive - PZD receive signals, interconnection, profile-specific					27.06.13 V04.07.00	S120/S150/G130/G150	

PROFIdrive sampling time



Signal receivers for PZD receive signals

	Signal	Meaning	PROFIdrive Signal No.	<1> Interconnection parameter	Function diagram	<2> Data type	Scaling
<3>	MOMRED	Torque reduction	101	p1542	[5610.2]	I16	4000 hex ≙ p2003
<3>	M_VST	Torque pre-control value	112	p1513[0]	[5060]	I16	4000 hex ≙ p2003
<3>	DSC_STW	DSC control word	114	p1194	[3090]	U16	
<3>	T_SYMM	DSC Symmetrizing time constant	115	p1195	[3090]	U16	
<4>	MT_STW	Measuring probe control word	130	p0682	-	U16	
<4>	NOCKEN1_ZS_F	Cam_0 switching instant for a falling edge	169	p0715[0]	-	U16	
<4>	NOCKEN1_ZS_S	Cam_0 switching instant for a rising edge	170	p0714[0]	-	U16	
<4>	NOCKEN2_ZS_F	Cam_1 switching instant for a falling edge	171	p0715[1]	-	U16	
<4>	NOCKEN2_ZS_S	Cam_1 switching instant for a rising edge	172	p0714[1]	-	U16	
<4>	NOCKEN3_ZS_F	Cam_2 switching instant for a falling edge	173	p0715[2]	-	U16	
<4>	NOCKEN3_ZS_S	Cam_2 switching instant for a rising edge	174	p0714[2]	-	U16	
<4>	NOCKEN4_ZS_F	Cam_3 switching instant for a falling edge	175	p0715[3]	-	U16	
<4>	NOCKEN4_ZS_S	Cam_3 switching instant for a rising edge	176	p0714[3]	-	U16	
<4>	NOCKEN5_ZS_F	Cam_4 switching instant for a falling edge	177	p0715[4]	-	U16	
<4>	NOCKEN5_ZS_S	Cam_4 switching instant for a rising edge	178	p0714[4]	-	U16	
<4>	NOCKEN6_ZS_F	Cam_5 switching instant for a falling edge	179	p0715[5]	-	U16	
<4>	NOCKEN6_ZS_S	Cam_5 switching instant for a rising edge	180	p0714[5]	-	U16	
<4>	NOCKEN7_ZS_F	Cam_6 switching instant for a falling edge	181	p0715[6]	-	U16	
<4>	NOCKEN7_ZS_S	Cam_6 switching instant for a rising edge	182	p0714[6]	-	U16	
<4>	NOCKEN8_ZS_F	Cam_7 switching instant for a falling edge	183	p0715[7]	-	U16	
<4>	NOCKEN8_ZS_S	Cam_7 switching instant for a rising edge	184	p0714[7]	-	U16	
<4>	POS_STW	Pos control word	203	(bitwise)	[2462]	U16	
<4>	OVERRIDE	Pos velocity override	205	p2646	[3630]	I16	4000 hex ≙ 100%
<4>	POS_STW1	Pos control word 1	220	(bitwise)	[2463]	U16	
<4>	POS_STW2	Pos control word 2	222	(bitwise)	[2464]	U16	
<4>	MDI_MODE	Pos MDI mode	229	p2654	[3620]	U16	
	A_DIGITAL_1	Digital output (16 bit)	307	(bitwise)	[2499]	U16	
<4>	M_LIM	Torque limit	310	p1503/p1552/p1554	-	U16	
<4>	M_ADD	Additional torque	311	p1495	-	U16	
	E_STW1	Control word 1 for Active Infeed (ALM, SMART)	320	(bitwise)	[2447]	U16	
	STW1_BM	Control word 1, variant for BM	322	(bitwise)	[2425]	U16	
	STW2_BM	Control word 2, variant for BM	324	(bitwise)	[2426]	U16	
	E_STW1_BM	Control word 1 for Active Infeed	326	(bitwise)	[2427]	U16	
	CU_STW1	Control word 1 for Control Unit	500	(bitwise)	[2495]	U16	

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS0 are automatically set.
<2> Data type according to to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<3> Only for S120.
<4> Only for S120/S150.

1	2	3	4	5	6	7	8

DO: A_INF, B_INF, CU_CX32, CU_G, CU_S, S_INF, SERVO, VECTOR	fp_2440_54_eng.vsd	Function diagram	- 2440 -
PROFIdrive - PZD receive signals, interconnection, manufacturer specific	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-30 2440 – PZD receive signals interconnection, manufacturer-specific

Fig. 3-31 2441 – STW1 control word interconnection (p2038 = 2)

PROFIdrive sampling time

Signal targets for STW1 in Interface Mode VIK-NAMUR (p2038 = 2) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	= ON (pulses can be enabled) **0 = OFF1** (braking with ramp-function generator, then pulse suppression & ready for switching on)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	**1 = No OFF2** (enable is possible) <3> 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	**1 = No OFF3** (enable possible) <3> 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	**1 = Enable operation** (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	**1 = Operating condition** (the ramp-function generator can be enabled) 0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	**1 = Enable the ramp-function generator** 0 = Stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	**1 = Enable setpoint** 0 = Inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	**= 1. Acknowledge faults**	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	**Reserved**	-	-	-	-
STW1.9	**Reserved**	-	-	-	-
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	**1 = Direction reversal**	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	**1 = Unconditionally open the holding brake**	p0855[0] = r2090.12	[2501.3]	[2701]	-
STW1.13	**Reserved**	-	-	-	-
STW1.14	**Reserved**	-	-	-	-
STW1.15	**1 = Command Data Set selection CDS bit 0**	<4> p0810[0] = 2090.15	-	[8560]	-

<1> Used in telegram 20.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).
<3> OC = Operating condition.
<4> Interconnection is not disabled.

1	2	3	4	5	6	7	8

DO: VECTOR	fp_2441_54_eng.vsd	Function diagram	- 2441 -
PROFIdrive - STW1 control word interconnection (p2038 = 2)	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-32 2442 – STW1 control word interconnection (p2038 = 0)

Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0) <1>

PROFIdrive sampling time

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	**0 = OFF1** (braking with ramp-function generator, then pulse suppression & ready for switching on)	p0840[0] = r2090.0	[2501.3]	[2610]	-
STW1.1	**1 = No OFF2** (enable is possible) 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2501.3]	[2610]	-
STW1.2	**1 = No OFF3** (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2501.3]	[2610]	-
STW1.3	**1 = Enable operation** (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-
STW1.4	**1 = Operating condition** (the ramp-function generator can be enabled) 0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-
STW1.5	**1 = Continue ramp-function generator** 0 = Freeze ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-
STW1.6	**1 = Enable setpoint** 0 = Inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-
STW1.7	**= 1. Acknowledge faults**	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	**Reserved**	-	-	-	-
STW1.9	**Reserved**	-	-	-	-
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	**1 = Setpoint inversion** <3>	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	**1 = Unconditionally open the holding brake**	p0855[0] = r2090.12	[2501.3]	[2701]	-
STW1.13	**1 = Motorized potentiometer setpoint raise** <3>	p1035[0] = r2090.13	[2505.3]	[3020]	-
STW1.14	**1 = Motorized potentiometer setpoint lower** <3>	p1036[0] = r2090.14	[2505.3]	[3020]	-
STW1.15	**Reserved**	-	-	-	-

<1> Used in telegrams 1, 2, 3, 4, 5, 6 <5>, 352.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).
<3> Only for "expanded setpoint channel" and "extended ramp-function generator".
<4> OC = Operating condition.
<5> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2442_54_eng.vsd	Function diagram	- 2442 -
PROFIdrive - STW1 control word interconnection (p2038 = 0)	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-33 2444 – STW2 control word interconnection (p2038 = 0)

PROFIdrive sampling time

Signal targets for STW2 in Interface Mode SINAMICS (p2038 = 0) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW2.0	**Drive data set selection DDS, bit 0**	p0820[0] = r2093.0 <4> r2092.0	-	[8565]	-
STW2.1	**Drive data set selection DDS, bit 1**	p0821[0] = r2093.1 <4> r2092.1	-	[8565]	-
STW2.2	**Drive data set selection DDS, bit 2**	p0822[0] = r2093.2 <4> r2092.2	-	[8565]	-
STW2.3	**Drive data set selection DDS, bit 3**	p0823[0] = r2093.3 <4> r2092.3	-	[8565]	-
STW2.4	**Drive data set selection DDS, bit 4**	p0824[0] = r2093.4 <4> r2092.4	-	[8565]	-
STW2.5	**Reserved**	-	-	-	-
STW2.6	**Reserved**	-	-	-	-
STW2.7	**1 = Parking axis**	p0897 = r2093.7 <4> r2092.7	-	-	-
STW2.8	**1 = Traverse to fixed endstop** <2> <3> <5>	p1545[0] = r2093.8	[2520.2]	[8012]	-
STW2.9	**Reserved**	-	-	-	-
STW2.10	**Reserved**	-	-	-	-
STW2.11	**= Motor changeover, feedback Signal**	p0828[0] = r2093.11 <4> r2092.11	-	-	-
STW2.12	**Master sign-of-life, bit 0** <5>	p2045 = r2050[3] <4> r2050[2]	-	[2410]	-
STW2.13	**Master sign-of-life, bit 1** <5>				
STW2.14	**Master sign-of-life, bit 2** <5>				
STW2.15	**Master sign-of-life, bit 3** <5>				

<1> Used in telegrams 2, 3, 4, 5, 6, 9, 110 and 111. <3> <2> Not for telegrams 9, 110 and 111. <3> Only for SINAMICS S120. <4> Only for telegram 9. <5> Not for Vector U/f.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2444_54_eng.vsd	Function diagram	- 2444 -
PROFIdrive - STW2 control word interconnection (p2038 = 0)	27.06.13 V04.07.00	S120/S150/G130/G150	

PROFIdrive sampling time

Signal targets for E_STW1

<1> <7>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word			[Function diagram] signal target			Inverted
			A_INF	B_INF <6>	S_INF <5>	A_INF	B_INF <6>	S_INF <5>	
STW1.0	**= ON** (close pre-charging/line contactor, pulses can be enabled) 0 = OFF1 (reduce Vdc along a ramp, suppress pulse and open pre-charging/line contactor)	p0840[0] = r2090.0	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.1	**1 = No OFF2 (enable is possible)** 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[8920.3]	[8720.3]	[8820.3]	[8932]	[8732]	[8832]	-
STW1.2	**Reserved**		-	-	-	-	-	-	-
STW1.3	**1 = Enable operation (pulses can be enabled)** 0 = Inhibit operation (suppress pulses) <3>	p0852[0] = r2090.3	[8920.3]	-	[8820.3]	[8932]	-	[8832]	-
STW1.4	**Reserved**	-	-	-	-	-	-	-	-
STW1.5	**1 = Infeed, inhibit motoring operation** <4>	p3532= r2090.5	[8920.3]	-	-	[8920]	-	-	-
STW1.6	**1 = Infeed, inhibit regenerative operation** <3>	p3533= r2090.6	[8920.3]	-	[8820.3]	[8920]	-	[8820]	-
STW1.7	**= Acknowledge faults**	p2103[0] = r2090.7	[2546.3]			[8060]			-
STW1.8	**Reserved**	-	-	-	-	-	-	-	-
STW1.9	**Reserved**	-	-	-	-	-	-	-	-
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[8920.3]	[8720.3]	[8820.3]	[8920]	[8720]	[8820]	-
STW1.11	**Reserved**	-	-	-	-	-	-	-	-
STW1.12	**Reserved**	-	-	-	-	-	-	-	-
STW1.13	**Reserved**	-	-	-	-	-	-	-	-
STW1.14	**Reserved**	-	-	-	-	-	-	-	-
STW1.15	**Reserved**	-	-	-	-	-	-	-	-

<1> Used in telegram 370.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).
<3> Only for A_INF, S_INF
<4> Only for A_INF
<5> B_INF and S_INF only for S120.
<6> Only for S120 and G150
<7> Not for G130.

1	2	3	4	5	6	7	8

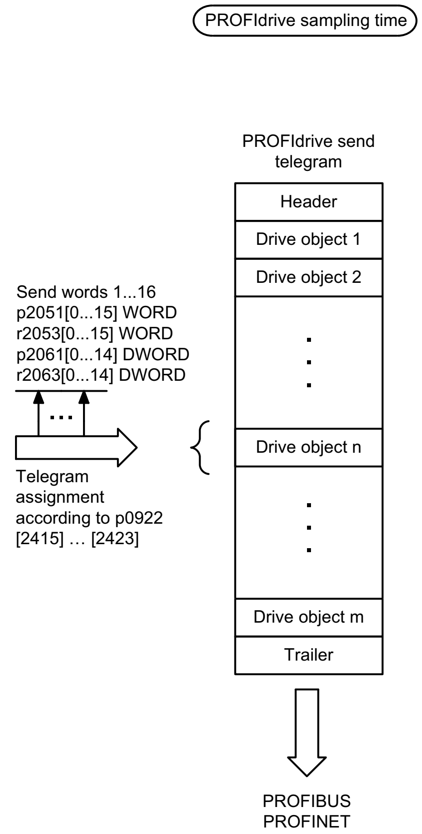
DO: A_INF, B_INF, S_INF	fp_2447_54_eng.vsd	Function diagram	- 2447 -
PROFIdrive - E_STW1 control word infeed interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-34 2447 – E_STW1 control word infeed interconnection

Fig. 3-35 2449 – PZD send signals interconnection, profile-specific

Signal sources for PZD send signals <1>

	Signal	Description	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type	Scaling
	ZSW1	Status word 1	2	r2089[0]	[2452], [2453], [2479] <2>	U16	-
	ZSW2	Status word 2	4	r2089[1]	[2454], [2455] <2>	U16	-
	NIST_A	Speed setpoint A (16 bit)	6	r0063 SERVO r0063[0] VECTOR r0061 ENCODER	[4710] <2> [4715] [4710]	I16	4000 hex ≙ p2000
	NIST_B	Speed setpoint B (32 bit)	8	r0063 SERVO r0063[0] VECTOR r0061 ENCODER	[4710] <2> [4715] [4710]	I32	4000 0000 hex ≙ p2000
<2>	G1_ZSW	Encoder 1 status word	10	r0481[0]	[4730]	U16	-
<2>	G1_XIST1	Encoder 1 actual position 1	11	r0482[0]	[4704]	U32	-
<2>	G1_XIST2	Encoder 1 actual position 2	12	r0483[0]	[4704]	U32	-
<2>	G2_ZSW	Encoder 2 status word	14	r0481[1]	[4730]	U16	-
<2>	G2_XIST1	Encoder 2 actual position 1	15	r0482[1]	[4704]	U32	-
<2>	G2_XIST2	Encoder 2 actual position 2	16	r0483[1]	[4704]	U32	-
<2>	G3_ZSW	Encoder 3 status word	18	r0481[2]	[4730]	U16	-
<2>	G3_XIST1	Encoder 3 actual position 1	19	r0482[2]	[4704]	U32	-
<2>	G3_XIST2	Encoder 3 actual position 2	20	r0483[2]	[4704]	U32	-
	E_DIGITAL	Digital inputs	21	r2089[2]	[2459]	U16	-
	E_ANALOG	Analog inputs	23	p2051[20]	-	U16	-
<2>	XIST_A	Position actual value A	28	r2521[0]	[4010]	I32	1 hex ≙ 1 LU
<2>	AKTSATZ	Pos selected block	33	r2670	[3650]	U16	-
	IAIST_GLATT	Absolute actual current, smoothed	51	r0068[1]	[6714]	I16	4000 hex ≙ p2002
	ITIST_GLATT	Current actual value, torque-generating	52	r0078[1]	[6714]	I16	4000 hex ≙ p2002
	MIST_GLATT	Actual torque smoothed	53	r0080[1]	[6714]	I16	4000 hex ≙ p2003
	PIST_GLATT	Power factor, smoothed	54	r0082[1]	[6714]	I16	4000 hex ≙ p2004
	NIST_A_GLATT	Actual speed, smoothed	57	r0063[1]	[4715]	I16	4000 hex ≙ p2000
	MELD_NAMUR	VIK-NAMUR message bit bar	58	r3113	-	U16	-
	IAIST	Absolute actual current	59	r0068[0]	[6714]	I16	4000 hex ≙ p2002
	MIST	Actual torque	60	r0080[0]	[6714]	I16	4000 hex ≙ p2003
<3>	ZSW2_ENC	Status word 2 ENCODER	81	(bitwise)	[2434]	U16	-



<1> Data type according to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<2> Only for SINAMICS S120.
<3> Only for ENCODER.

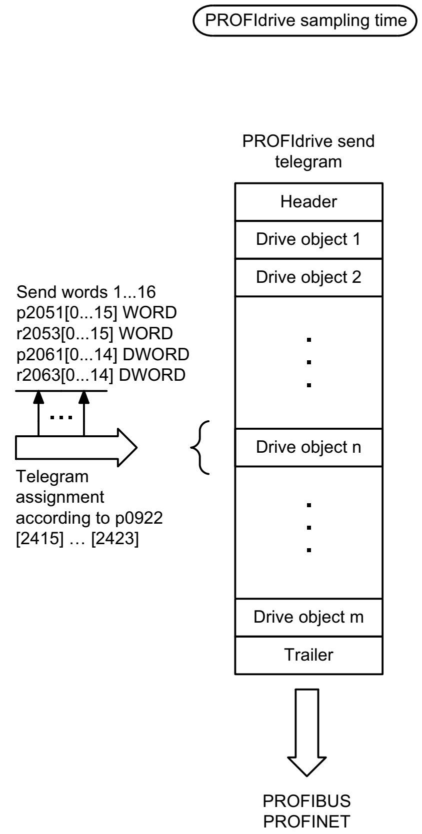
1	2	3	4	5	6	7	8

DO: A_INF, B_INF, ENC, S_INF, SERVO, VECTOR	fp_2449_54_eng.vsd	Function diagram	- 2449 -
PROFIdrive - PZD send signals interconnection, profile-specific	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-36 2450 – PZD send signals interconnection, manufacturer-specific

Signal sources for PZD send signals

	Signal	Description	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type <1>	Scaling
	MELDW	Message word	102	r2089[2]	[2456]	U16	-
	MSOLL_GLATT	Total speed setpoint smoothed	120	r0079[1]	[5610] <2>	I16	4000 hex ≙ p2003
	AIST_GLATT	Torque utilization smoothed	121	r0081	[8012]	I16	4000 hex ≙ 100%
	MT_ZSW	Measuring probe status word	131	r0688	-	U16	-
	MT1_ZS_F	Measuring probe 1 measuring time falling edge	132	r0687[0]	-	U16	-
	MT1_ZS_S	Measuring probe 1 measuring time rising edge	133	r0686[0]	-	U16	-
	MT2_ZS_F	Measuring probe 2 measuring time falling edge	134	r0687[1]	-	U16	-
	MT2_ZS_S	Measuring probe 2 measuring time rising edge	135	r0686[1]	-	U16	-
	MT3_ZS_F	Measuring probe 3 measuring time falling edge	136	r0687[2]	-	U16	-
	MT3_ZS_S	Measuring probe 3 measuring time rising edge	137	r0686[2]	-	U16	-
	MT4_ZS_F	Measuring probe 4 measuring time falling edge	138	r0687[3]	-	U16	-
	MT4_ZS_S	Measuring probe 4 measuring time rising edge	139	r0686[3]	-	U16	-
	MT5_ZS_F	Measuring probe 5 measuring time falling edge	140	r0687[4]	-	U16	-
	MT5_ZS_S	Measuring probe 5 measuring time rising edge	141	r0686[4]	-	U16	-
	MT6_ZS_F	Measuring probe 6 measuring time falling edge	142	r0687[5]	-	U16	-
	MT6_ZS_S	Measuring probe 6 measuring time rising edge	143	r0686[5]	-	U16	-
	MT7_ZS_F	Measuring probe 7 measuring time falling edge	144	r0687[6]	-	U16	-
	MT7_ZS_S	Measuring probe 7 measuring time rising edge	145	r0686[6]	-	U16	-
<2>	MT8_ZS_F	Measuring probe 8 measuring time falling edge	146	r0687[7]	-	U16	-
	MT8_ZS_S	Measuring probe 8 measuring time rising edge	147	r0686[7]	-	U16	-
	MT_DIAG	Measuring probe (stage 3) diagnostics word	148	r0567	-	U16	-
	MT_ZS1	Measuring probe (stage 3) measuring time 1	149	r0565[0]	-	U16	-
	⋮	⋮	⋮	⋮	⋮	⋮	⋮
	MT_ZS16	Measuring probe (stage 3) measuring time 16	164	r0565[15]	-	U16	-
	MT_ZSB1	Measuring probe (stage 3) measuring time reference 1	165	r0566[0]	-	U16	-
	MT_ZSB2	Measuring probe (stage 3) measuring time reference 2	166	r0566[1]	-	U16	-
	MT_ZSB3	Measuring probe (stage 3) measuring time reference 3	167	r0566[2]	-	U16	-
	MT_ZSB4	Measuring probe (stage 3) measuring time reference 4	168	r0566[3]	-	U16	-
	POS_ZSW	Pos status word	204	r2683	[3645]	U16	-
	POS_ZSW1	Pos status word 1	221	r2089[3]	[2466]	U16	-
	POS_ZSW2	Pos status word 2	223	r2089[4]	[2467]	U16	-
	FAULT_CODE	Fault code	301	r2131	[8060]	U16	-
	WARN_CODE	Alarm code	303	r2132	[8065]	U16	-
	E_DIGITAL_1	Digital input (16 Bit)	307	r2089[3]	[2500]	U16	-
<2>	E_ZSW1	Status word 1 for Active Infeed	321	r2089[1]	[2457]	U16	-
	ZSW1_BM	Status word 1, variant for BM	323	r2089[0]	[2428]	U16	-
	ZSW2_BM	Status word 2, variant for BM	325	r2089[1]	[2429]	U16	-
	E_ZSW1_BM	Status word 1 for Infeed, variant for BM (ALM, BLM, SLM)	327	r2080	[2430]	U16	-
	CU_ZSW1	Status word 1 for Control Unit	501	r2089[1]	[2496]	U16	-



<1> Data type according to the PROFIdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<2> Only for SINAMICS S120.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF, SERVO, TM41, VECTOR					fp_2450_54_eng.vsd	Function diagram	- 2450 -
PROFIdrive - PZD send signals interconnection, manufacture specific					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-37 2451 – ZSW1 status word interconnection (p2038 = 2)

PROFIdrive sampling time

Signal sources for ZSW1 in Interface Mode VIK-NAMUR (p2038 = 2) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted <2>
ZSW1.0	**1 = Ready for switching on**	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	**1 = Ready for operation** (DC link loaded, pulses inhibited)	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	**1 = Operation enabled** (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	**1 = Fault present**	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	**1 = No coast down active (OFF2 inactive)**	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	**1 = No fast stop active (OFF3 inactive)**	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	**1 = Power-on inhibit active**	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	**1 = Alarm present**	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	**1 = Speed setpoint - actual value deviation within tolerance t_off**	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	**1 = Control requested** <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	**1 = f or n comparison value reached/exceeded**	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	**1 = I, M, or P limit not reached**	p2080[11] = r0056.13	[2522.7]	[6060]	✔
ZSW1.12	**Reserved**	-	-	-	-
ZSW1.13	**1 = No motor overtemperature alarm**	p2080[13] = r2135.14	[2548.7]	[8016]	✔
ZSW1.14	**1 = Motor rotates forwards (n_act ≥ 0)** **0 = Motor rotates backwards (n_act < 0)**	p2080[14] = r2197.3	[2534.7]	[8011]	-
ZSW1.15	**1 = Command Data Set selection CDS bit 0**	<4> p2080[15] = r0836.0	-	-	-

<1> Used in telegram 20.
<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)
<3> The drive object is ready to accept data.
<4> Interconnection is not disabled.

1	2	3	4	5	6	7	8

DO: VECTOR	fp_2451_54_eng.vsd	Function diagram	- 2451 -
PROFIdrive - ZSW1 status word interconnection (p2038 = 2)	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-38 2452 – ZSW1 status word interconnection (p2038 = 0)

PROFIdrive Abtastzeit

Signal sources for ZSW1 im Interface Mode SINAMICS (p2038 = 0) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
ZSW1.0	**1 = Ready for switching on**	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	**1 = Ready for operation**	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	**1 = Operation enabled**	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	**1 = Fault present**	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	**1 = No coast down active (OFF2 inactive)**	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	**1 = No fast stop active (OFF3 inactive)**	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	**1 = Switching on inhibited active**	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	**1 = Alarm present**	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	**1 = Speed setpoint - actual value deviation within tolerance t_off**	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	**1 = Control requested** <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	**1 = f or n comparison value reached/exceeded**	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	**1 = I, M, or P limit reached** <4>	p2080[11] = r1407.7	[2522.7]	[5610] [6060] <5>	✔
ZSW1.12	**1 = Open the holding brake**	p2080[12] = r0899.12	[2503.7]	[2701]	-
ZSW1.13	**1 = No motor overtemperature alarm**	p2080[13] = r2135.14	[2548.7]	[8016]	✔
ZSW1.14	**1 = Motor rotates forwards (n_act 0)** **0 = Motor rotates backwards (n_act < 0)**	p2080[14] = r2197.3	[2534.7]	[8010]	-
ZSW1.15	**1 = No alarm, thermal overload, power unit**	p2080[15] = r2135.15	[2548.7]	[8014]	✔

<1> Used in telegrams 1, 2, 3, 4, $\overbrace{5, 6}^{<5>}$, 352.
<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)
<3> The drive object is ready to accept data.
<4> Not for VECTOR U/f.
<5> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2452_54_eng.vsd	Function diagram	- 2452 -
PROFIdrive - ZSW1 status word interconnection (p2038 = 0)	26.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-39 2454 – ZSW2 status word interconnection (p2038 = 0)

Signal sources for ZSW2 in Interface Mode SINAMICS (p2038 = 0) <1>

PROFIdrive sampling time

Signal	Meaning	Interconnection parameters	[Function diagram] internal status word	[Function diagram] signal source	Inverted
ZSW2.0	**1 = Drive data set DDS effective, bit 0**	p2081[0] = r0051.0	-	[8565]	-
ZSW2.1	**1 = Drive data set DDS effective, bit 1**	p2081[1] = r0051.1	-	[8565]	-
ZSW2.2	**1 = Drive data set DDS effective, bit 2**	p2081[2] = r0051.2	-	[8565]	-
ZSW2.3	**1 = Drive data set DDS effective, bit 3**	p2081[3] = r0051.3	-	[8565]	-
ZSW2.4	**1 = Drive data set DDS effective, bit 4**	p2081[4] = r0051.4	-	[8565]	-
ZSW2.5	**1 = Alarm class bit 0**	p2081[5] = r2139.11	-	[2548]	-
ZSW2.6	**1 = Alarm class bit 1**	p2081[6] = r2139.12	-	[2548]	-
ZSW2.7	**1 = Parking axis active**	p2081[7] = r0896.0	-	-	-
<3> <4> ZSW2.8	**1 = Traverse to fixed endstop**	p2081[8] = r1406.8	-	[2520]	-
ZSW2.9	**Reserved**	-	-	-	-
ZSW2.10	**1 = Pulses enabled**	p2082[13] = r0899.11	[2503.7]	[2610]	-
ZSW2.11	**1 = Motor data set changeover active**	p2081[11] = r0835.0	-	-	-
<2> <4> ZSW2.12	**Slave sign-of-life bit 0**	Implicitly interconnected	-	-	-
ZSW2.13	**Slave sign-of-life bit 1**				
ZSW2.14	**Slave sign-of-life bit 2**				
ZSW2.15	**Slave sign-of-life bit 3**				

<1> Used in telegrams 2, 3, 4, $\overbrace{\text{5, 6, 9, 110, 111}}^{<3>}$.
<2> These signals are automatically interconnected for clock-cycle synchronous operation.
<3> Only for SINAMICS S120.
<4> Not for Vector U/f.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2454_54_eng.vsd	Function diagram	- 2454 -
PROFIdrive - ZSW2 status word interconnection (p2038 = 0)	27.06.13 V04.07.00	S120/S150/G130/G150	

PROFIdrive sampling time

Signal sources for E_ZSW1

<1> <5>

Signal	Meaning	Interconnection parameters	[Function diagram] signal source			[Function diagram] internal status word			Inverted
			A_INF	B_INF <4>	S_INF <3>	A_INF	B_INF <4>	S_INF <3>	
ZSW1.0	**1 = Ready for switching on**	p2080[0] = r0899.0	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.1	**1 = Ready for operation**	p2080[1] = r0899.1	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.2	**1 = Operation enabled**	p2080[2] = r0899.2	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.3	**1 = Fault present**	p2080[3] = r2139.3	[8060]			[2548.7]			-
ZSW1.4	**1 = No OFF2 effective**	p2080[4] = r0899.4	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.5	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.6	**1 = Switching on inhibited**	p2080[6] = r0899.6	[8932]	[8732]	[8832]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.7	**1 = Alarm present**	p2080[7] = r2139.7	[8065]			[2548.7]			-
ZSW1.8	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.9	**1 = PLC requests control** <2>	p2080[9] = r0899.9	[8926]	[8726]	[8826]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.10	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.11	**1 = Pre-charging completed**	p2080[11] = r0899.11	[8950]	[8750]	[8850]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.12	**1 = Line contactor closed**	p2080[12] = r0899.12	[8934]	[8734]	[8834]	[8926.7]	[8726.7]	[8826.7]	-
ZSW1.13	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.14	**Reserved**	-	-	-	-	-	-	-	-
ZSW1.15	**Reserved**	-	-	-	-	-	-	-	-

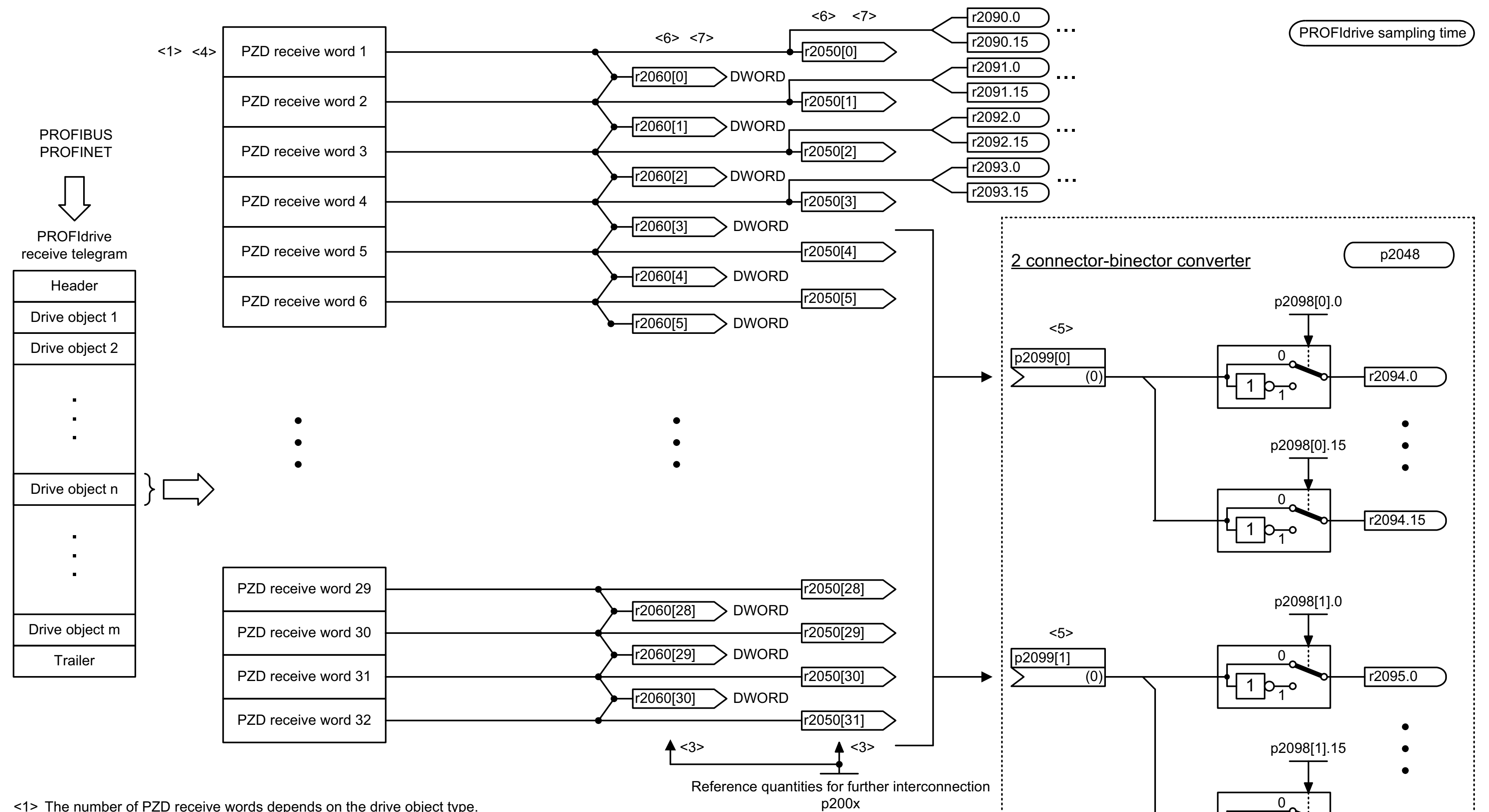
<1> Used in telegram 370.
<2> The drive object is ready to accept data.
<3> Only for S120.
<4> Only for S120 and G150.
<5> Not for G130.

1	2	3	4	5	6	7	8

DO: A_INF, B_INF, S_INF	fp_2457_54_eng.vsd	Function diagram	- 2457 -
PROFIdrive - E_ZSW1 status word infeed interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-40 2457 – E_ZSW1 status word, infeed interconnection

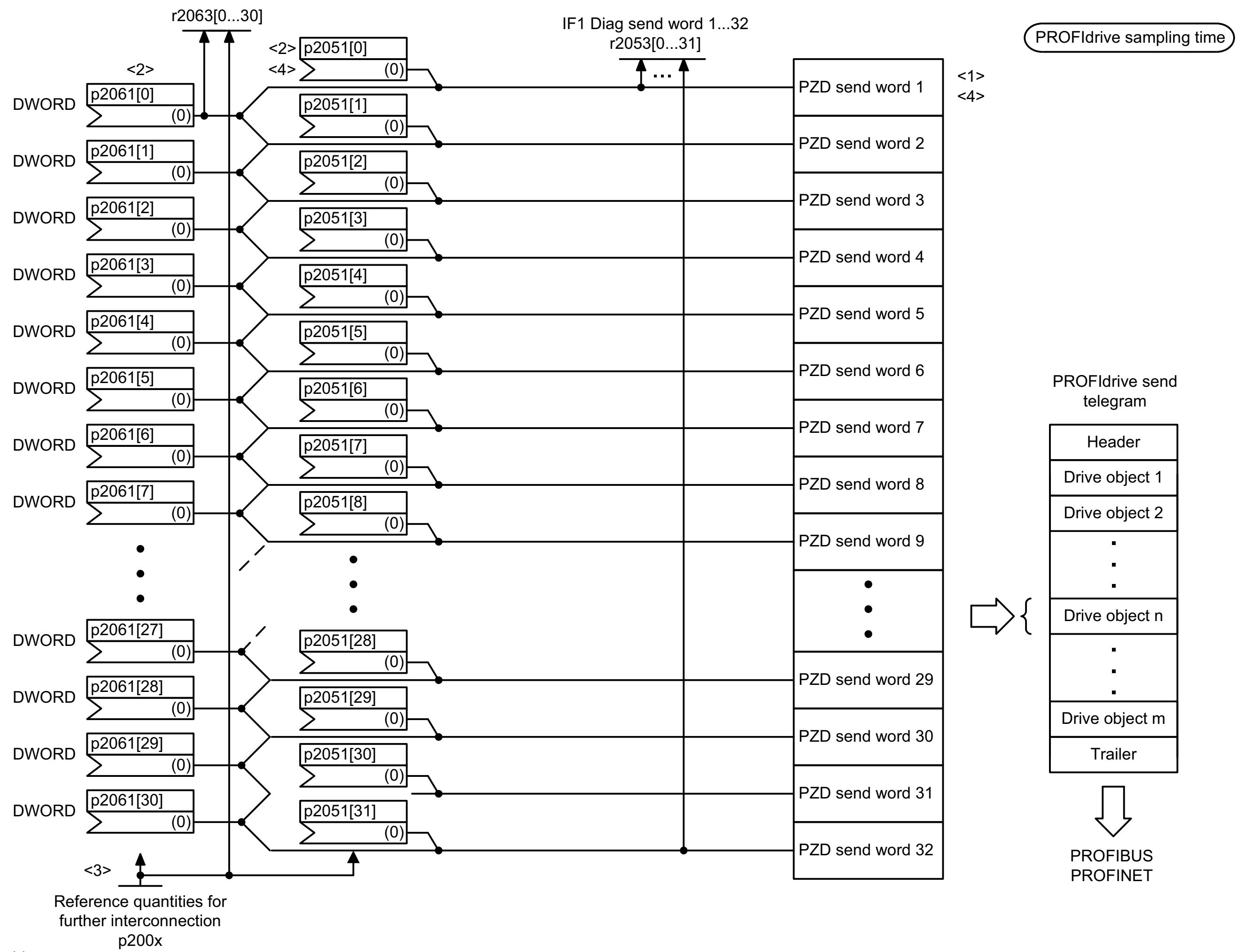
Fig. 3-41 2468 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)



<1> The number of PZD receive words depends on the drive object type.
<2> The connector-binector converter only converts the lower 16 bits irrespective of the input variable.
<3> The following representation applies for words: 4000 hex = 100 % for double words 4000 0000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100° C -> 100 % = 4000 hex or 4000 0000 hex; 0° C -> 0 %.
<4> In order to maintain the PROFIdrive profile, receive word 1 must be used as control word (STW1) (due to bit 10 "control requested").
<5> Using the connector-binector converters, the bits can be extracted from two of the PZD receive words 5 to 32 and used as binectors.
<6> Every PZD word can be assigned a word or a double word. Only one of the 2 interconnection parameters r2050 or r2060 can have a value ≠ 0 for a PZD word.
<7> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.

1	2	3	4	5	6	7	8
DO: ENC, SERVO, TM41, VECTOR					fp_2468_54_eng.vsd	Function diagram	- 2468 -
PROFIdrive - IF1 receive telegram, free interconnection via BICO (p0922 = 999)					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-42 2470 – IF1 send telegram, free interconnection via BICO (p0922 = 999)



<1> The number of PZD send words depends on the drive object type.

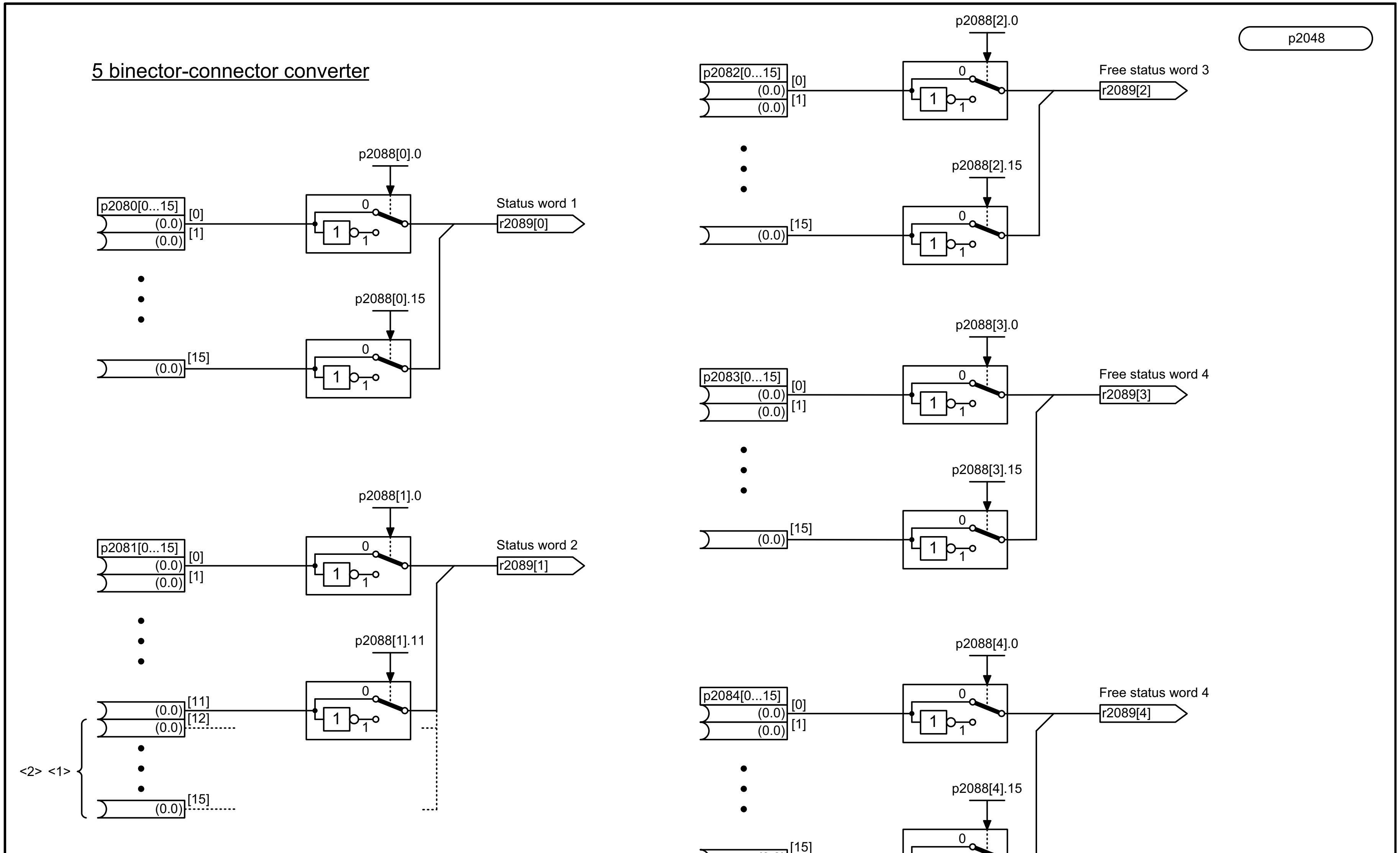
<2> A PZD send word can either be supplied via connector input p2051[x] (WORD) or via p2061[x] (DWORD). The two corresponding connector inputs cannot be interconnected.

<3> Physical word and double word values are inserted in the telegram as referenced variables. p200x apply as reference variables (telegram contents = 4000 hex or 4000 0000 hex in the case of double words, if the input variable has the value p200x).
The following applies for temperature values: 100° C -> 100 % = 4000 hex or 4000 0000 hex; 0° C -> 0%.

<4> To comply with the PROFIdrive profile, send word 1 must be used as status word 1 (ZSW1), not as DWORD.

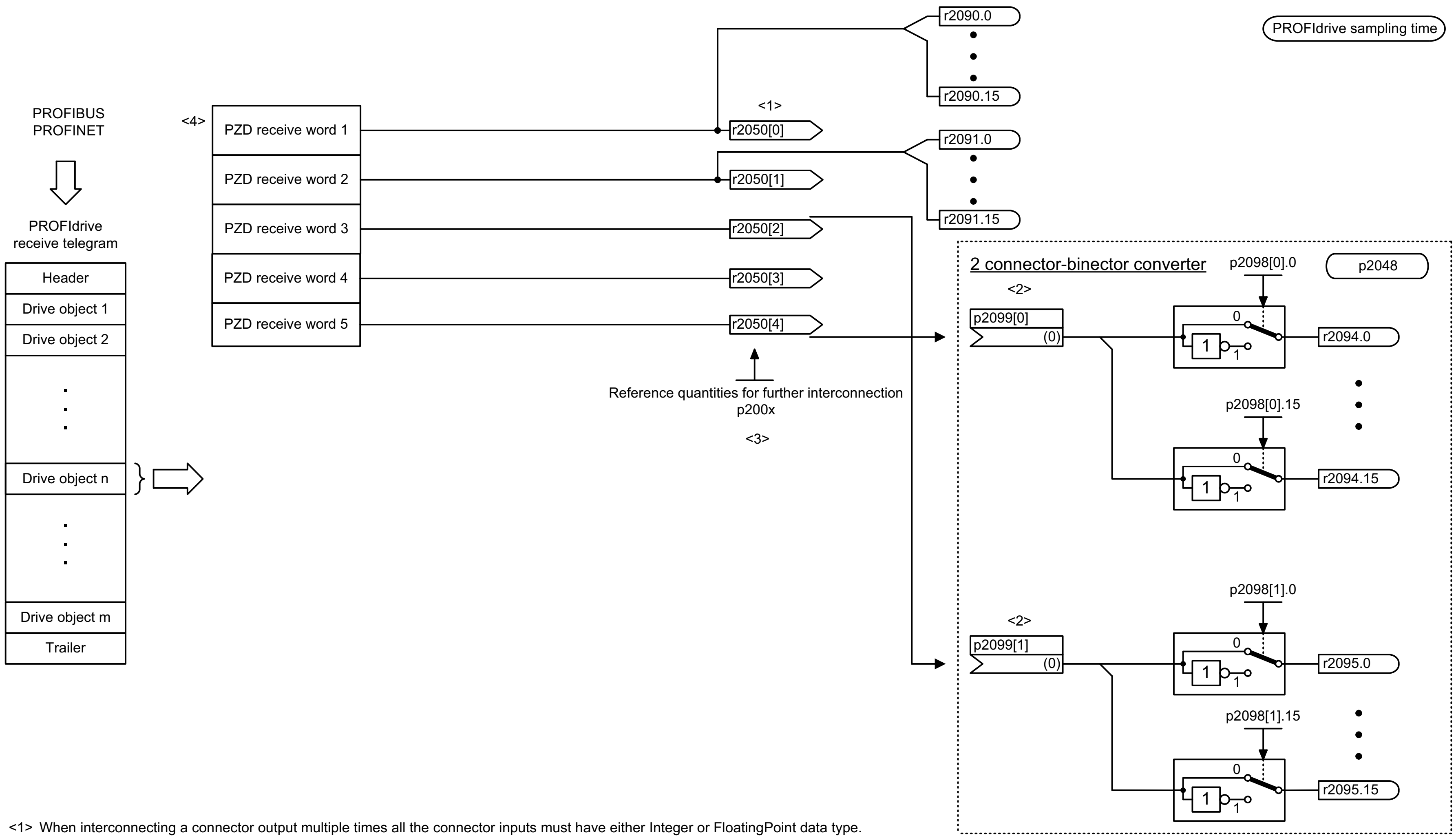
1	2	3	4	5	6	7	8
DO: ENC, SERVO, TM41, VECTOR					fp_2470_54_eng.vsd	Function diagram	- 2470 -
PROFIdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-43 2472 – IF1 status words, free interconnection



<1> For clock-cycle synchronous all drive objects, these signals must not be interconnected (slave sign-of-life).
<2> Only for SINAMICS S120.

1	2	3	4	5	6	7	8
DO: All objects					fp_2472_54_eng.vsd	Function diagram	- 2472 -
PROFIdrive - IF1 status words, free interconnection					15.01.10 V04.07.00	S120/S150/G130/G150	

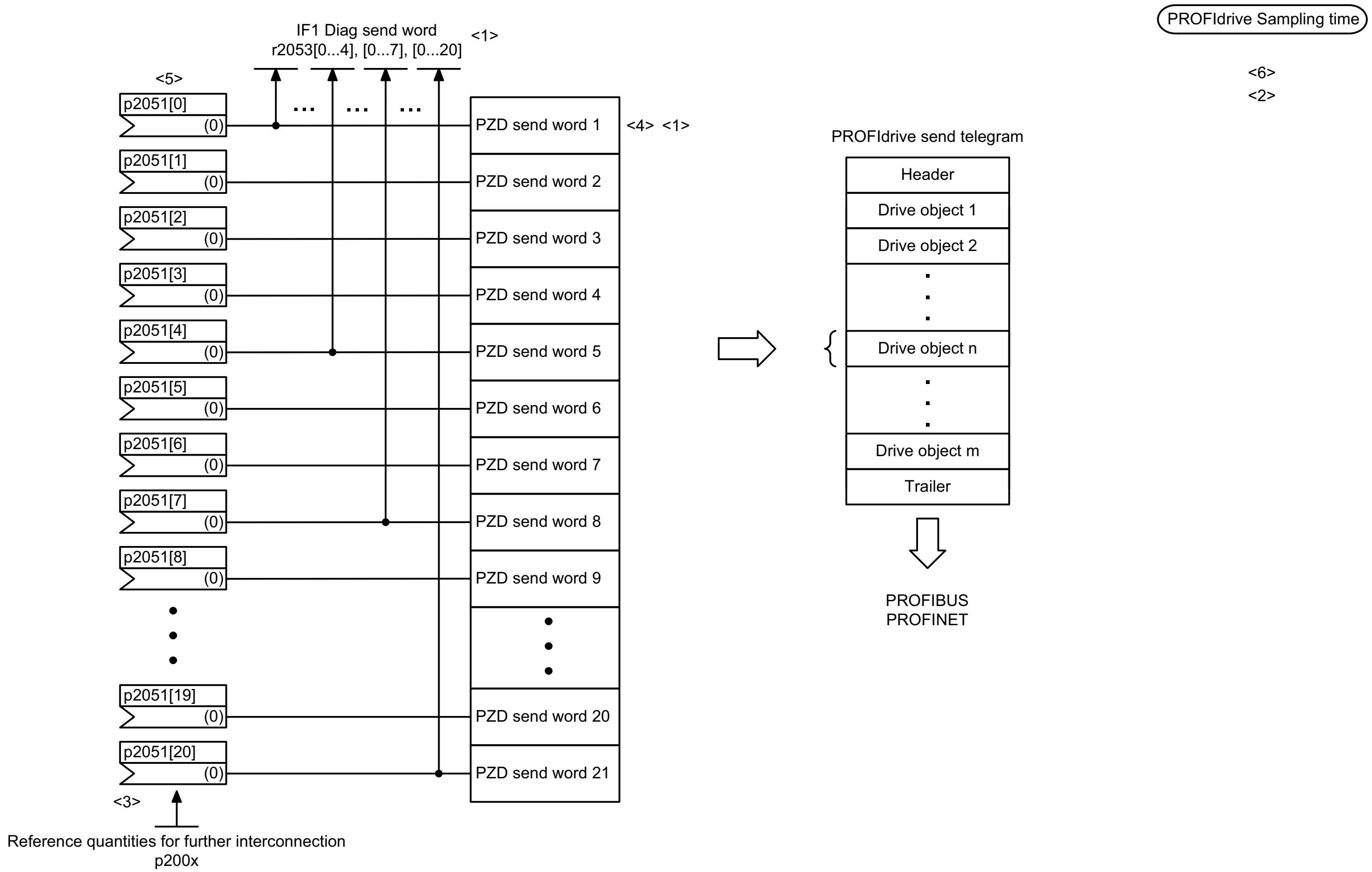


<1> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.
<2> Using the two connector-binector converters, two of the PZD receive words 3 to 5 can be converted into binectors for continued interconnection.
<3> The following representation applies for words: 4000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
<4> To comply with the PROFIdrive profile, receive word 1 for A_INF, B_INF, S_INF and CU_S must be used as control word (STW1)
(due to bit 10 "control requested").

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF, CU_G, CU_S, TB30, TM15DI_DO, TM31, TM120					fp_2481_54_eng.vsd	Function diagram	- 2481 -
PROFIdrive - IF1 receive telegram, free interconnection via BICO (p0922 = 999)					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-44 2481 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)

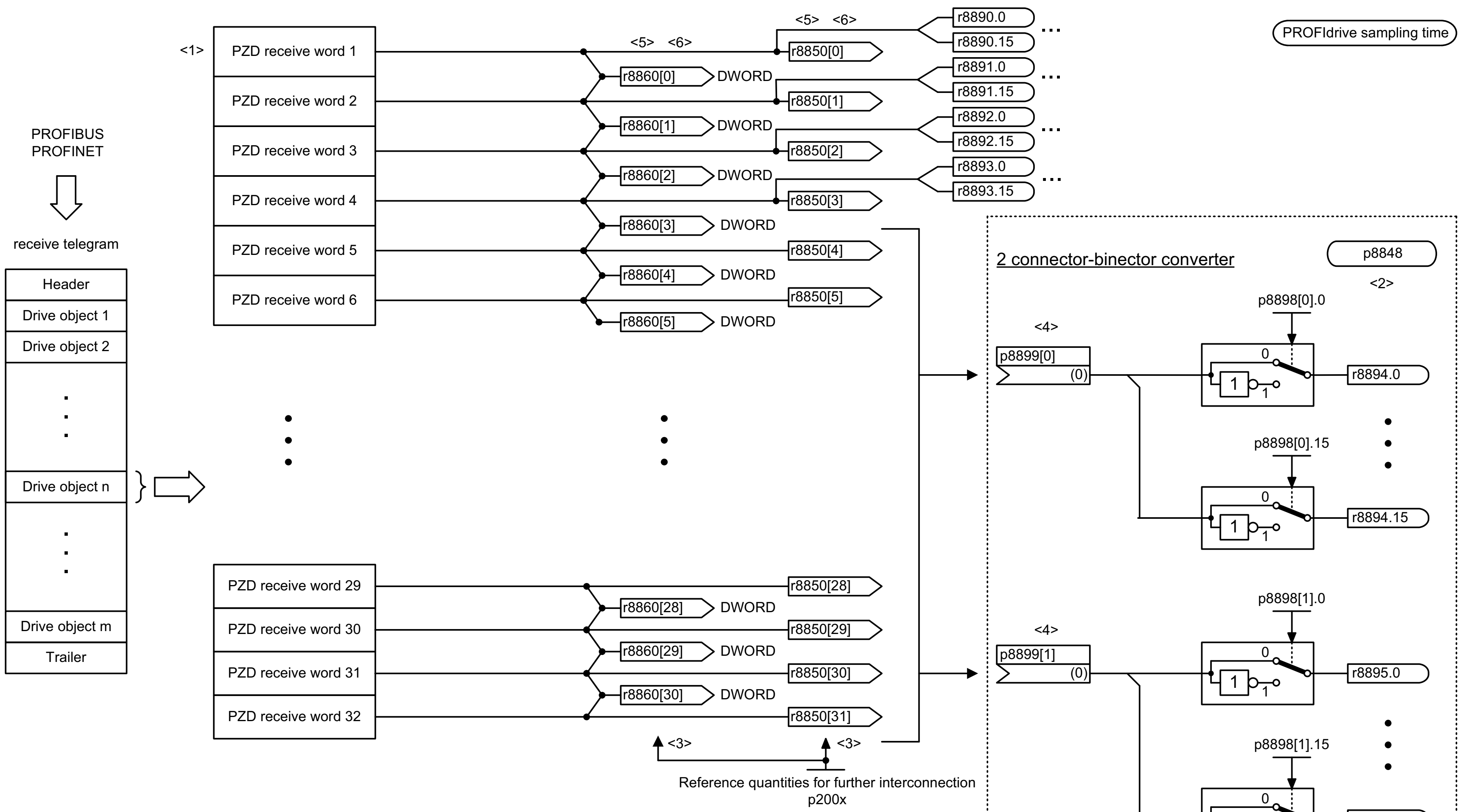
Fig. 3-45 2483 – IF1 send telegram, free interconnection via BICO (p0922 = 999)



<1> The number of PZD receive words depends on the drive object type.
<2> TM15DI_DO, TM120 not for G130/G150.
<3> The following representation applies for words: 4000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
<4> In order to maintain the PROFIdrive profile, send word 1 must be used as status word 1 (ZSW1) for A_INF, B_INF, S_INF and CU_S.
<5> Using the binector/connector converters at [2472], bits of 4 send words can be interconnected with any binectors.
<6> A_INF and S_INF not for G130/G150.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_G, CU_S, S_INF, TB30, TM15DI_DO, TM31, TM120					fp_2483_54_eng.vsd	Function diagram	- 2483 -
PROFIdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					27.06.13 V04.07.00	S120/S150/G130/G150	

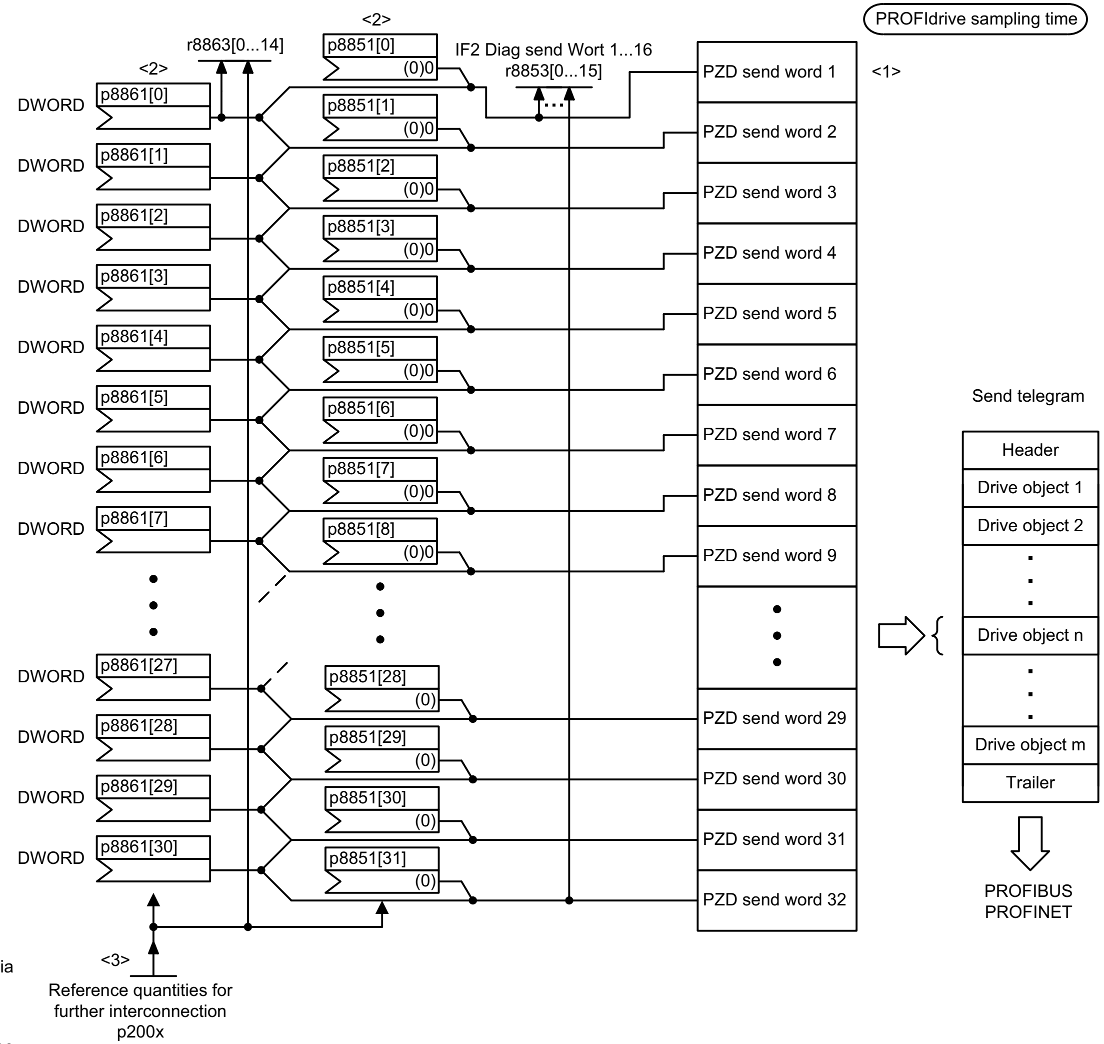
Fig. 3-46 2485 – IF2 receive telegram, free interconnection



<1> The number of PZD receive words depends on the drive object type.
<2> The connector-binector converter only converts the lower 16 bits irrespective of the input variable.
<3> The following representation applies for words: 4000 hex = 100 % for double words 40000 0000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex or 40000 0000 hex; 0 °C -> 0 %.
<4> Using the connector-binector converters, the bits can be extracted from two of the PZD receive words 5 to 16 and used as binectors.
<5> Every PZD word can be assigned a word or a double word. Only one of the 2 interconnection parameters r8850 or r8860 can have a value ≠ 0 for a PZD word.
<6> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.

1	2	3	4	5	6	7	8
DO: ENC, SERVO, TM41, VECTOR					fp_2485_54_eng.vsd	Function diagram	- 2485 -
PROFIdrive - IF2 receive telegram, free interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-47 2487 – IF2 send telegram, free interconnection



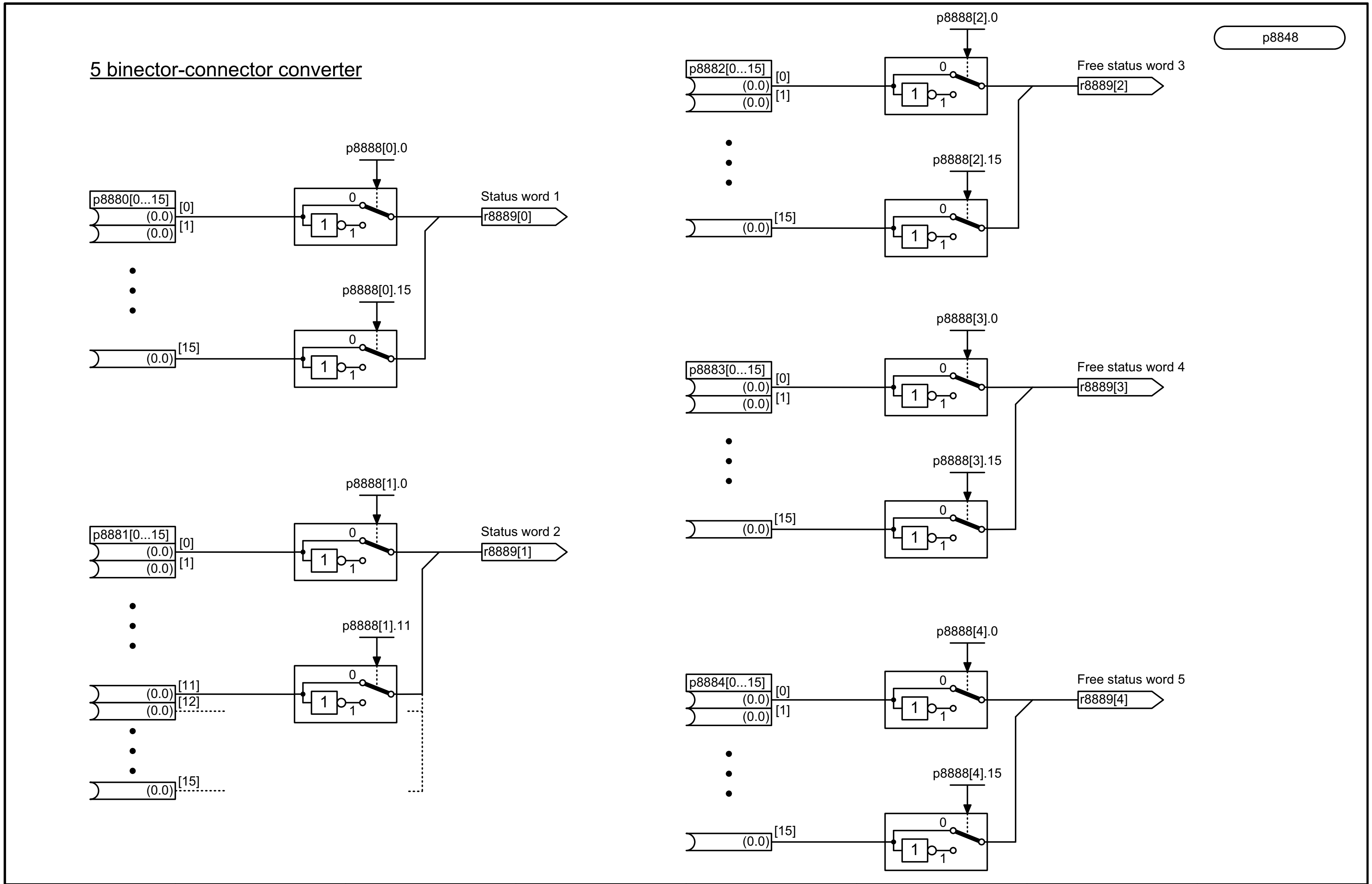
<1> The number of PZD send words depends on the drive object type.

<2> A PZD send word can either be supplied via connector input p8851[x] (WORD) or via p8861[x] (DWORD).
The two corresponding connector inputs cannot be interconnected.

<3> Physical word and double word values are inserted in the telegram as referenced variables. p200x apply as reference variables (telegram contents = 4000 hex or 4000 0000 hex in the case of double words, if the input variable has the value p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex;
0 °C -> 0% = 4000 0000 hex.

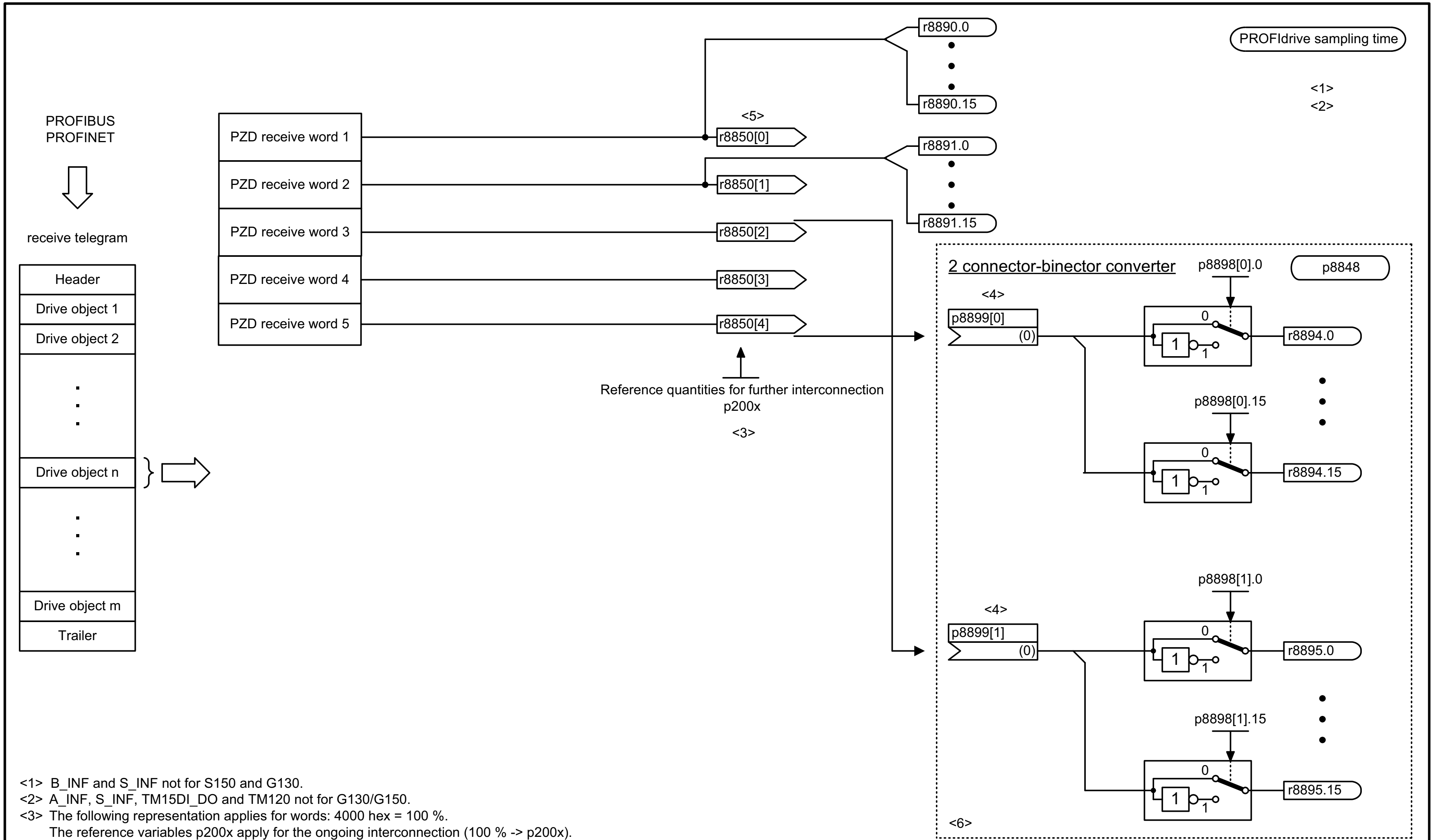
1	2	3	4	5	6	7	8
DO: ENC, SERVO, TM41, VECTOR					fp_2487_54_eng.vsd	Function diagram	- 2487 -
PROFIdrive - IF2 send telegram, free interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-48 2489 – IF2 status words, free interconnection



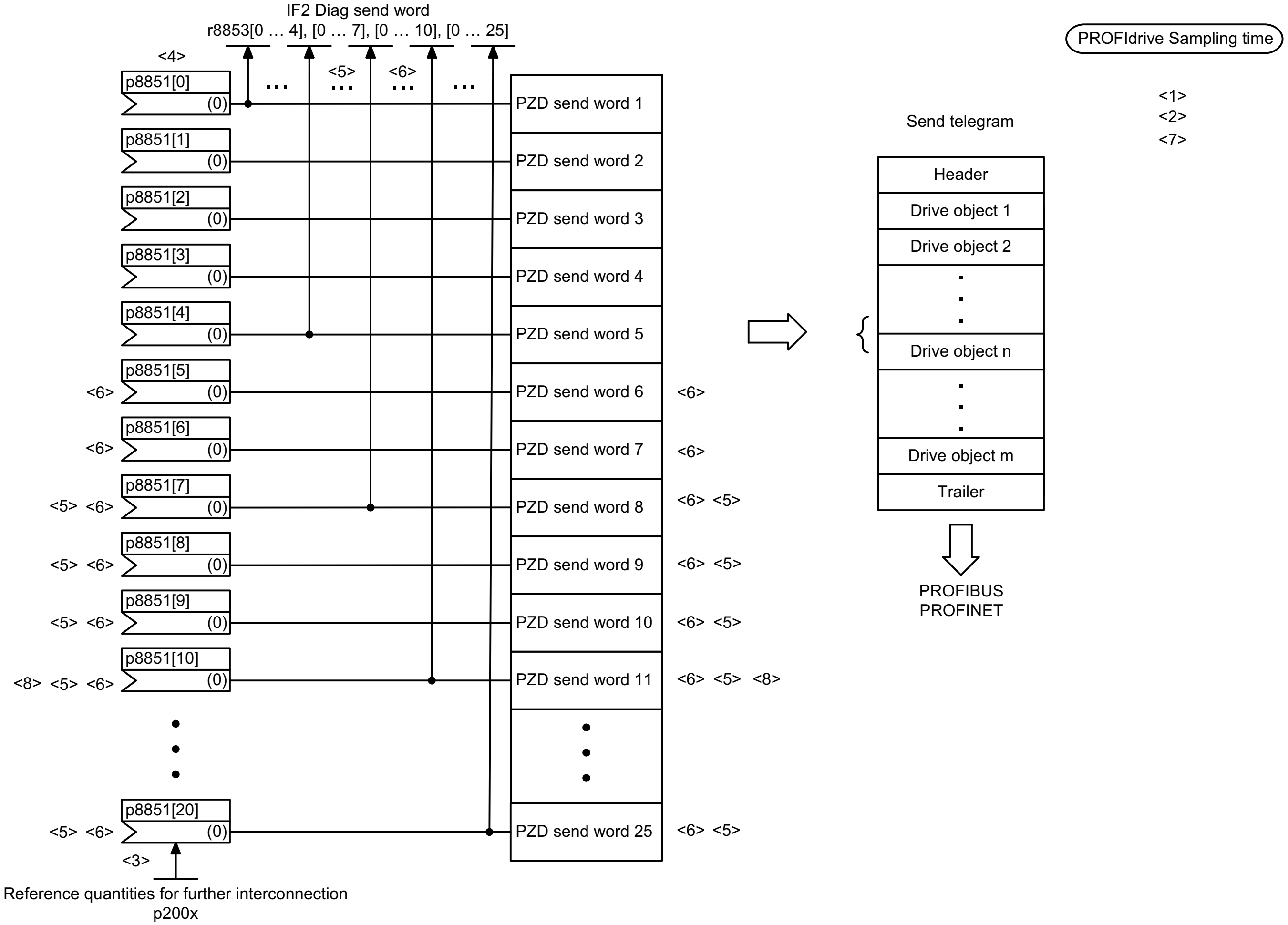
1	2	3	4	5	6	7	8
DO: A_INF, B_INF, ENC, S_INF, SERVO, VECTOR					fp_2489_54_eng.vsd	Function diagram	- 2489 -
PROFIdrive - IF2 status words, free interconnection					20.01.10 V04.07.00	S120/S150/G130/G150	

Fig. 3-49 2491 – IF2 receive telegram, free interconnection



<1> B_INF and S_INF not for S150 and G130.
<2> A_INF, S_INF, TM15DI_DO and TM120 not for G130/G150.
<3> The following representation applies for words: 4000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
<4> Using the two connector-binector converters, two of the PZD receive words 3 to 5 can be converted into binectors for continued interconnection.
<5> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.
<6> Not for TB30, TM15DI_DO, TM31 and TM120.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_G, CU_S, S_INF, TB30, TM15DI_DO, TM31, TM120					fp_2491_54_eng.vsd	Function diagram	- 2491 -
PROFIdrive - IF2 receive telegram, free interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	



<1> B_INF and S_INF not for S150 and G130.
<2> A_INF and S_INF not for G130/G150.
<3> The following representation applies for words: 4000 hex = 100 %.
The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
<4> Using the binector/connector converters at [2472], bits of 4 send words can be interconnected with any binectors.
<5> Only for CU_S and CU_G.
<6> Not for TB30, TM15DI_DO, TM31 and TM120.
<7> TM15DI_DO and TM120 not for G130/G150.
<8> Not for A_INF. B_INF, S_INF.

1	2	3	4	5	6	7	8
DO: A_INF, B_INF, CU_G, CU_S, S_INF,TB30, TM15DI_DO, TM31, TM120					fp_2493_54_eng.vsd	Function diagram	- 2493 -
PROFIdrive - IF2 send telegram, free interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-50 2493 – IF2 send telegram, free interconnection

Fig. 3-51 2495 – CU_STW1 control word 1, Control Unit interconnection

PROFIdrive sampling time

Signal targets for CU_STW1 <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
CU_STW1.0	**Central measuring probe, synchronizing signal source**	p0681[0] = r2090.0	-	-	-
CU_STW1.1	**RTC real time synchronization PING**	p3104 = r2090.1	-	-	-
CU_STW1.2	**ESR-Trigger** <2>	p0890.0 = r2090.2	-	-	-
CU_STW1.3	**Reserved**	-	-	-	-
CU_STW1.4	**Reserved**	-	-	-	-
CU_STW1.5	**Reserved**	-	-	-	-
CU_STW1.6	**Reserved**	-	-	-	-
CU_STW1.7	**1. Acknowledge faults**	p2103[0] = r2090.7	-	-	-
CU_STW1.8	**Reserved**	-	-	-	-
CU_STW1.9	**Reserved**	-	-	-	-
CU_STW1.10	**Control via PLC**	p3116 = r2090.10	-	-	-
CU_STW1.11	**Reserved**	-	-	-	-
CU_STW1.12	**Master sign-of-life bit 0**	p2045 =r2050[0]	-	-	-
CU_STW1.13	**Master sign-of-life bit 1**				
CU_STW1.14	**Master sign-of-life bit 2**				
CU_STW1.15	**Master sign-of-life bit 3**				

<1> Used in telegrams 390 to 394.
<2> Only available when the function module "extended setpoint channel" is active (r0108.9 = 1).

1	2	3	4	5	6	7	8

DO: CU_G, CU_S	fp_2495_54_eng.vsd	Function diagram	- 2495 -
PROFIdrive - CU_STW1 control word 1 Control Unit interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-52 2496 – CU_ZSW1 status word 1, Control Unit interconnection

PROFIdrive sampling time

Signal sources for CU_ZSW1 <1>

Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
CU_ZSW1.0	**Reserved**	-	-	-	-
CU_ZSW1.1	**Reserved**	-	-	-	-
CU_ZSW1.2	**Reserved**	-	-	-	-
CU_ZSW1.3	**1 = Fault present**	p2081[3] = r2139.3	-	-	-
CU_ZSW1.4	**Reserved**	-	-	-	-
CU_ZSW1.5	**Reserved**	-	-	-	-
CU_ZSW1.6	**Reserved**	-	-	-	-
CU_ZSW1.7	**1 = Alarm present**	p2081[7] = r2139.7	-	-	-
CU_ZSW1.8	**1 = System time synchronized (SYNC)**	p2081[8] = r0899.8	-	-	-
CU_ZSW1.9	**1 = No alarm present**	p2081[9] = r3114.9	-	-	✔
CU_ZSW1.10	**1 = No fault present**	p2081[10] = r3114.10	-	-	✔
CU_ZSW1.11	**1 = No safety message present**	p2081[11] = r3114.11	-	-	✔
CU_ZSW1.12	**Slave sign-of-life bit 0**	Implicitly interconnected	-	-	-
CU_ZSW1.13	**Slave sign-of-life bit 1**				
CU_ZSW1.14	**Slave sign-of-life bit 2**				
CU_ZSW1.15	**Slave sign-of-life bit 3**				

<1> Used in telegrams 390 to 394.

<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

1	2	3	4	5	6	7	8

DO: CU_G, CU_S	fp_2496_54_eng.vsd	Function diagram	- 2496 -
PROFIdrive - CU_ZSW1 status word 1 Control Unit interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-53 2497 – A_DIGITAL interconnection

PROFIdrive sampling time

Signal targets for A_DIGITAL <1>

Signal	Meaning	Interconnection parameters <3>	[Function diagram] internal status word	[Function diagram] signal target	Inverted
A_DIGITAL.0	**Digital output 8 (DI/DO 8)** <2>	p0738 = r2091.0	-	-	-
A_DIGITAL.1	**Digital output 9 (DI/DO 9)** <2>	p0739 = r2091.1	-	-	-
A_DIGITAL.2	**Digital output 10 (DI/DO 10)** <2>	p0740 = r2091.2	-	-	-
A_DIGITAL.3	**Digital output 11 (DI/DO 11)** <2>	p0741 = r2091.3	-	-	-
A_DIGITAL.4	**Digital output 12 (DI/DO 12)** <2>	p0742 = r2091.4	-	-	-
A_DIGITAL.5	**Digital output 13 (DI/DO 13)** <2>	p0743 = r2091.5	-	-	-
A_DIGITAL.6	**Digital output 14 (DI/DO 14)** <2>	p0744 = r2091.6	-	-	-
A_DIGITAL.7	**Digital output 15 (DI/DO 15)** <2>	p0745 = r2091.7	-	-	-
A_DIGITAL.8	**Reserved**	-	-	-	-
A_DIGITAL.9	**Reserved**	-	-	-	-
A_DIGITAL.10	**Reserved**	-	-	-	-
A_DIGITAL.11	**Reserved**	-	-	-	-
A_DIGITAL.12	**Reserved**	-	-	-	-
A_DIGITAL.13	**Reserved**	-	-	-	-
A_DIGITAL.14	**Reserved**	-	-	-	-
A_DIGITAL.15	**Reserved**	-	-	-	-

<1> Used in telegrams 390 to 396.

<2> Can be set via p0728 as input (DI) or output (DO).

<3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8

DO: CU_G, CU_S	fp_2497_54_eng.vsd	Function diagram	- 2497 -
PROFIdrive - A_DIGITAL interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

PROFIdrive sampling time
Refer to [1020.7]

Signal targets for E_DIGITAL <1>

Signal	Meaning	Interconnection parameters<3>	[Function diagram] Internal status word	[Function diagram] signal target	Inverted
E_DIGITAL.0	**Digital input 8 (DI/DO 8)** <2>	p2081[0] = r0722.8	-	-	-
E_DIGITAL.1	**Digital input 9 (DI/DO 9)** <2>	p2081[1] = r0722.9	-	-	-
E_DIGITAL.2	**Digital input 10 (DI/DO 10)** <2>	p2081[2] = r0722.10	-	-	-
E_DIGITAL.3	**Digital input 11 (DI/DO 11)** <2>	p2081[3] = r0722.11	-	-	-
E_DIGITAL.4	**Digital input 12 (DI/DO 12)** <2>	p2081[4] = r0722.12	-	-	-
E_DIGITAL.5	**Digital input 13 (DI/DO 13)** <2>	p2081[5] = r0722.13	-	-	-
E_DIGITAL.6	**Digital input 14 (DI/DO 14)** <2>	p2081[6] = r0722.14	-	-	-
E_DIGITAL.7	**Digital input 15 (DI/DO 15)** <2>	p2081[7] = r0722.15	-	-	-
E_DIGITAL.8	**Digital input 0 (DI 0)**	p2081[8] = r0722.0	-	-	-
E_DIGITAL.9	**Digital input 1 (DI 1)**	p2081[9] = r0722.1	-	-	-
E_DIGITAL.10	**Digital input 2 (DI 2)**	p2081[10] = r0722.2	-	-	-
E_DIGITAL.11	**Digital input 3 (DI 3)**	p2081[11] = r0722.3	-	-	-
E_DIGITAL.12	**Digital input 4 (DI 4)** <4>	p2081[12] = r0722.4	-	-	-
E_DIGITAL.13	**Digital input 5 (DI 5)** <4>	p2081[13] = r0722.5	-	-	-
E_DIGITAL.14	**Digital input 6 (DI 6)** <4>	p2081[14] = r0722.6	-	-	-
E_DIGITAL.15	**Digital input 7 (DI 7)** <4>	p2081[15] = r0722.7	-	-	-

<1> Used in telegrams 390 to 396. <2> Can be set via p0728 as input (DI) or output (DO). <3> Pre-assignment, can be freely changed. <4> Only for CU320-2.

1	2	3	4	5	6	7	8

DO: CU_G, CU_S	fp_2498_54_eng.vsd	Function diagram	- 2498 -
PROFIdrive - E_DIGITAL interconnection	20.09.11 V04.07.00	S120/S150/G130/G150	

Fig. 3-55 2499 – A_DIGITAL_1 interconnection

PROFIdrive sampling time

Signal targets for A_DIGITAL_1 <1>

Signal	Meaning	Interconnection parameters <2>	[Function diagram] internal status word	[Function diagram] signal target	Inverted
A_DIGITAL_1.0	**Reserved**	-	-	-	-
A_DIGITAL_1.1	**Reserved**	-	-	-	-
A_DIGITAL_1.2	**Reserved**	-	-	-	-
A_DIGITAL_1.3	**Reserved**	-	-	-	-
A_DIGITAL_1.4	**Reserved**	-	-	-	-
A_DIGITAL_1.5	**Reserved**	-	-	-	-
A_DIGITAL_1.6	**Reserved**	-	-	-	-
A_DIGITAL_1.7	**Reserved**	-	-	-	-
A_DIGITAL_1.8	**Digital output 16 (DI/DO 16)** <3>	p0746 = r2092.8	-	-	-
A_DIGITAL_1.9	**Reserved**	-	-	-	-
A_DIGITAL_1.10	**Reserved**	-	-	-	-
A_DIGITAL_1.11	**Reserved**	-	-	-	-
A_DIGITAL_1.12	**Reserved**	-	-	-	-
A_DIGITAL_1.13	**Reserved**	-	-	-	-
A_DIGITAL_1.14	**Reserved**	-	-	-	-
A_DIGITAL_1.15	**Reserved**	-	-	-	-

<1> Used in telegrams 393 to 396.   <2> Pre-assignment, can be freely changed.   <3> Only for CU_S_AC or CU_I_D410..

1	2	3	4	5	6	7	8
DO: CU_G, CU_S					fp_2499_54_eng.vsd	Function diagram	- 2499 -
PROFIdrive - A_DIGITAL_1 interconnection					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-56 2500 – E_DIGITAL_1 interconnection

PROFIdrive sampling time

Signal targets for E_DIGITAL_1 <1>

Signal	Meaning	Interconnection parameters<3>	[Function diagram] Internal status word	[Function diagram] signal target	Inverted
E_DIGITAL_1.0	**Reserved**	-	-	-	-
E_DIGITAL_1.1	**Reserved**	-	-	-	-
E_DIGITAL_1.2	**Reserved**	-	-	-	-
E_DIGITAL_1.3	**Reserved**	-	-	-	-
E_DIGITAL_1.4	**Reserved**	-	-	-	-
E_DIGITAL_1.5	**Reserved**	-	-	-	-
E_DIGITAL_1.6	**Reserved**	-	-	-	-
E_DIGITAL_1.7	**Reserved**	-	-	-	-
E_DIGITAL_1.8	**Digital input 16 (DI 16)**	p2083[8] = r0722.16	-	-	-
E_DIGITAL_1.9	**Digital input 17 (DI 17)**	p2083[9] = r0722.17	-	-	-
E_DIGITAL_1.10	**Digital input 18 (DI 18)** <2>	p2083[10] = r0722.18	-	-	-
E_DIGITAL_1.11	**Digital input 19 (DI 19)** <2>	p2083[11] = r0722.19	-	-	-
E_DIGITAL_1.12	**Digital input 20 (DI 20)**	p2083[12] = r0722.20	-	-	-
E_DIGITAL_1.13	**Digital input 21 (DI 21)**	p2083[13] = r0722.21	-	-	-
E_DIGITAL_1.14	**Digital input 22 (DI 22)** <2>	p2083[14] = r0722.22	-	-	-
E_DIGITAL_1.15	**Reserved**	-	-	-	-

<1> Used in telegrams 393 to 396. <2> Not for CU320-2. <3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8

DO: CU_G, CU_S	fp_2500_54_eng.vsd	Function diagram	- 2500 -
PROFIdrive - E_DIGITAL_1 interconnection	27.06.13 V04.07.00	S120/S150/G130/G150	

3.6 Internal control/status words

Function diagrams

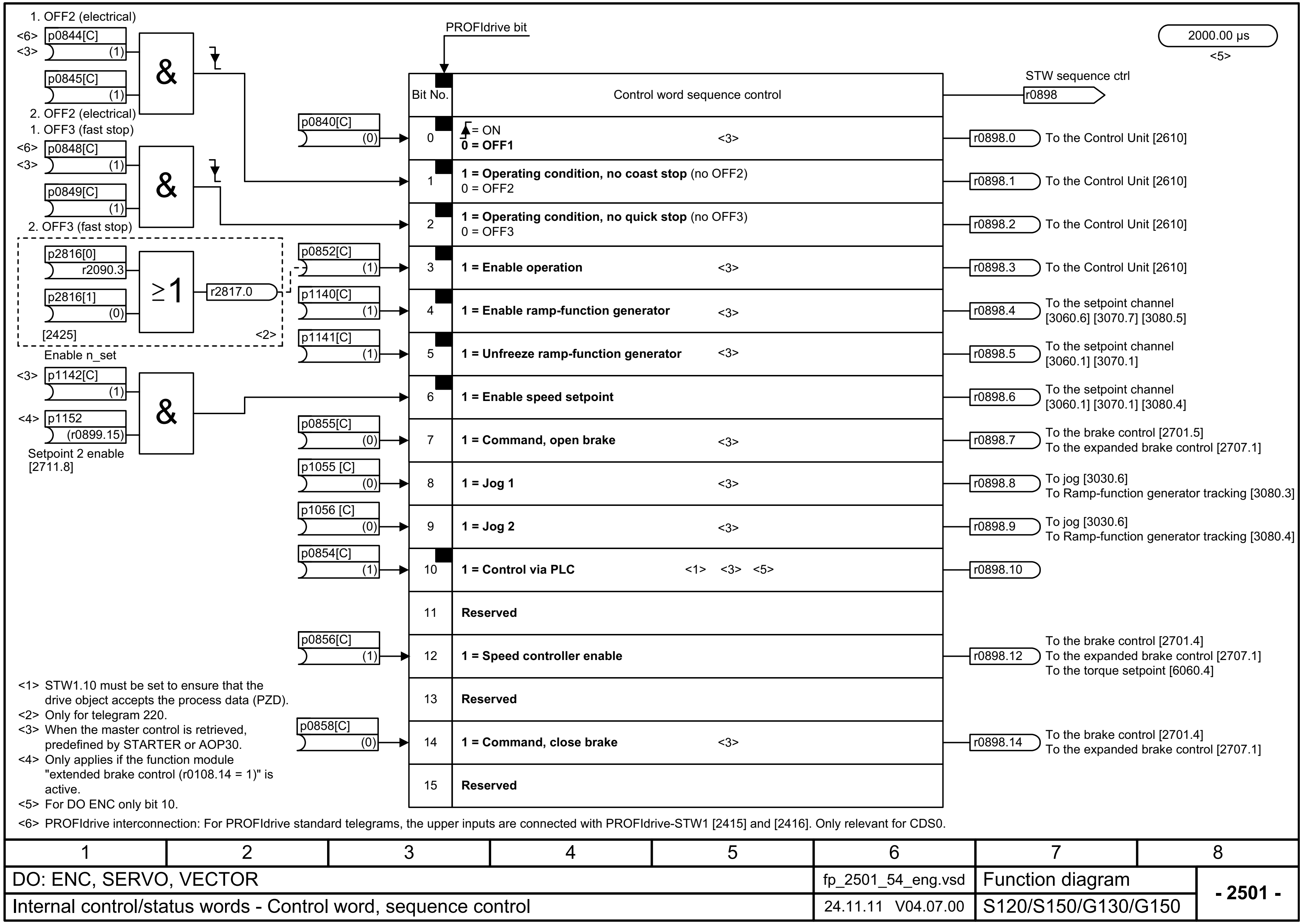
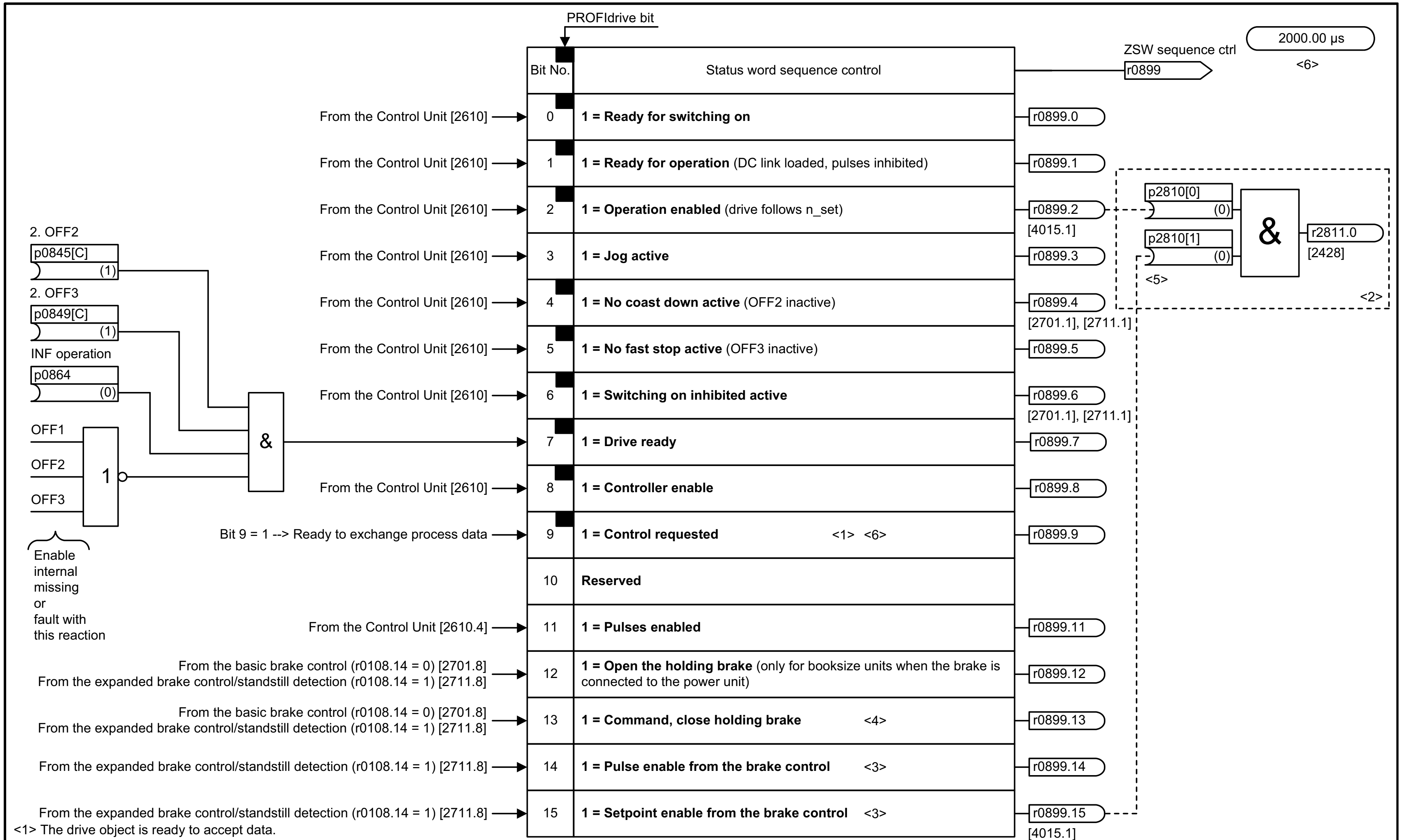


Fig. 3-57 2501 – Control word, sequence control

Fig. 3-58 2503 – Status word, sequence control



<1> The drive object is ready to accept data.
<2> Only for Telegram 220.
<3> These signals are only relevant if the "extended brake control" function module is active (r0108.14 = 1).
<4> If "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled via this signal.
<5> Only with message frame 220 and activated function module "Extended brake control" (r0108.14 = 1), otherwise hard wiring set to 1.
<6> For DO ENC only bit 9.

1	2	3	4	5	6	7	8
DO: ENC, SERVO, VECTOR					fp_2503_54_eng.vsd	Function diagram	- 2503 -
Internal control/status words - Status word, sequence control					24.11.11 V04.07.00	S120/S150/G130/G150	

p0115[3]

STW setpoint channel: r1198

Signal	Parameter (factory setting)	Bit No.	Control word, setpoint channel	Output	Destination
Fixed setpoint selection, bit 0	p1020[C] (0)	0	**1 = Fixed setpoint, bit 0**	r1198.0	To fixed speed setpoints [3010.2]
Fixed setpoint selection, bit 1	p1021[C] (0)	1	**1 = Fixed setpoint, bit 1**	r1198.1	To fixed speed setpoints [3010.2]
Fixed setpoint selection, bit 2	p1022[C] (0)	2	**1 = Fixed setpoint, bit 2**	r1198.2	To fixed speed setpoints [3010.2]
Fixed setpoint selection, bit 3	p1023[C] (0)	3	**1 = Fixed setpoint, bit 3**	r1198.3	To fixed speed setpoints [3010.2]
		4	**Reserved**		
Inhib neg dir	p1110[C] (0)	5	**1 = Inhibit negative direction**	r1198.5	To direction limiting and direction reversal [3040.3]
Inhib pos dir	p1111[C] (0)	6	**1 = Inhibit positive direction**	r1198.6	To direction limiting and direction reversal [3040.5]
		7	**Reserved**		
		8	**Reserved**		
		9	**Reserved**		
		10	**Reserved**		
Setpoint inversion	p1113[C] (0)	11	**1 = Setpoint inversion**	r1198.11	To direction limiting and direction reversal [3040.2]
		12	**Reserved**		
Motorized potentiometer, raise	p1035[C] (0)	13	**1 = Motorized potentiometer, raise**	r1198.13	To the motorized potentiometer [3020.1]
Motorized potentiometer, lower	p1036[C] (0)	14	**1 = Motorized potentiometer, lower**	r1198.14	To the motorized potentiometer [3020.1]
Bypass RFG	p1122[C] (0)	15	**1 = Bypass ramp-function generator**	r1198.15	To the setpoint channel [3060.1], [3070.3]

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL	fp_2505_51_eng.vsd	Function diagram	- 2505 -
Internal control/status words - Control word, setpoint channel	15.10.13 V04.07.00	SINAMICS	

Fig. 3-59 2505 – Control word, setpoint channel

Fig. 3-60 2520 – Control word, speed controller

p0115[1] (Motor Modules)
1000.00 µs

STW n_ctrl r1406 <1> <2>

Bit No.	Control word, speed controller	Servo <1> <2>	Vector
0	**Reserved**	-	-
1	**Reserved**	-	-
2	**Reserved**	-	-
3	**Reserved**	-	-
4	**1 = speed controller, hold I component**	-	✔
5	**1 = speed controller, set I component**	-	✔
6	**Reserved**	-	-
7	**Reserved**	-	-
8	**1 = Travel to fixed stop** <2>	✔	✔
9	**Reserved**	-	-
10	**Reserved**	-	-
11	**1 = Droop enable**	-	✔
12	**1 = Closed-loop torque control active**	✔	✔
13	**Reserved**	-	-
14	**Reserved**	-	-
15	**Set speed adaptation controller I component**	-	✔

Inputs:
- Bit 4: n_ctrl integ stop p1476[C] (0)
- Bit 5: n_ctrl integ set p1477[C] (0)
- Bit 8: <2> TfS activation p1545[C] (0)
- Bit 11: Enables droop p1492[C] (0)
- Bit 12: Changeov n/M_ctrl p1501[C] (0)

Outputs:
- r1406.4 To the speed controller [6040.4]
- r1406.5 To the speed controller [6040.4]
- r1406.8 To torque signals, Motor locked/stalled [8012.5] <2>
- r1406.11 To the speed setpoint, droop [6030.1]
- r1406.12 To the closed-loop speed control [5060.1 and 6060.1] <2>
- r1406.15

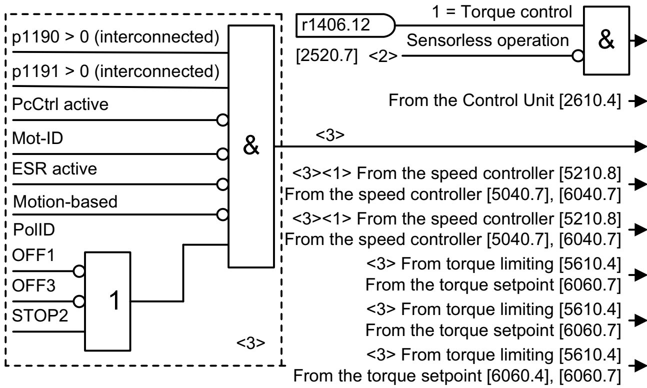
<1> Only for Servo.
<2> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2520_54_eng.vsd	Function diagram	- 2520 -
Internal control/status words - Control word, speed controller	27.02.08 V04.07.00	S120/S150/G130/G150	

p0115[1] (Motor Modules)
1000.00 µs

ZSW n_ctrl r1407 <2> <3>



Source	Bit-No.	Status word, speed controller	Servo <2> <3>	Vector	Parameter	Destination
	0	**1 = U/f control active**	✓	✓	r1407.0	
<3> From the changeover, closed-loop control types [5060.5]	1	**1 = Sensorless operation active**	✓	✓	r1407.1	To the speed actual value and pole position sensing, motor encoder (encoder 1) [4710.4] <3>, [4715.4]
From gate (r1406.12 1 = Torque control; [2520.7] <2> Sensorless operation)	2	**1 = Closed-loop torque control active**	✓	✓	r1407.2	To speed setpoint, droop [6030.5] To torque setpoint [6060.3]
From the Control Unit [2610.4]	3	**1 = Closed-loop speed control active**	-	✓	r1407.3	
<3>	4	**1 = Speed setpoint from DSC** <3>	✓	-	r1407.4	To speed setpoint filter [5020.1] To reference mode [5030.3] <3>
<3><1> From the speed controller [5210.8] From the speed controller [5040.7], [6040.7]	5	**1 = Speed controller, I component held**	✓	✓	r1407.5	
<3><1> From the speed controller [5210.8] From the speed controller [5040.7], [6040.7]	6	**1 = Speed controller, I component set**	✓	✓	r1407.6	Ramp-function generator tracking [3080.1]
<3> From torque limiting [5610.4] From the torque setpoint [6060.7]	7	**1 = Torque limit reached**	✓	✓	r1407.7	“Traveling blocks“ mode [3616.1]<3> Speed controller [5040.7] <3>, [5042.5], [6040.4]
<3> From torque limiting [5610.4] From the torque setpoint [6060.7]	8	**1 = Torque limiting, upper, active**	✓	✓	r1407.8	Motor locked/stalled [8012.5]
<3> From torque limiting [5610.4] From the torque setpoint [6060.4], [6060.7]	9	**1 = Torque limiting, lower, active**	✓	✓	r1407.9	
From the speed setpoint, droop [6030.3]	10	**1 = Droop enabled**	-	✓	r1407.10	
<3> From the setpoint, n-ctrl [5030.8] <3><1> From the speed controller [5210.3] From the speed setpoint, droop [6030.4], [6030.5]	11	**1 = Speed setpoint limited**	✓	✓	r1407.11	
	12	**1 = Ramp-function generator set**	-	✓	r1407.12	
	13	**1 = Sensorless operation due to a fault**	✓	✓	r1407.13	
	14	**1 = I/f control active**	-	✓	r1407.14	
	15	**1 = Torque limit reached (without pre-control)**	-	✓	r1407.15	
	16	**Reserved**	-	-		
From speed limiting [6640.8]	17	**1 = Speed limiting activ**	-	✓	r1407.17	
	18	**Reserved**	-	-		
	19	**1 = DSC position controller limited**	✓	-	r1407.19	
	20	**1 = DSC with spline on**	✓	-	r1407.20	
	21	**1 = Speed pre-control for DSC with spline on**	✓	-	r1407.21	
	22	**1 = Torque pre-control for DSC with spline on**	✓	-	r1407.22	
	23-32	**Reserved**	-	-		

<1> Only for servo control without encoder.
<2> Only for SERVO.
<3> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR — fp_2522_54_eng.vsd — Function diagram — - 2522 -
Internal control/status words - Status word, speed controller — 14.02.14 V04.07.00 — S120/S150/G130/G150

Fig. 3-61 2522 – Status word, speed controller

Fig. 3-62 2526 – Status word, closed-loop control

Status word closed-loop control

p0115[1] (Motor Modules)

ZSW closed-loop control → r0056

	Bit No.	Meaning		
	0	**1 = Initialization completed** <2>	r0056.0	
	1	**1 = De-magnetization completed**	r0056.1	
	2	**1 = Pulses enabled** <2>	r0056.2	
	3	**1 = Soft starting available** <1> <2>	r0056.3	
<3> [6722.6], [6725.6]	4	**1 = Magnetization completed**	r0056.4	[2701.1], [2707.1]
	5	**Reserved**	r0056.5	
	6	**1 = Acceleration voltage active** <1> <2>	r0056.6	
<3> [6725.4], <3> [6730.5], [6731.5], [6732.4]	7	**1 = Frequency, negative** <2>	r0056.7	[6710.5]
<3> [6722.3], [6725.4]	8	**1 = Field weakening active**	r0056.8	
[6714.8]	9	**1 = Voltage limit active** <2>	r0056.9	
[6310.8]	10	**1 = Slip limiting active** <1> <2>	r0056.10	
<3> [6730.5], [6731.5], [6732.4]	11	**1 = Frequency limit active** <2>	r0056.11	<3> [8018.1]
	12	**1 = Current limiting controller, voltage output active** <1> <2>	r0056.12	[8012.5]
[6060.7]	13	**1 = Current/torque limiting active** <1> <2>	r0056.13	
[6220.8], [6320.8]	14	**1 = Vdc_max controller active**	r0056.14	[6031.6], [6710.2]
[6220.8], [6320.8]	15	**1 = Vdc_min controller active**	r0056.15	[6031.6], [6710.2]

<1> Only for U/f control.
<2> Not for SERVO.
<3> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2526_54_eng.vsd	Function diagram	- 2526 -
Internal control/status words - Status word, closed-loop control	27.06.13 V04.07.00	S120/S150/G130/G150	

p0115[0] (Motor Modules)

Status word closed-loop current control

ZSW closed-loop current control r1408

Input	Bit No.	Meaning		Output	Cross-reference
	0	**1 = Closed-loop current control active**			
[6714.5]	1	**1 = Lim. I comp. Id-R active**	<2>	r1408.1	
	2	**Reserved**			
[6714.7]	3	**1 = Limiting U active**	<2>	r1408.3	
	4	**1 = Limiting Ud active**	<1> <3>	r1408.4	
	5	**1 = Limiting Uq active**	<1> <3>	r1408.5	[5040.7], [5042.5]
	6	**1 = Pos. limit. Iq active**	<1> <3>	r1408.6	[5714.5] <3>
	7	**1 = Neg. limit. Iq active**	<1> <3>	r1408.7	[5714.4] <3>
	8	**1 = Iq setpoint limit. active**	<1> <3>	r1408.8	[5714.4] <3>
	9	**1 = Id setpoint limit. active**	<1> <3>	r1408.9	[5722.7] <3>
[6730.3]	10	**1 = Lim. EMF/Obs-ctrl. active**	<2>	r1408.10	
	11	**1 = Error EMF/Obs-N active**	<2>	r1408.11	
	12	**1 = Motor stalled active**	<2>	r1408.12	
	13	**Reserved**			
	14	**Reserved**			
	15	**Reserved**			

<1> Only for SERVO.
<2> Only for VECTOR.
<3> Only for SINAMICS S120.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2530_54_eng.vsd	Function diagram	- 2530 -
Internal control/status words - Status word, current control	27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-63 2530 – Status word, closed-loop current control

Fig. 3-64 2534 – Status word, monitoring functions 1

p0115[3]

Input	Bit No.	Status word, monitoring functions 1	Output
			ZSW monitoring functions 1 r2197
	0	**Reserved**	
From speed signals 1 [8010.8]	1	**|n_act| <= speed threshold value 2** (p2155) <1>	r2197.1
From speed signals 1 [8010.8]	2	**|n_act| > speed threshold value 2** (p2155) <1>	r2197.2
From speed signals 2 [8011.8]	3	**1 = n_act >= 0**	r2197.3
	4	**Reserved**	
	5	**Reserved**	
From speed signals 1 [8010.4]	6	**n_act > n_max**	r2197.6
From speed signals 2 [8011.8]	7	**1 = Speed setpoint - actual value deviation within tolerance t_off**	r2197.7
	8	**Reserved**	
	9	**Reserved**	
	10	**Reserved**	
	11	**Reserved**	
	12	**Reserved**	
	13	**Reserved**	
	14	**Reserved**	
	15	**Reserved**	

<1> n_{act} = smoothed speed actual value r2169 [8010.2].

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_2534_51_eng.vsd	Function diagram	- 2534 -
Internal control/status words - Status word, monitoring functions 1					25.02.14 V04.07.00	SINAMICS	

Fig. 3-65 2536 – Status word, monitoring functions 2

p0115[3] (4000.00 µs)

ZSW monitoring functions 2 → r2198

Input	Bit No.	Status word, monitoring functions 2	Output
	0	**Reserved**	
	1	**Reserved**	
	2	**Reserved**	
	3	**Reserved**	
<1> From speed signals 2 [8011.8]	4	**1 = |n_set| < p2161**	r2198.4
<1> From speed signals 2 [8011.8]	5	**1 = n_set > 0**	r2198.5
From torque messages, motor locked/stalled [8012.8]	6	**1 = Motor blocked**	r2198.6
From torque messages, motor locked/stalled [8012.8]	7	**1 = Motor stalled**	r2198.7
	8	**Reserved**	
	9	**Reserved**	
From torque messages, motor locked/stalled [8012.3]	10	**1 = Torque setpoint < torque threshold value 1 (p2174)**	r2198.10
From load monitoring [8013.8]	11	**1 = Load monitoring signals an alarm**	r2198.11
From load monitoring [8013.8]	12	**1 = Load monitoring signals a fault**	r2198.12
	13	**Reserved**	
	14	**Reserved**	
	15	**Reserved**	

<1> Only relevant if the function module "extended signals/ monitoring functions" (r0108.17 = 1) is active.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2536_54_eng.vsd	Function diagram	- 2536 -
Internal control/status words - Status word, monitoring functions 2					04.11.09 V04.07.00	S120/S150/G130/G150	

Fig. 3-66 2537 – Status word, monitoring functions 3

PROFIdrive bit

P0115[4]

ZSW monitoring functions 3 → r2199

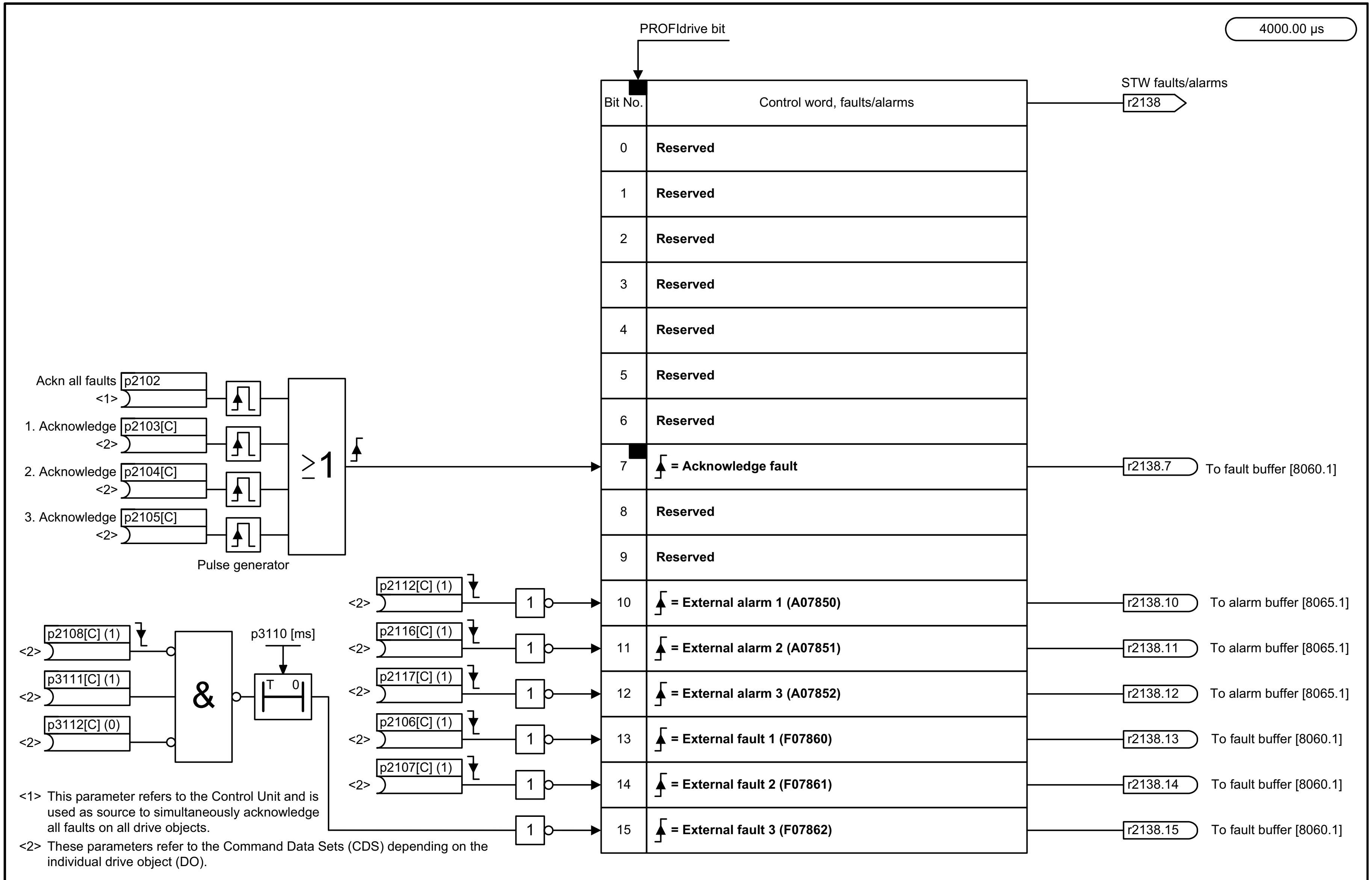
Input	Bit No.	Status word, monitoring functions 3	Output
From speed signals 1 [8010.8]	0	**1 = |n_act| < speed threshold value 3** (p2161) <1>	r2199.0
From speed signals 1 [8010.8]	1	**1 = f or n comparison value reached or exceeded** (p2141)	r2199.1
	2	**Reserved**	
	3	**Reserved**	
From speed signals 2 [8011.8]	4	**1 = Speed setpoint - actual value deviation within tolerance t_on**	r2199.4
From speed signals 2 [8011.8]	5	**1 = Ramp-up/ramp-down completed** 0 = Ramp-function generator active	r2199.5 [8012.1]
	6	**1 = Current below the zero current threshold**	r2199.6
From torque signals [8012.8]	7	**Speed deviation model/external in tolerance**	r2199.7
	8	**Reserved**	
	9	**Reserved**	
	10	**Reserved**	
From torque signals [8012.5]	11	**1 = Torque utilization < torque threshold value 2 (p2194)**	r2199.11
	12	**1 = Excitation current outside the tolerance range**	r2199.12
	13	**Reserved**	
	14	**Reserved**	
	15	**Reserved**	

<1>n_act = smoothed speed actual value r2169 [8010.2].

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL	fp_2537_51_eng.vsd	Function diagram	- 2537 -
Internal control/status words - Status word, monitoring functions 3	15.10.13 V04.07.00	SINAMICS	

Fig. 3-67 2546 – Control word, faults/alarms



1	2	3	4	5	6	7	8
DO: All objects					fp_2546_51_eng.vsd	Function diagram	- 2546 -
Internal control/status words - Control word, faults/alarms					08.05.08 V04.07.00	SINAMICS	

Fig. 3-68 2548 – Status word, faults/alarms 1 and 2

ZSW faults/alarms 1 → r2139

Source sampling time

Input	Bit No.	Status word, faults/alarms 1	Output
	0	**1 = Acknowledgement running**	r2139.0
	1	**1 = Acknowledgement required**	r2139.1
	2	**Reserved**	
From the fault buffer [8060.7]	3	**1 = Fault present**	r2139.3
	4	**Reserved**	
	5	**1 = Safety message present**	r2139.5
	6	**1 = Internal message 1 present**	r2139.6
From the alarm buffer [8065.4]	7	**1 = Alarm present**	r2139.7
	8	**1 = Internal message 2 present**	r2139.8
	9	**Reserved**	
	10	**Reserved**	
From the alarm buffer [8065.4]	11	**1 = Alarm class bit 0**	r2139.11
From the alarm buffer [8065.4]	12	**1 = Alarm class bit 1**	r2139.12
From the alarm buffer [8065.4]	13	**1 = Maintenance required**	r2139.13
From the alarm buffer [8065.4]	14	**1 = Maintenance urgently required**	r2139.14
From the fault buffer [8060.7]	15	**1 = Fault gone/can be acknowledged**	r2139.15

ZSW faults/alarms 2 → r2135

Input	Bit No.	Status word, faults/alarms 2	Output
	0	**1 = Fault encoder 1**	r2135.0
	1	**1 = Fault encoder 2**	r2135.1
	2	**1 = Fault encoder 3**	r2135.2
	3 ... 9	**Reserved**	
<1> From the thermal monitoring, infeed [8770.6]	10	**1 = Fault transformer overtemperature** <1>	r2135.10 <1>
<1> From the thermal monitoring, infeed [8970.6]	11	**1 = Alarm transformer overtemperature** <1>	r2135.11 <1>
From the thermal monitoring, motor [8016.8]	12	**1 = Fault motor overtemperature**	r2135.12
From the thermal monitoring, power unit [8014.8]	13	**1 = Fault power unit thermal overload**	r2135.13
From the thermal monitoring, motor [8016.8]	14	**1 = Alarm motor overtemperature**	r2135.14
From the thermal monitoring, power unit [8014.8]	15	**1 = Alarm power unit thermal overload**	r2135.15

<1> Only for A_INFMV, B_INFMV, VECTORMV, VECTORSL.

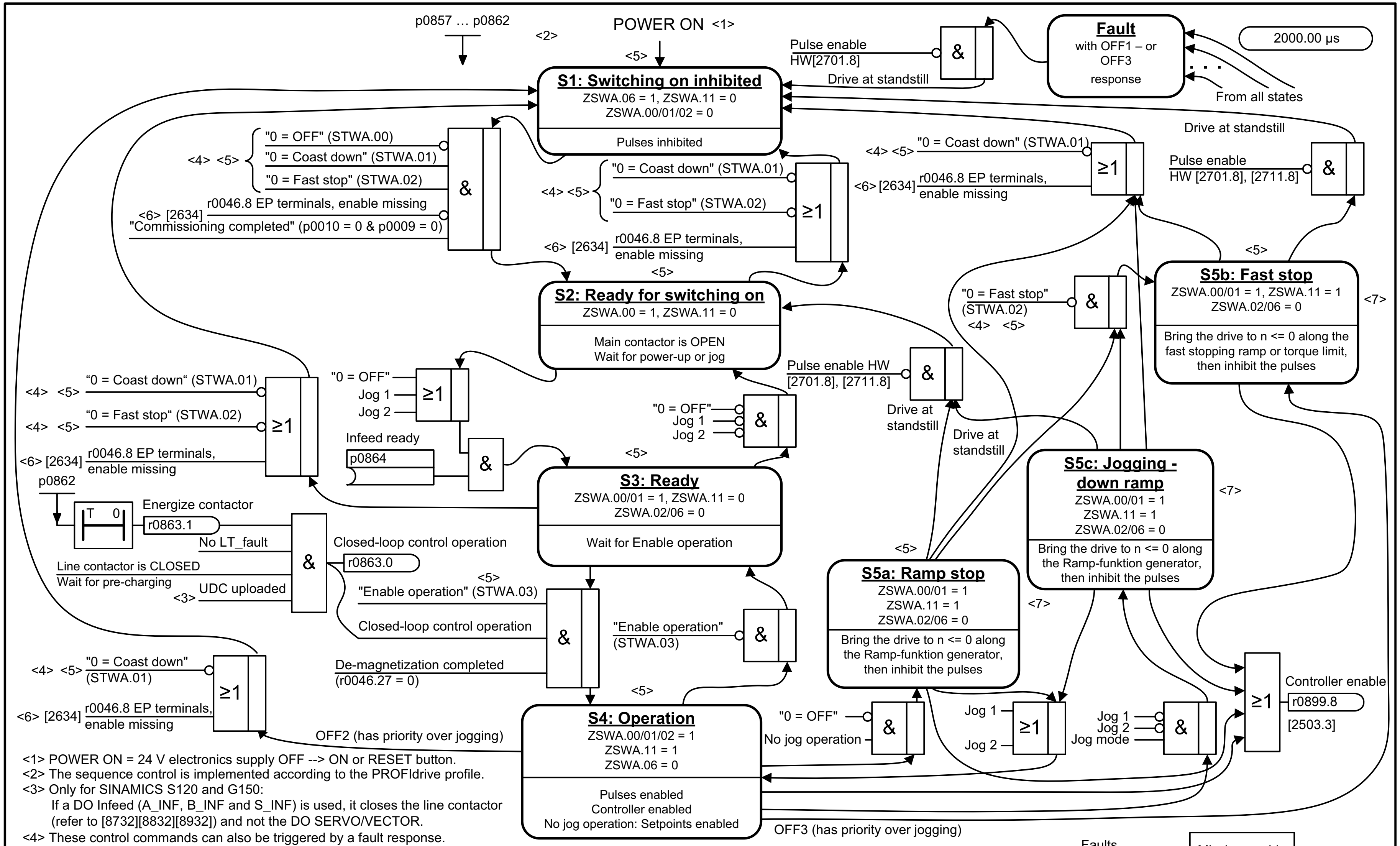
1	2	3	4	5	6	7	8

DO: All objects	fp_2548_51_eng.vsd	Function diagram	- 2548 -
Internal control/status words - Status word, faults/alarms 1 and 2	18.02.14 V04.07.00	SINAMICS	

3.7 Sequence control

Function diagrams

Fig. 3-69 2610 – Sequencer



<1> POWER ON = 24 V electronics supply OFF --> ON or RESET button.
<2> The sequence control is implemented according to the PROFIdrive profile.
<3> Only for SINAMICS S120 and G150:
If a DO Infeed (A_INF, B_INF and S_INF) is used, it closes the line contactor (refer to [8732][8832][8932]) and not the DO SERVO/VECTOR.
<4> These control commands can also be triggered by a fault response.
<5> STWA.xx = control word, sequence control, bit xx (r0898) [2501]; ZSWA.xx = status word, sequence control bit xx (r0899) [2503].
<6> Only if „Safety Integrated" is active.
<7> The parameters p1226, p1227 and p1228 influence this status.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2610_54_eng.vsd	Function diagram	- 2610 -
Sequence control - Sequencer					26.11.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-70 2634 – Missing enable signals, line contactor control, logic operation

Missing enable signals

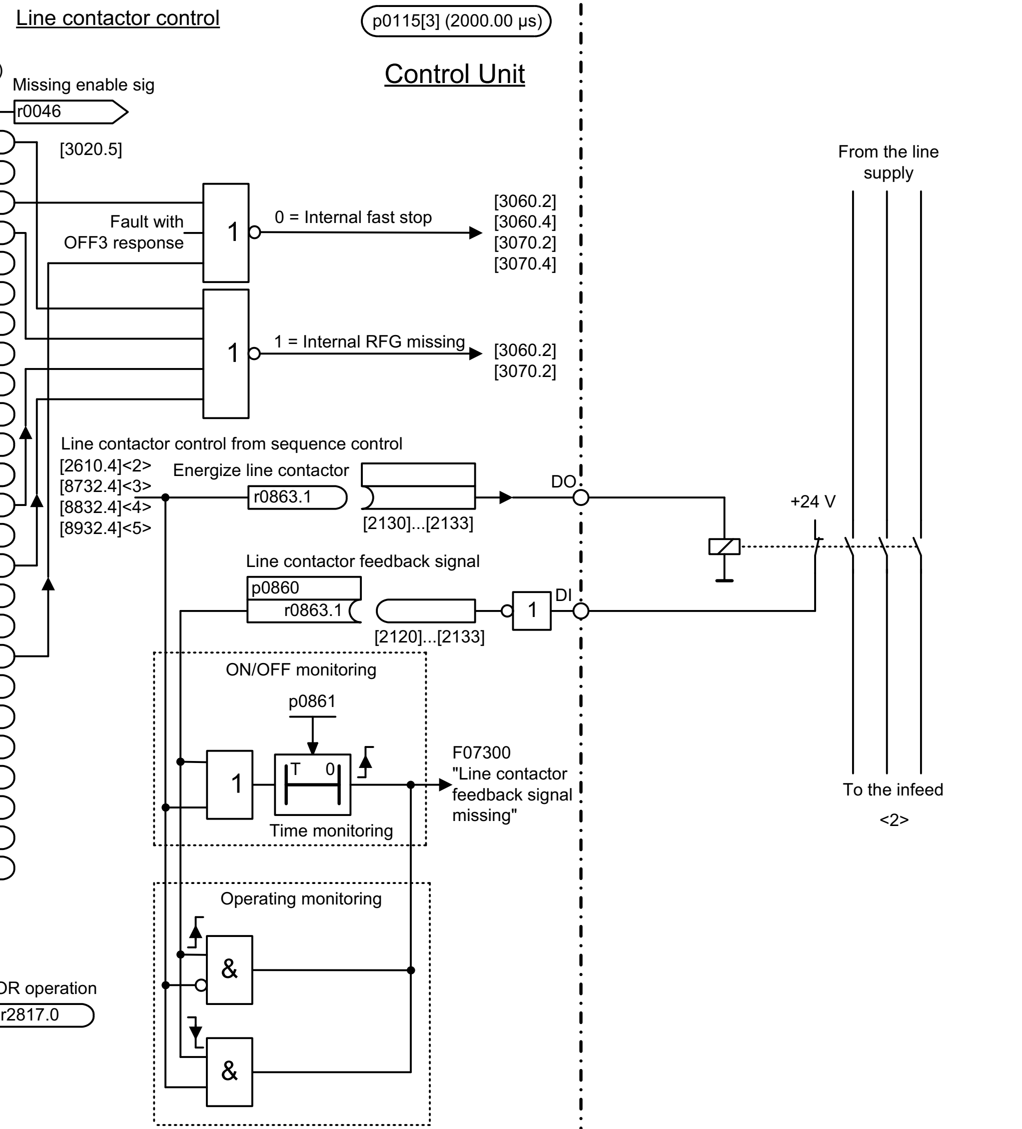
Missing enable signals that prevent the drive going into operation
(this situation can be detected at the ZSW sequence control, infeed r0899.2 = 1 [8926] <5>)

Missing enable sig r0046

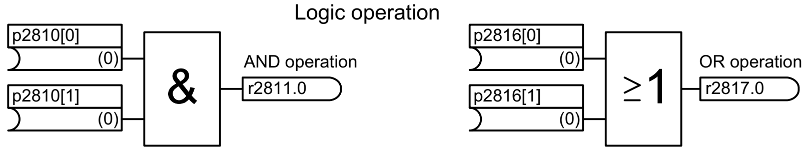
Bit Nr.	Bedeutung	
0	1 = OFF1, enable missing	r0046.0
1	1 = OFF2, enable missing	r0046.1
2	1 = OFF3, enable missing	r0046.2
3	1 = Enable operation missing	r0046.3
4	1 = Armature short-circuit/DC braking, enable missing	r0046.4
5	1 = STOP2, enable missing	r0046.5
8	1 = Safety, enable missing	r0046.8
9	1 = Infeed, enable missing	r0046.9
10	1 = Ramp-function generator enable missing	r0046.10
11	1 = Ramp-function generator start missing	r0046.11
12	1 = Setpoint, enable missing	r0046.12
15	1 = QuickStop, enable missing	r0046.15
16	1 = OFF1, enable, internal missing	r0046.16
17	1 = OFF2, enable, internal missing	r0046.17
18	1 = OFF3, enable, internal missing	r0046.18
19	1 = Pulse enable, internal missing	r0046.19
20	1 = Internal armature short circuit/DC braking, enable missing	r0046.20
21	1 = STOP2, enable internal missing	r0046.21
25	1 = Function bypass active	r0046.25
26	1 = Drive inactive or not operational	r0046.26
27	1 = De-magnetization not completed <1>	r0046.27
28	1 = Open brake missing	r0046.28
29	1 = Cooling system ready missing	r0046.29
30	1 = Speed controller inhibited	r0046.30
31	1 = Jog setpoint active	r0046.31

[2701.8]

Line contactor control



Logic operation



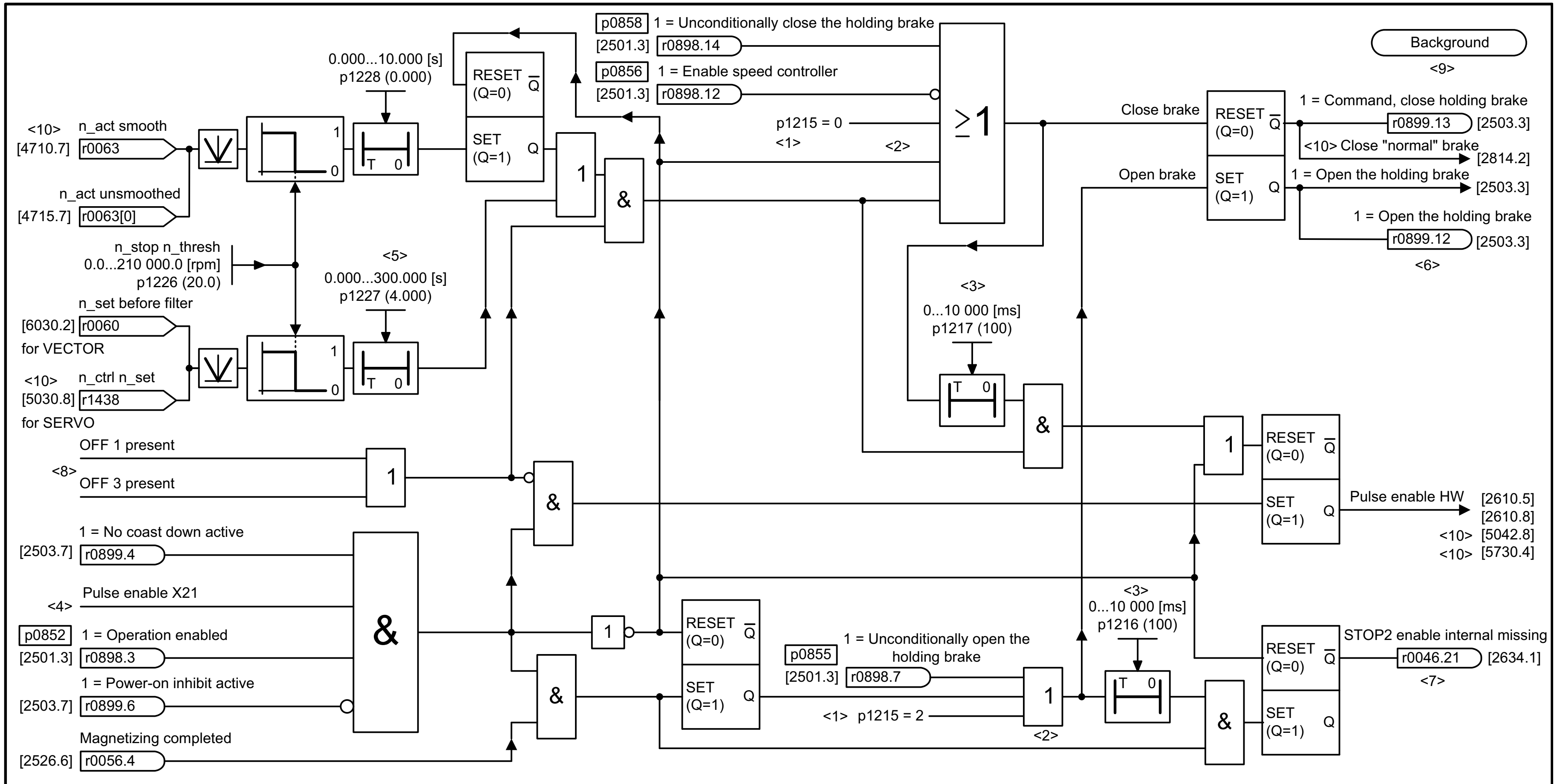
<1> Only for VECTOR.
<2> For AC/AC devices, diode infeed
<3> Only for SINAMICS S120/G150.
<4> Only for SINAMICS S120.
<5> Only for SINAMICS S120/S150.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2634_54_eng.vsd	Function diagram	- 2634 -
Sequence control - Missing enable signals, line contactor control, logic operation					22.01.14 V04.07.00	S120/S150/G130/G150	

3.8 Brake control

Function diagrams

Fig. 3-71 2701 – Basic brake control (r0108.14 = 0)



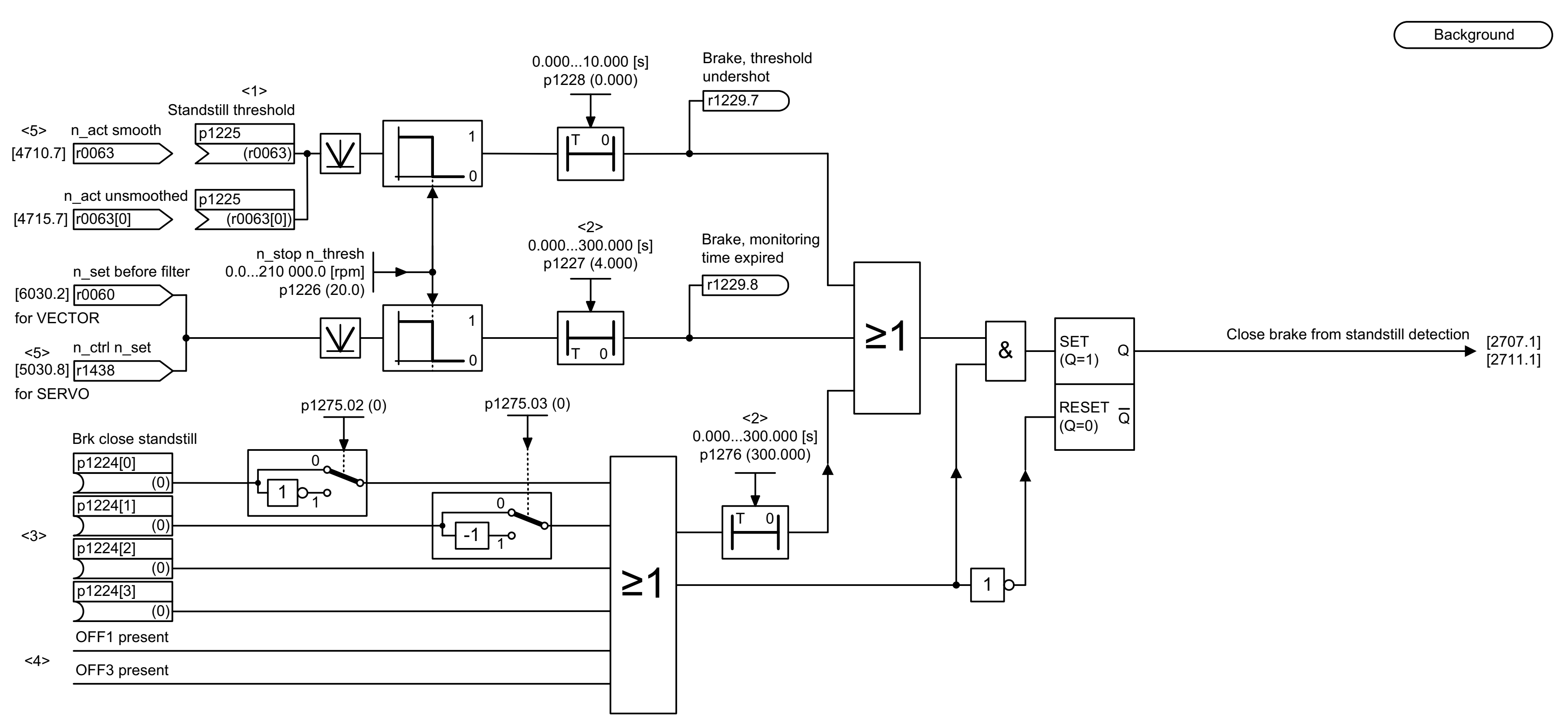
<1> Motor holding brake configuration (p1215)
0 = No motor holding brake being used.
1 = Motor holding brake acc. to sequence control.
2 = Motor holding brake always released.
3 = Motor holding brake like sequence control, connection via BICO.
<2> Priority assignment (high -> low): p1215, p0858, p0855, p0856, sequence control.
<3> If p1215 = 0, 2 -> t = 0 ms. <10>
<4> Only if Safety Integrated is active (Double Motor Module: X22, Chassis: X41).

<5> For p1227 = 300 s, the monitoring function is deactivated.
<6> If an external motor holding brake is used, p1215 should be set to 3 and r0899.12 should be interconnected as control signal.
<7> r0046.21 = 0, as long as r0046.0 = 1 (OFF1 enable missing or power-on inhibit).
r0046.21 = 1, if p0858 = 1 or p0856 = 0.
The signal generation is shown simplified.
<8> The internal signal includes signals that lead to OFF1 or OFF3 (e. g. BICO or fault response).
<9> If the brake is permanently applied or released (p0855, p0858 or p1215), the drive does not wait while the brake is released or applied.
<10> Only for SINAMICS S120.

Note: Braking signal diagnostic evaluation (p1278) only applies for SBC (Safe Brake Control) (controls the Safe Brake Relay). <10>
Note: With VECTOR with activated "parallel circuit" Function Module (r0108.15 = 1), the holding brake may only be connected to a power unit (p7015).

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2701_54_eng.vsd	Function diagram	- 2701 -
Brake control - Basic brake control (r0108.14 = 0)					14.02.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-72 2704 – Extended brake control, zero-speed detection (r0108.14 = 1)



<1> Shutdown threshold of the standstill detection. In this case (e.g. when using a brake), another criterion than the speed actual value can be selected to clear the pulses. Otherwise, we recommend to keep the factory setting.

<2> For p1276 = 300.000 s, the timer is de-activated, i.e. the timer output is always 0. Note: When operating a motor with a brake which must not be applied while the motor is rotating, the monitoring time of both timers must be set to 300 s.

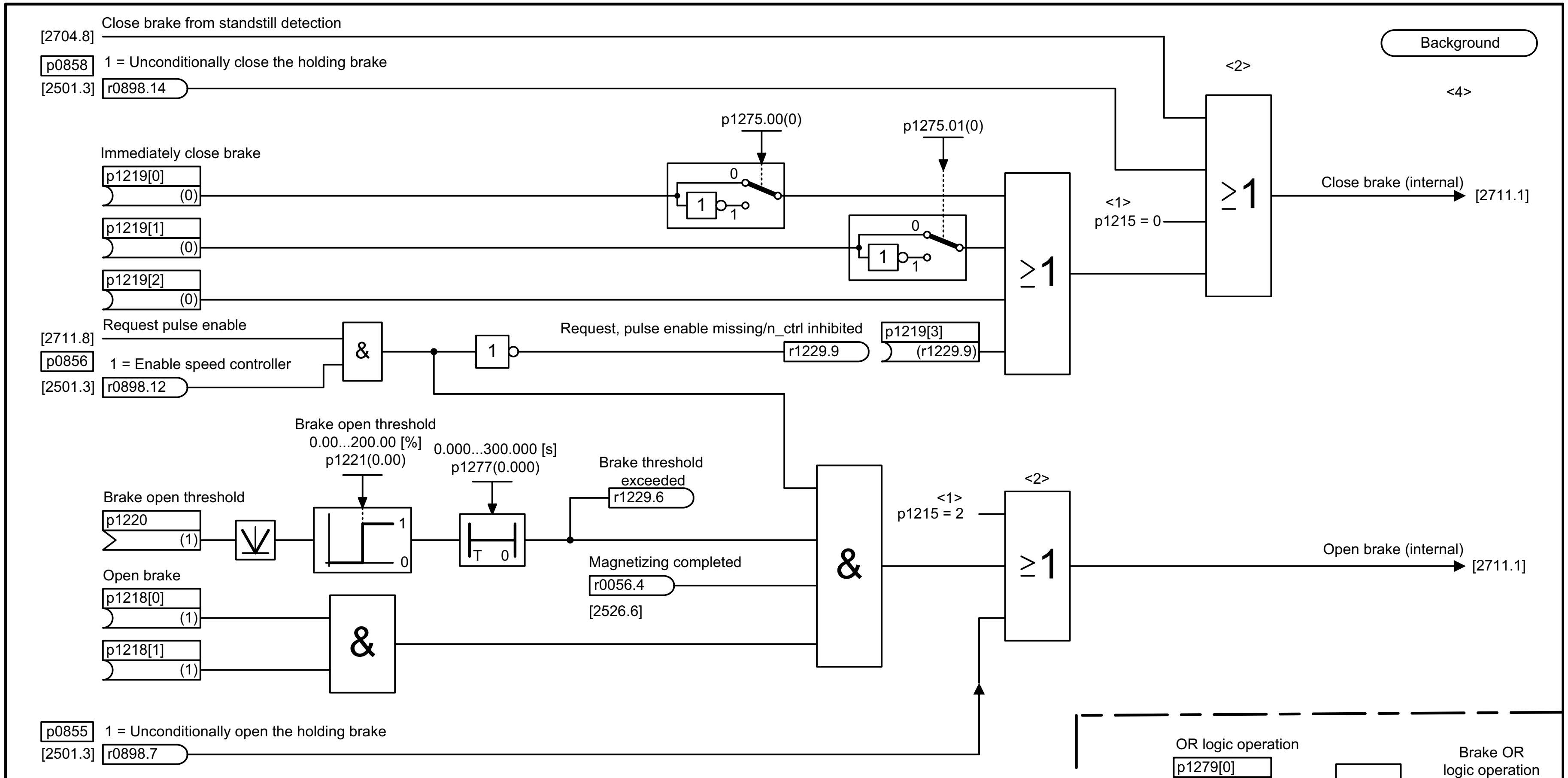
<3> For operation without brake, p1224[0...3] must be 0 (factory setting) in order to avoid undesirable interaction with the sequence control.

<4> The internal signal comprises signals that lead to OFF1 or OFF3, e.g. BICO or fault response.

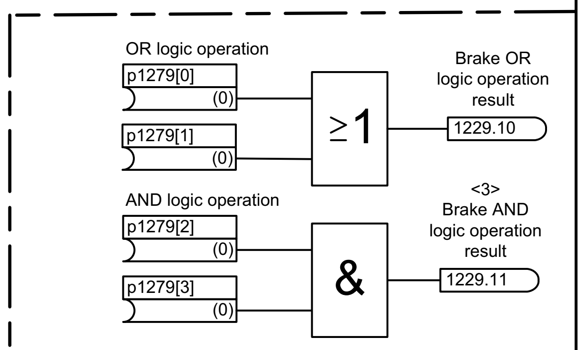
<5> Only for SINAMICS S120.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2704_54_eng.vsd	Function diagram	- 2704 -
Brake control - Extended brake control, zero-speed detection (r0108.14 = 1)					27.06.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-73 2707 – Extended brake control, open/close brake (r0108.14 = 1)



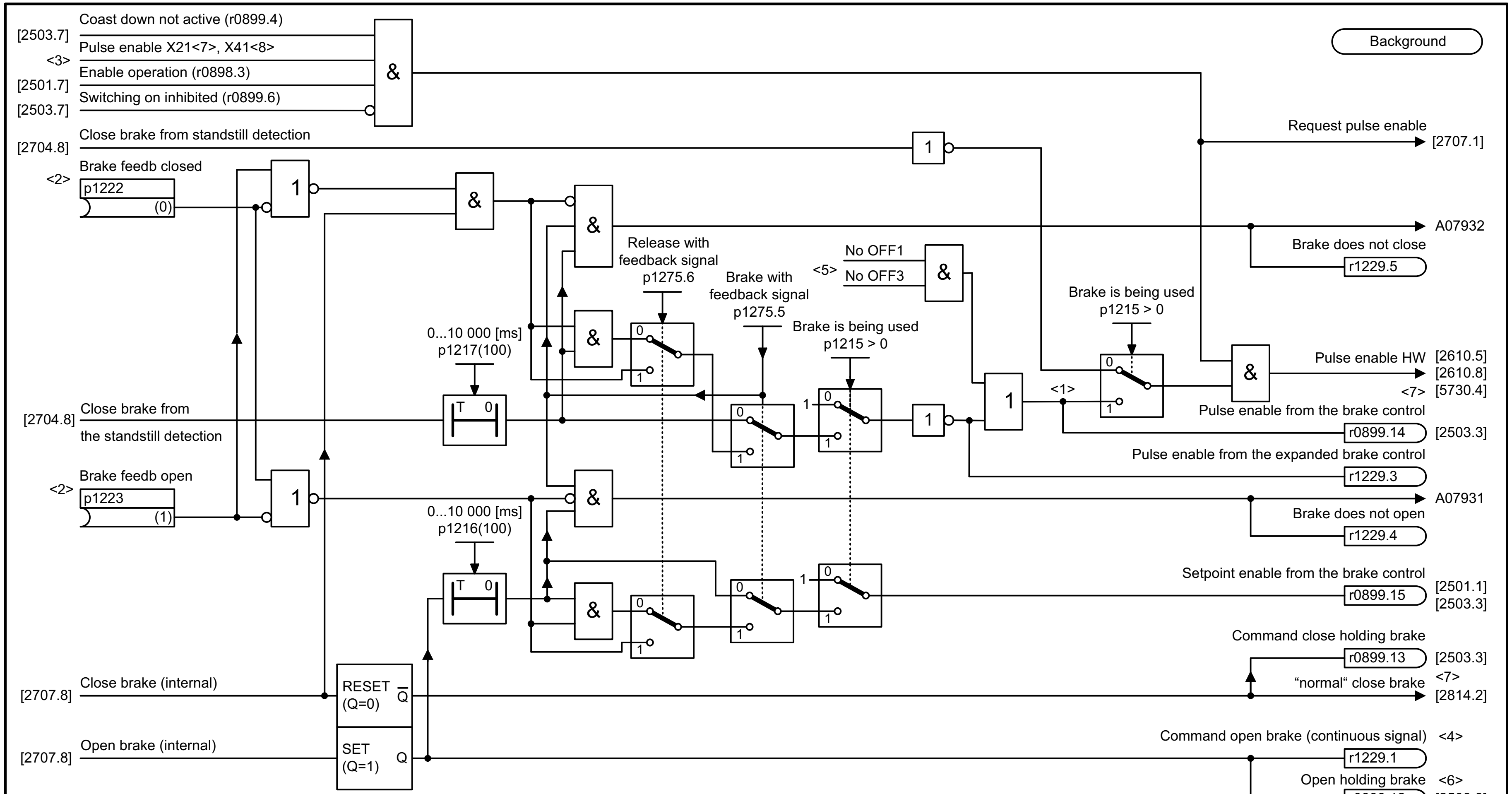
<1> Motor holding brake configuration
0 = No brake or brake always applied (brake connected to the power unit)
1 = Brake control active (brake connected to the power unit)
2 = Brake always released (brake connected to the power unit)
3 = Brake control active (brake connection can be interconnected using BICO)
Note:
A motor brake cannot be connected to all power units. p1215 is set to 3 and the brake is controlled via a digital output (e.g. TM31).
<2> Priority assignment (high -> low): p1215, p0858, p0855, p0856/p1219, apply brake from standstill detection, p1218.
<3> These blocks/modules are evaluated with the same sampling rate as the brake control and therefore may only be used to individually adapt the brake control.
<4> If the brake is permanently applied or released (p0855, p0858 or p1215), the drive does not wait until the brake is released or applied.



1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2707_54_eng.vsd	Function diagram	- 2707 -
Brake control - Extended brake control, open/close brake (r0108.14 = 1)	18.12.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-74 2711 – Extended brake control, signal outputs (r0108.14 = 1)



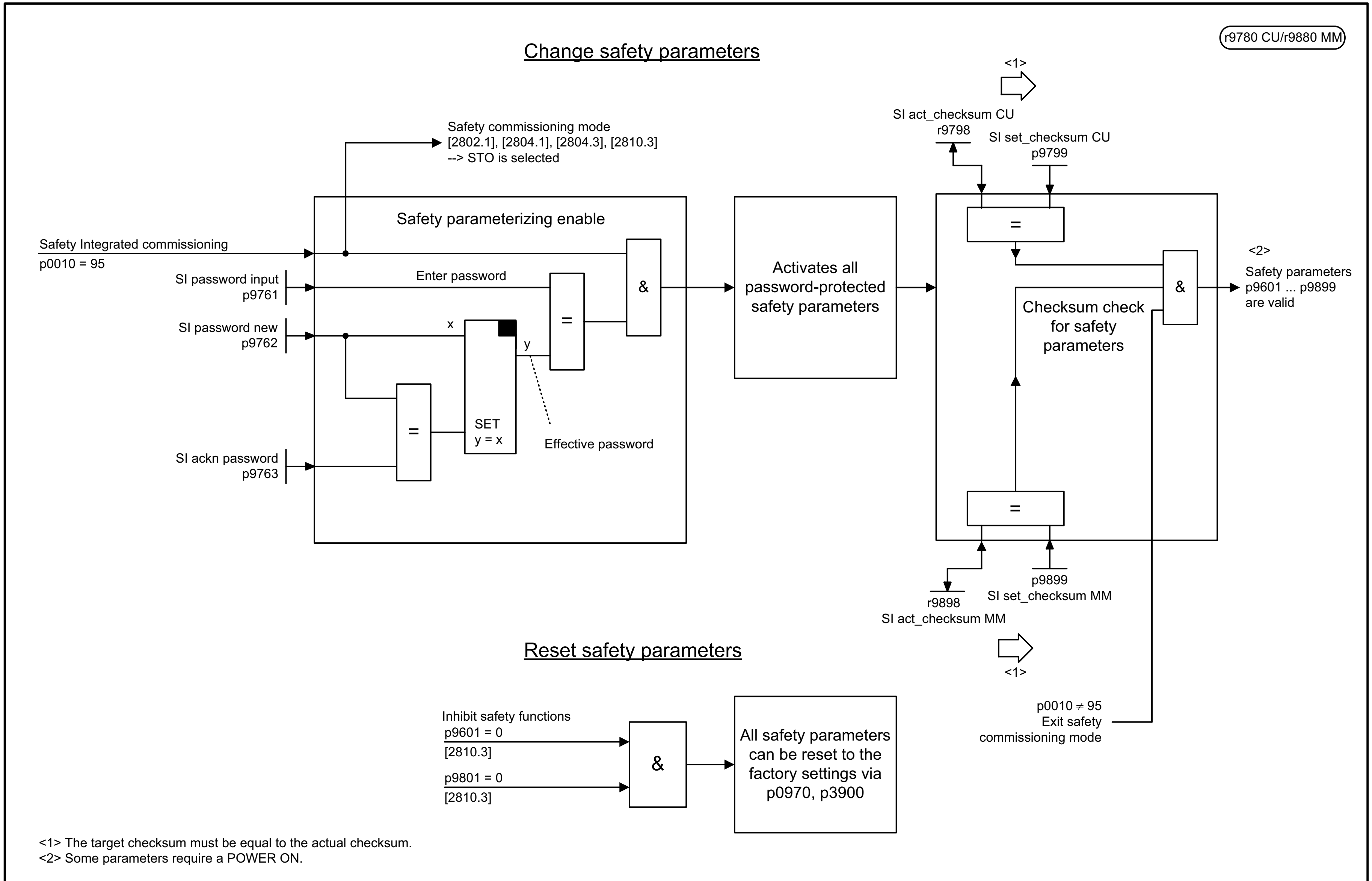
<1> This pulse enable path only works for operation with brake (p1215 > 0).
<2> For brakes with one single checkback signal, the inverted signal has to be interconnected to the BICO input for the second checkback. The switching times of the brake are set in p1216 and p1217.
<3> Only if Safety Integrated is active (Double Motor Module: X22, Chassis: X41).
<4> If an external motor holding brake is used, p1215 should be set to 3 and r1229.1 should be used as control signal.
<5> The internal signal comprises signals that lead to OFF1 or OFF3, e.g. BICO or fault response.
<6> If the function module "extended brake control" is active (r0108.14 = 1), r1229.1 should be interconnected as control signal.
<7> Only for SINAMICS S120 booksize.
<8> Only for SINAMICS S120 Chassis/S150/G130/G150.
Note: Braking signal diagnostic evaluation (p1278) is only relevant for SBC (Safe Brake Control) (controls the Safe Brake Relay).

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2711_54_eng.vsd	Function diagram	- 2711 -
Brake control - Extended brake control, signal outputs (r0108.14 = 1)					12.11.13 V04.07.00	S120/S150/G130/G150	

3.9 Safety Integrated Basic Functions

Function diagrams

Fig. 3-75 2800 – Parameter manager



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2800_54_eng.vsd	Function diagram	- 2800 -
SI Basic Functions - Parameter manager					06.03.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-76 2802 – Monitoring functions and faults/alarms

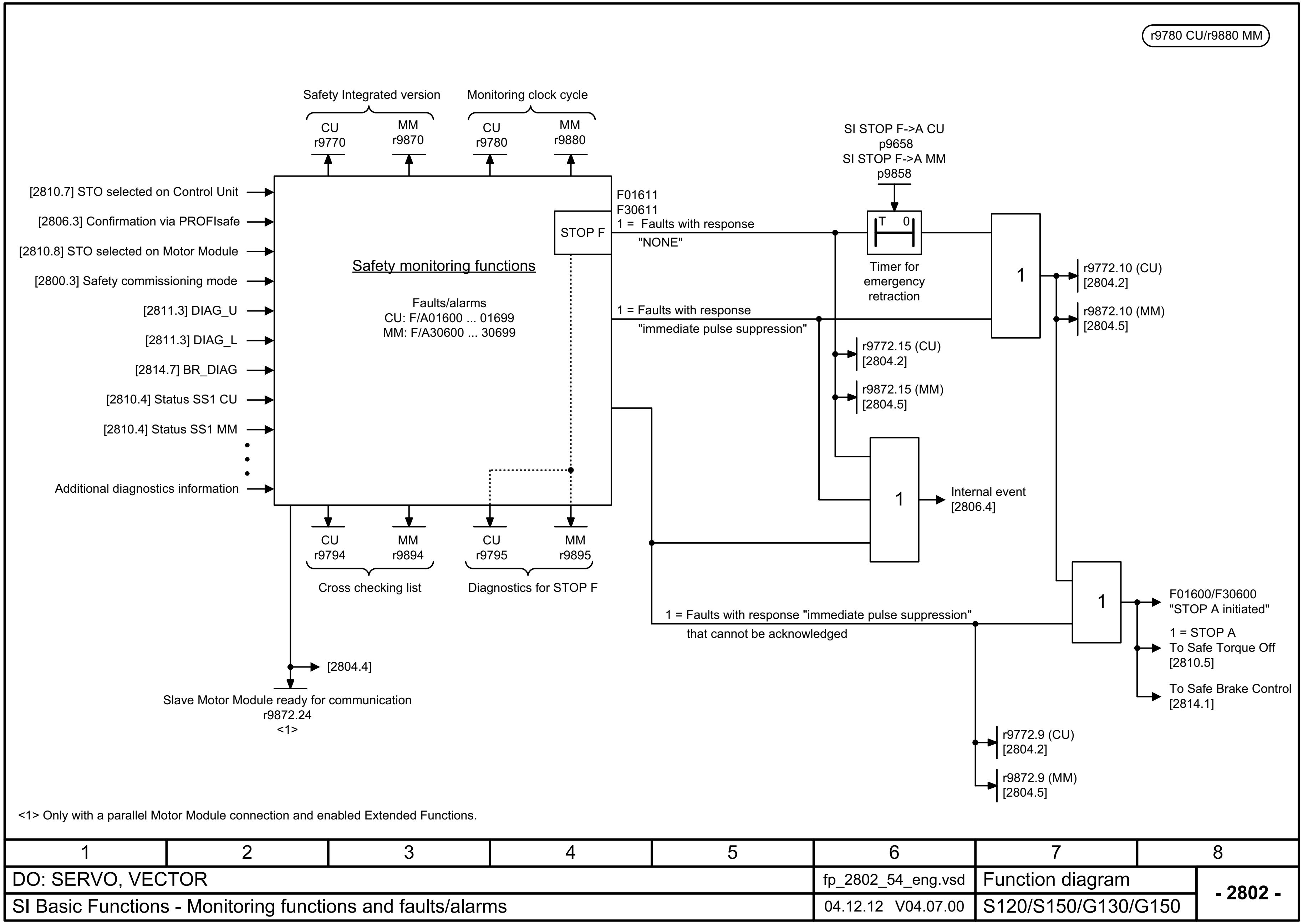


Fig. 3-77 2804 – SI status CU, MM, CU + MM, group STO

r9780 CU/r9880 MM

SI status Control Unit → SI status CU r9772

Input	Bit No.	Meaning
[2810.7]	0	1 = STO selected on Control Unit
[2811.6]	1	1 = STO active on Control Unit
[2810.5]	2	1 = SS1 delay time active on the Control Unit
	...	Reserved
[2814.3]	4	1 = SBC requested
[2814.4]	5	1 = SS1 selected on the Control Unit (Basic Functions)
[2814.5]	6	1 = SS1 active on the Control Unit (Basic Functions)
[2810.4]	7	1 = STO Terminal state on the Motor Module (Basic Functions)
	...	Reserved
[2802.7]	9	1 = STOP A cannot be acknowledged, active
[2802.8]	10	1 = STOP A active
	...	Reserved
[2802.5]	15	1 = STOP F active
[2810.6]	16	1 = STO cause Safety comm. mode
[2810.5]	17	1 = STO cause selection via terminal (Basic Functions)
[2810.4]	18	1 = STO cause selection via SMM
[2819.8]	19	1 = STO cause actual value or safe torque off missing
[2810.6]	20	1 = STO cause selection PROFIsafe (Basic Functions)
	...	Reserved
[2810.4]	22	1 = SS1 cause selection terminal (Basic Functions)
[2810.4]	23	1 = SS1 cause selection PROFIsafe (Basic Functions)
	...	Reserved

SI status Motor Module → SI status MM r9872

Input	Bit No.	Meaning
[2810.7]	0	1 = STO on Motor Module selected
[2811.3]	1	1 = STO on Motor Module active
[2810.5]	2	1 = SS1 delay time on Motor Module active
	3	1 = Safe Brake Adapter feedback signal
[2814.3]	4	1 = SBC requested
[2814.4]	5	1 = SS1 selected on the Motor Module (Basic Functions)
[2814.5]	6	1 = SS1 active on the Motor Module (Basic Functions)
[2810.4]	7	1 = STO Terminal state on the MM (Basic Functions)
	...	Reserved
[2802.7]	9	1 = STOP A cannot be acknowledged, active
[2802.8]	10	1 = STOP A active
	...	Reserved
[2802.5]	15	1 = STOP F active
[2810.6]	16	1 = STO cause: Safety comm. mode
[2810.5]	17	1 = STO cause selection via terminal (Basic Functions)
[2810.4]	18	1 = STO cause: selection via SMM
	...	Reserved
[2810.6]	20	1 = STO cause selection PROFIsafe (Basic Functions)
	...	Reserved
[2810.3]	22	1 = SS1 cause selection terminal (Basic Functions)
[2810.4]	23	1 = SS1 cause selection PROFIsafe (Basic Functions)
[2802.3]	24	1 = Slave Motor Module ready for communication
	...	Reserved

SI status Control Unit + Motor Module → SI status CU+MM r9773

Input	Bit No.	Meaning
&	0	1 = STO selected in drive
&	1	1 = STO active in drive
&	2	1 = SS1 delay time active in the drive
	...	Reserved
&	4	1 = SBC requested
&	5	1 = SS1 selected in the drive (Basic Functions)
&	6	1 = SS1 active in the drive (Basic Functions)
	...	Reserved
[2810.5]	31	1 = Shutdown paths must be tested

Status Safe Torque Off group → SI stat group STO r9774

Input	Bit No.	Meaning
r9773.0, Group n &	0	1 = STO selected in group
r9773.1, Group n &	1	1 = STO active in group
r9773.2, Group n &	2	1 = SS1 delay time active in group
	...	Reserved
r9773.4, Group n &	4	1 = SBC requested in group
r9773.5, Group n &	5	1 = SS1 selected in group (Basic Functions)
r9773.5, Group n &	6	1 = SS1 active in group (Basic Functions)
	...	Reserved
r9773.31, Group n &	31	1 = Shutdown paths of the group must be tested

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2804_54_eng.vsd	Function diagram	- 2804 -
SI Basic functions - SI status CU, MM, CU + MM, group STO	14.11.13 V04.07.00	S120/S150/G130/G150	

2 x r9780

S_STW1 Safety control word 1

Bit No.	Meaning	
0	1 = Deselect STO	→ [2810.4]
1	1 = Deselect SS1	→ [2810.3]
...	Reserved	
7	1/0 = Acknowledgement	→ [2802.2]
... 15	Reserved	

S_ZSW1 Safety status word 1

	Bit No.	Meaning
[2804.7] →	0	1 = STO active
[2804.7] →	1	1 = SS1 active
	...	Reserved
[2802.6] →	7	1 = Internal event
	... 15	Reserved

S_STW2 Safety control word 2

Bit No.	Meaning	
0	1 = Deselect STO	→ [2810.4]
1	1 = Deselect SS1	→ [2810.3]
...	Reserved	
7	1/0 = Acknowledgement	→ [2802.2]
... 31	Reserved	

S_ZSW2 Safety status word 2

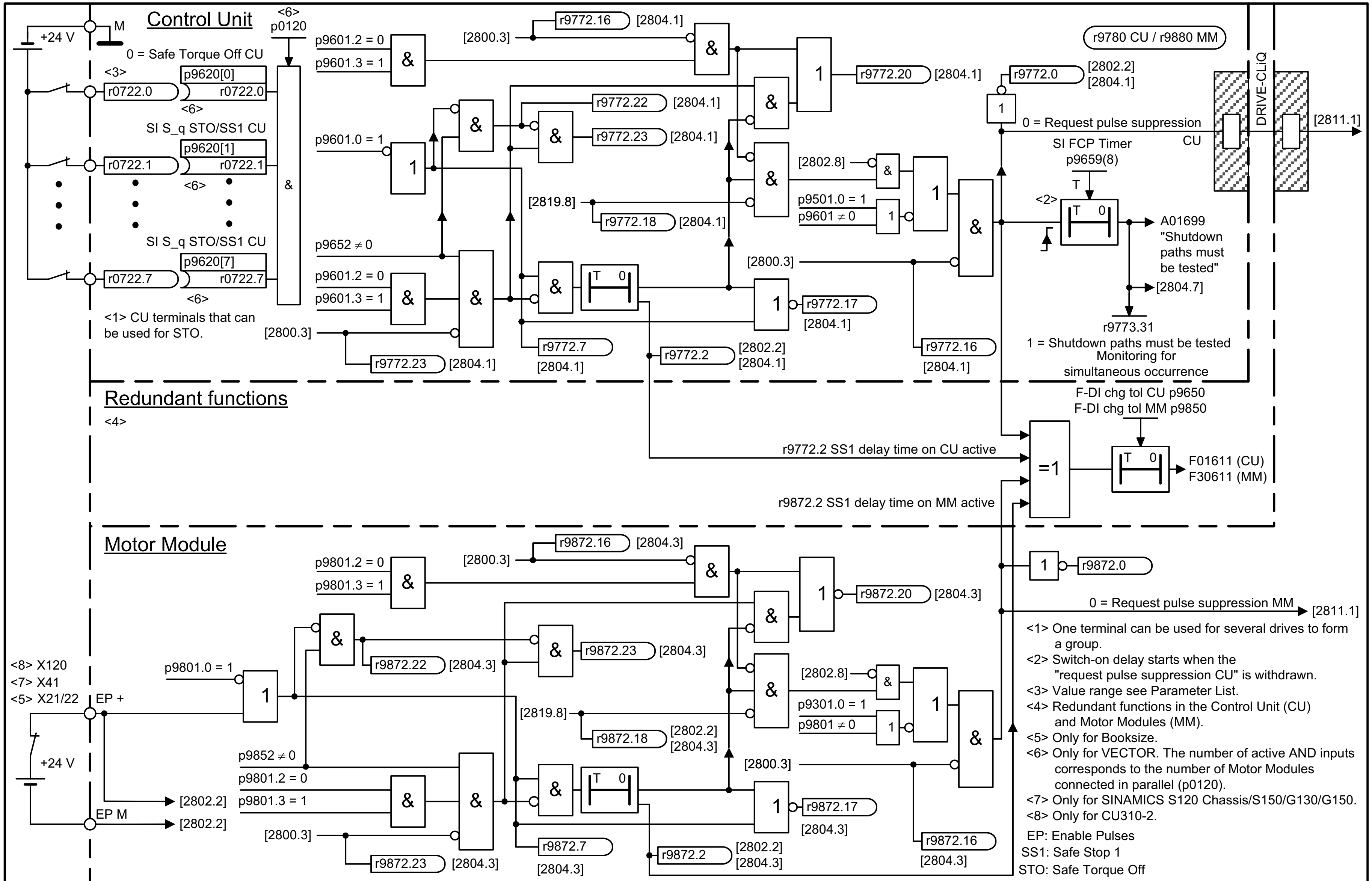
	Bit No.	Meaning
[2804.7] →	0	1 = STO active
[2804.7] →	1	1 = SS1 active
	...	Reserved
[2802.6] →	7	1 = Internal event
	... 31	Reserved

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2806_54_eng.vsd	Function diagram	- 2806 -
SI Basic Functions - S_STW1/2 Safety control word 1/2, S_ZSW1/2 Safety status word 1/2	16.03.12 V04.07.00	S120/S150/G130/G150	

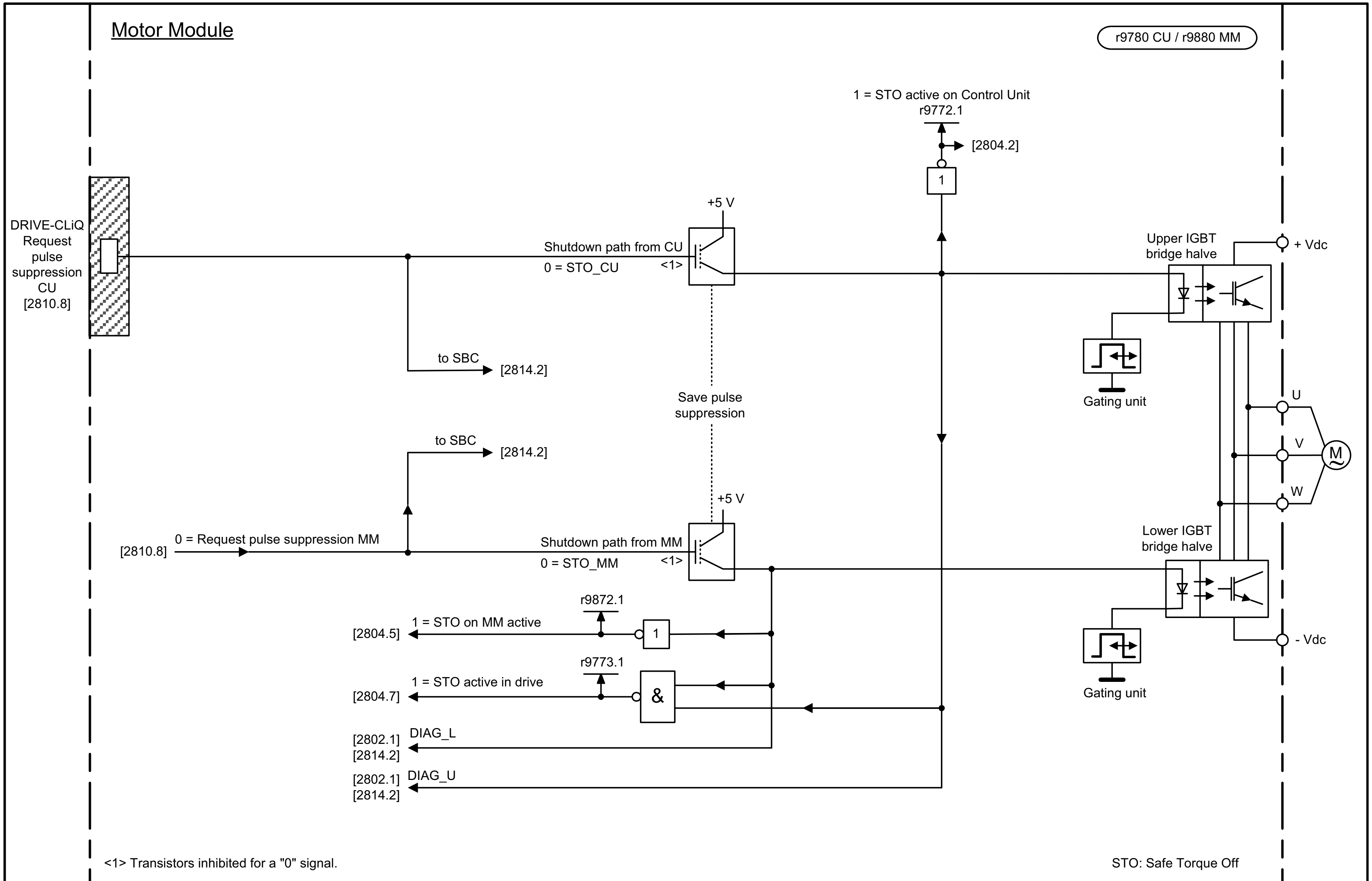
Fig. 3-78 2806 – S_STW1/2 Safety control word 1/2, S_ZSW1/2 Safety status word 1/2

Fig. 3-79 2810 – STO (Safe Torque Off), SS1 (Safe Stop 1)



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2810_54_eng.vsd	Function diagram	- 2810 -
SI Basic Functions - STO (Safe Torque Off), SS1 (Safe Stop 1)					11.03.14 V04.07.00	S120/S150/G130/G150	

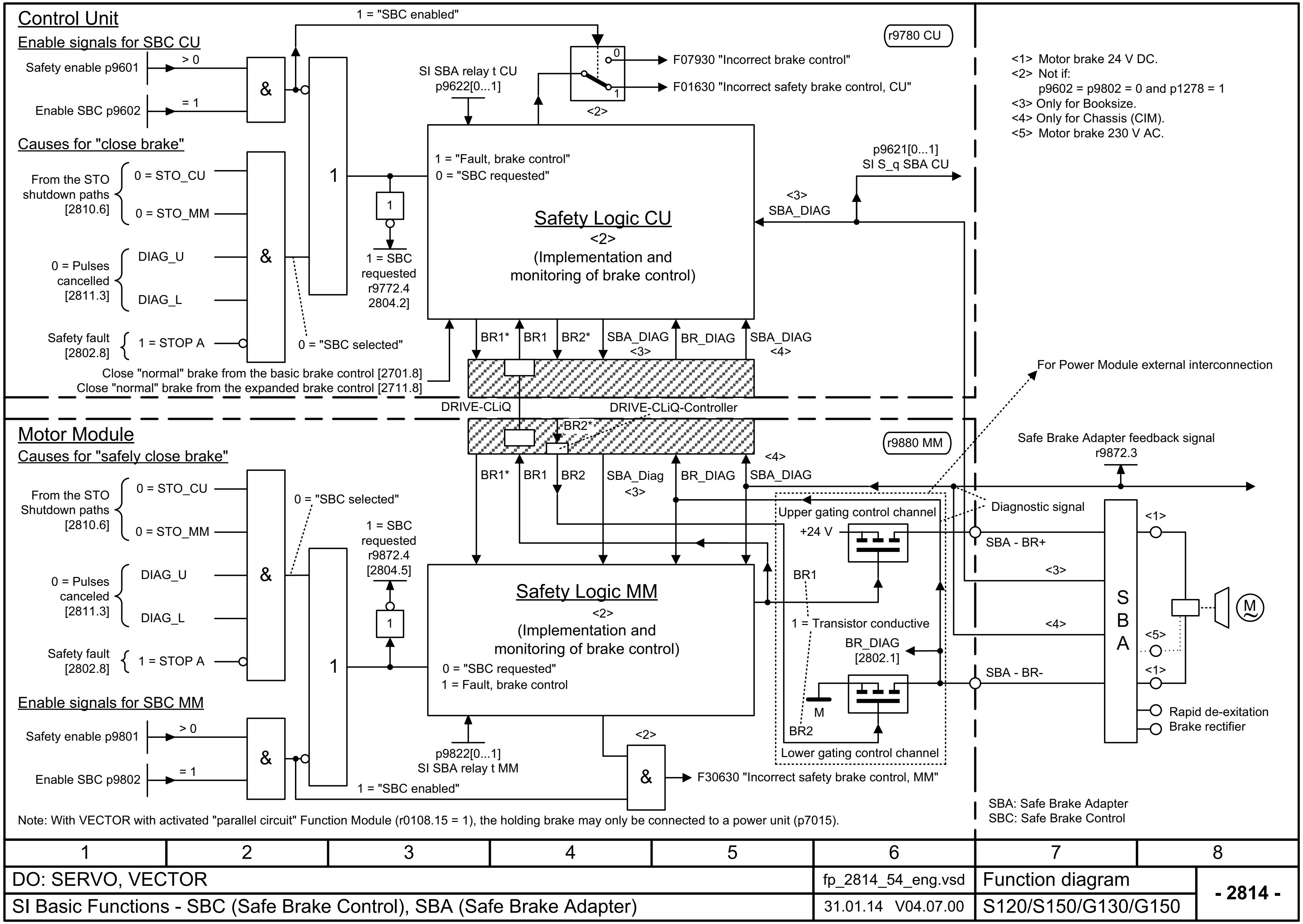
Fig. 3-80 2811 – STO (Safe Torque Off), safe pulse suppression



1	2	3	4	5	6	7	8

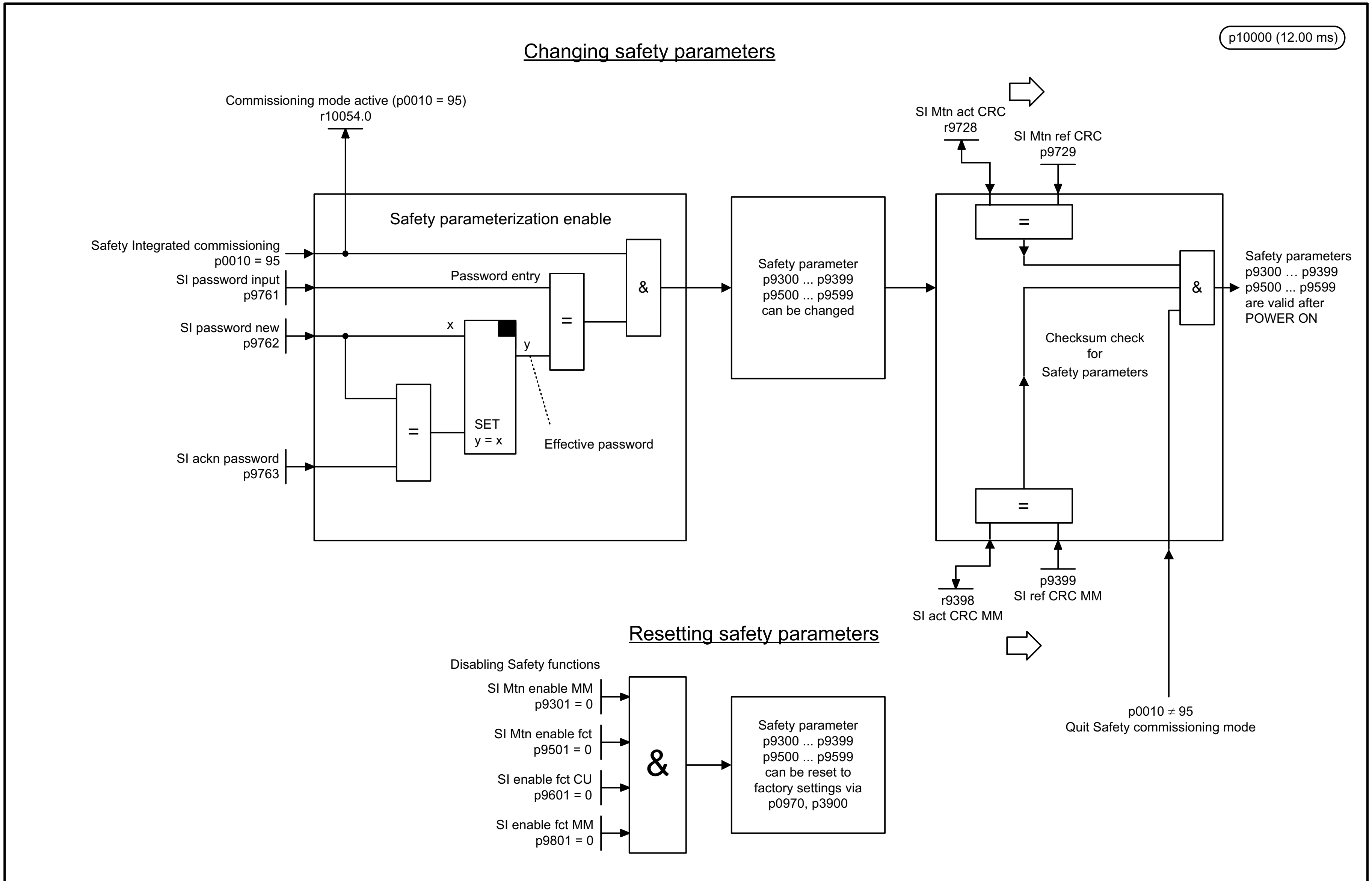
DO: SERVO, VECTOR	fp_2811_54_eng.vsd	Function diagram	- 2811 -
SI Basic Functions - STO (Safe Torque Off), safe pulse suppression	17.01.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-81 2814 – SBC (Safe Brake Control), SBA (Safe Brake Adapter)



3.10 Safety Integrated Extended Functions

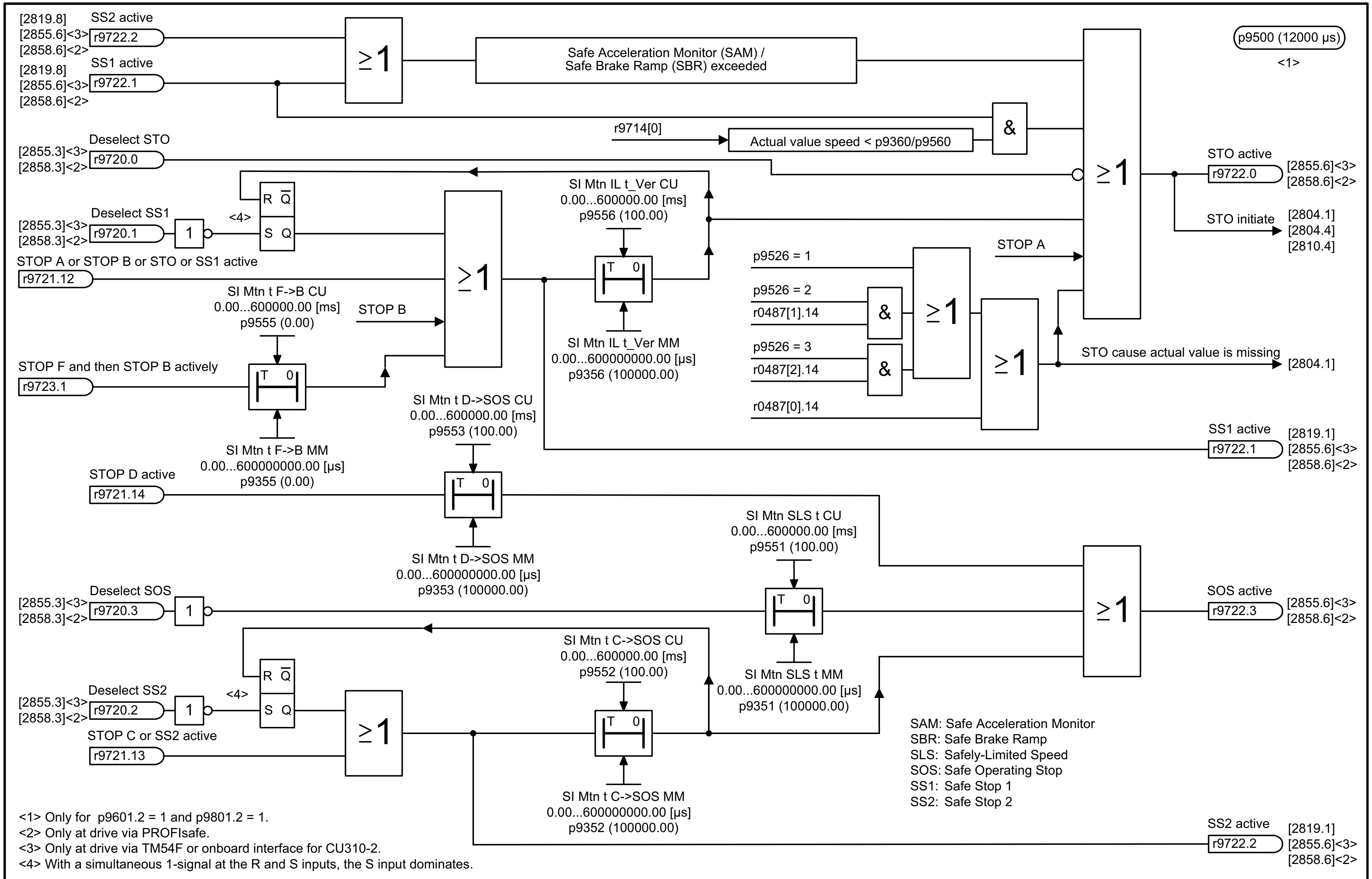
Function diagrams



1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2818_54_eng.vsd	Function diagram	- 2818 -
SI Extended Functions - Parameter manager	31.01.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-82 2818 – Parameter manager

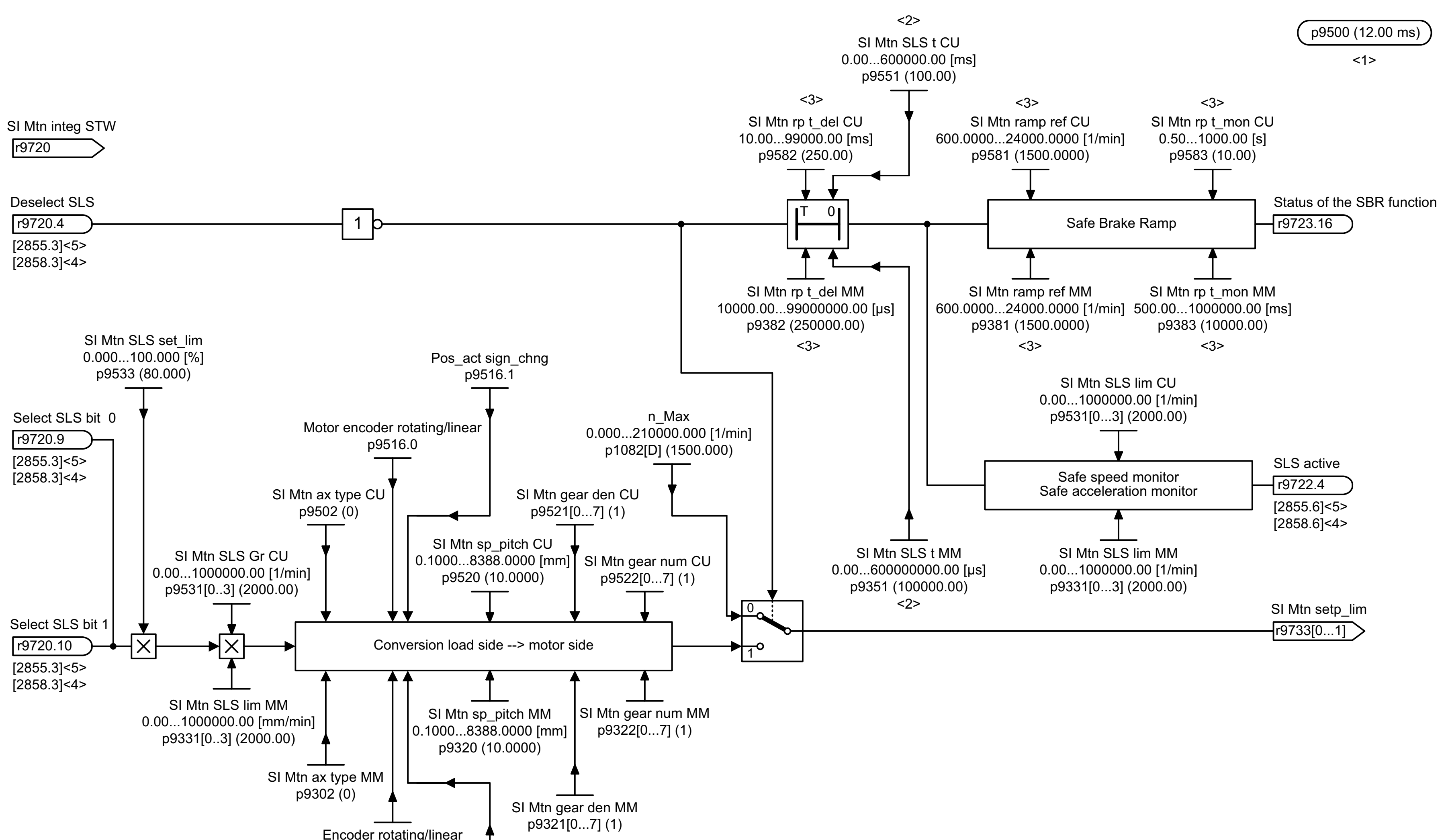


1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2819_54_eng.vsd	Function diagram	- 2819 -
SI Extended Functions - SS1, SS2, SOS, internal STOP B, C, D, F	04.11.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-83 2819 – SS1, SS2, SOS, internal STOP B, C, D, F

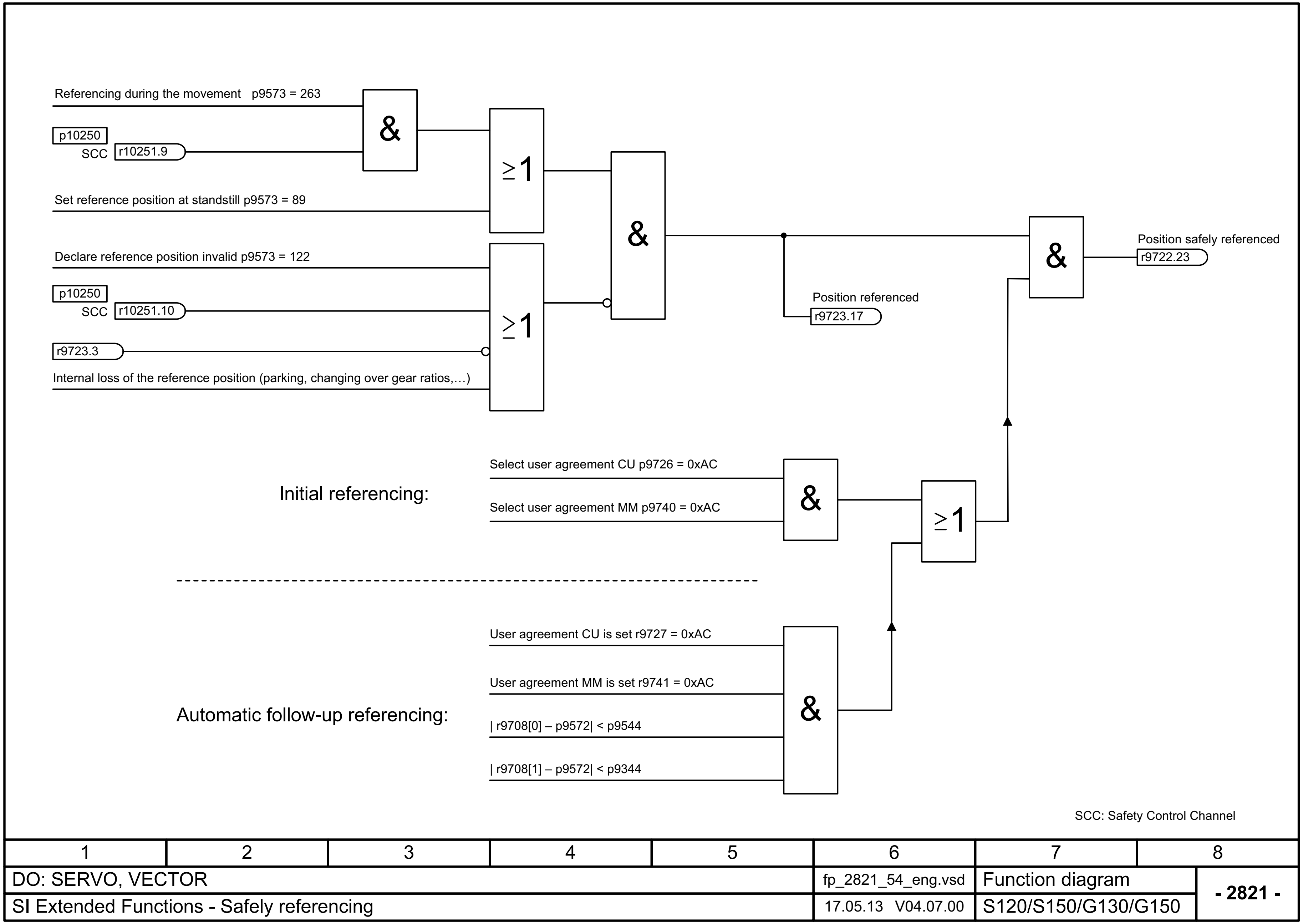
Fig. 3-84 2820 – SLS (Safely-Limited Speed)

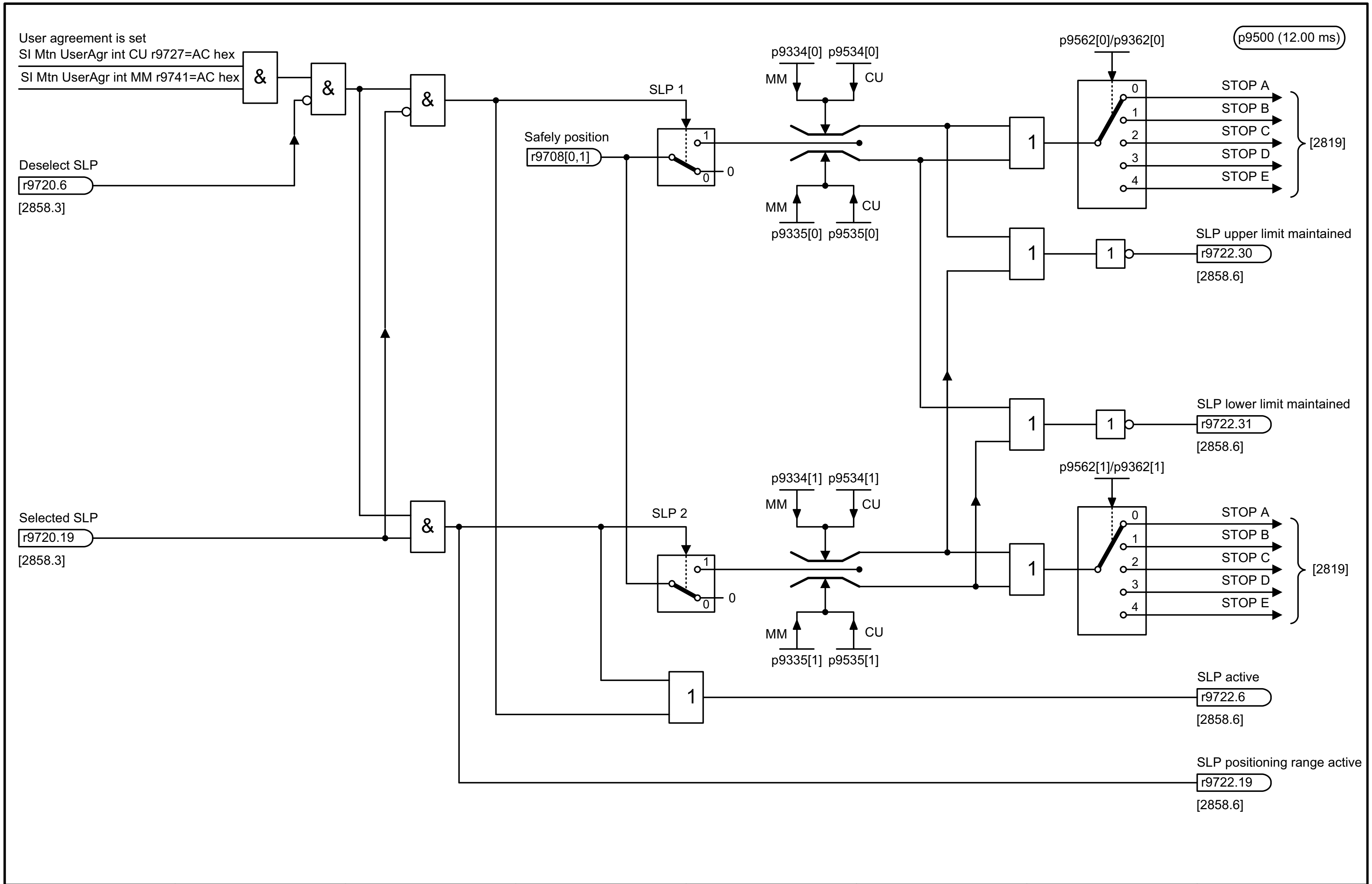


<1> Only for p9601.2/p9801.2 = 1.
<2> Only for p9306/p9506 = 0 or 3.
<3> Only for p9306/p9506 = 1.
<4> Only at drive via PROFIsafe.
<5> Only at drive via TM54F or onboard interface for CU310-2.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2820_54_eng.vsd	Function diagram	- 2820 -
SI Extended Functions - SLS (Safely-Limited Speed)					15.11.11 V04.07.00	S120/S150/G130/G150	

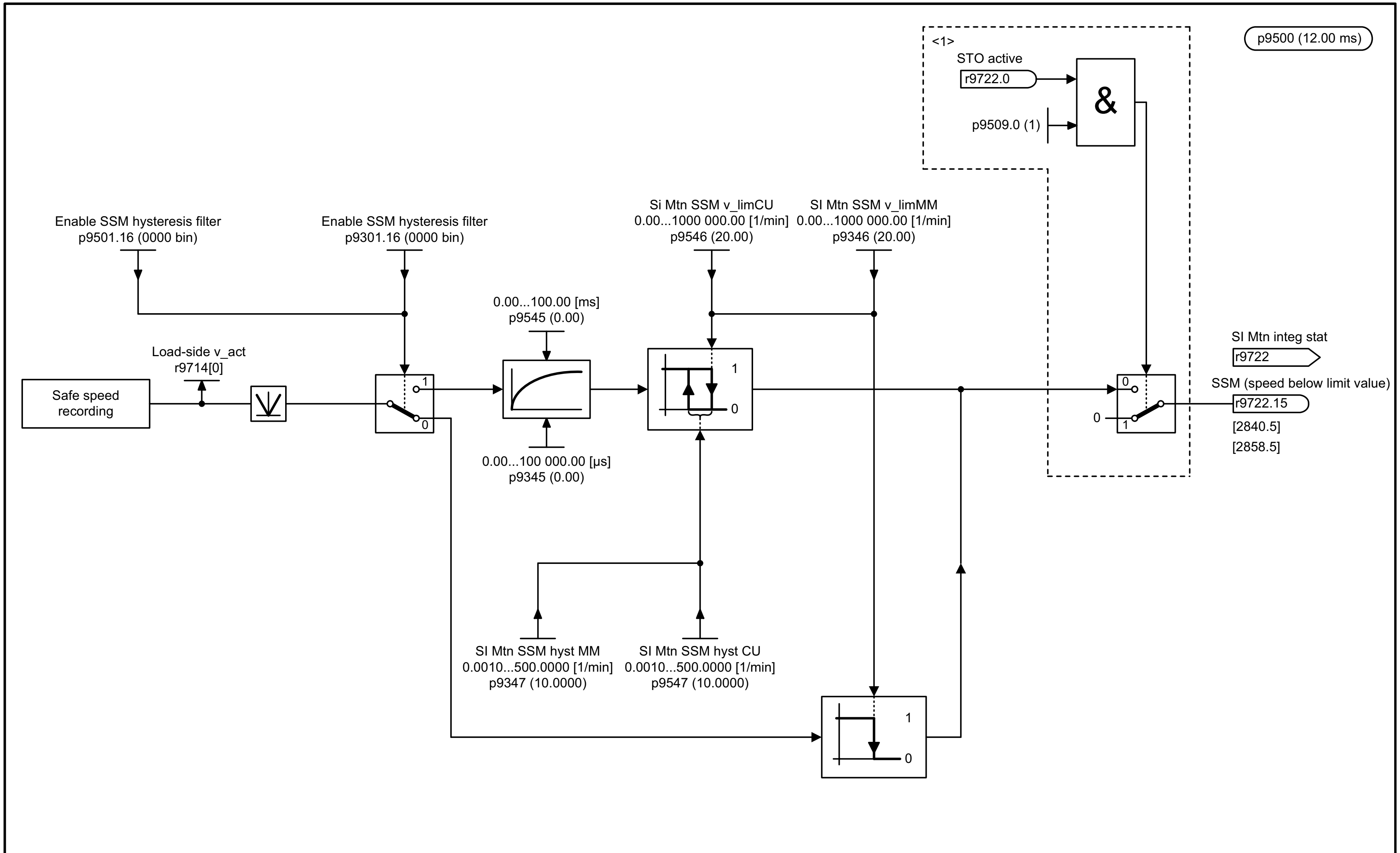
Fig. 3-85 2821 – Safe referencing





1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2822_54_eng.vsd	Function diagram	- 2822 -
SI Extended Functions - SLP (Safely-Limited Position)					08.01.14 V04.07.00	S120/S150/G130/G150	

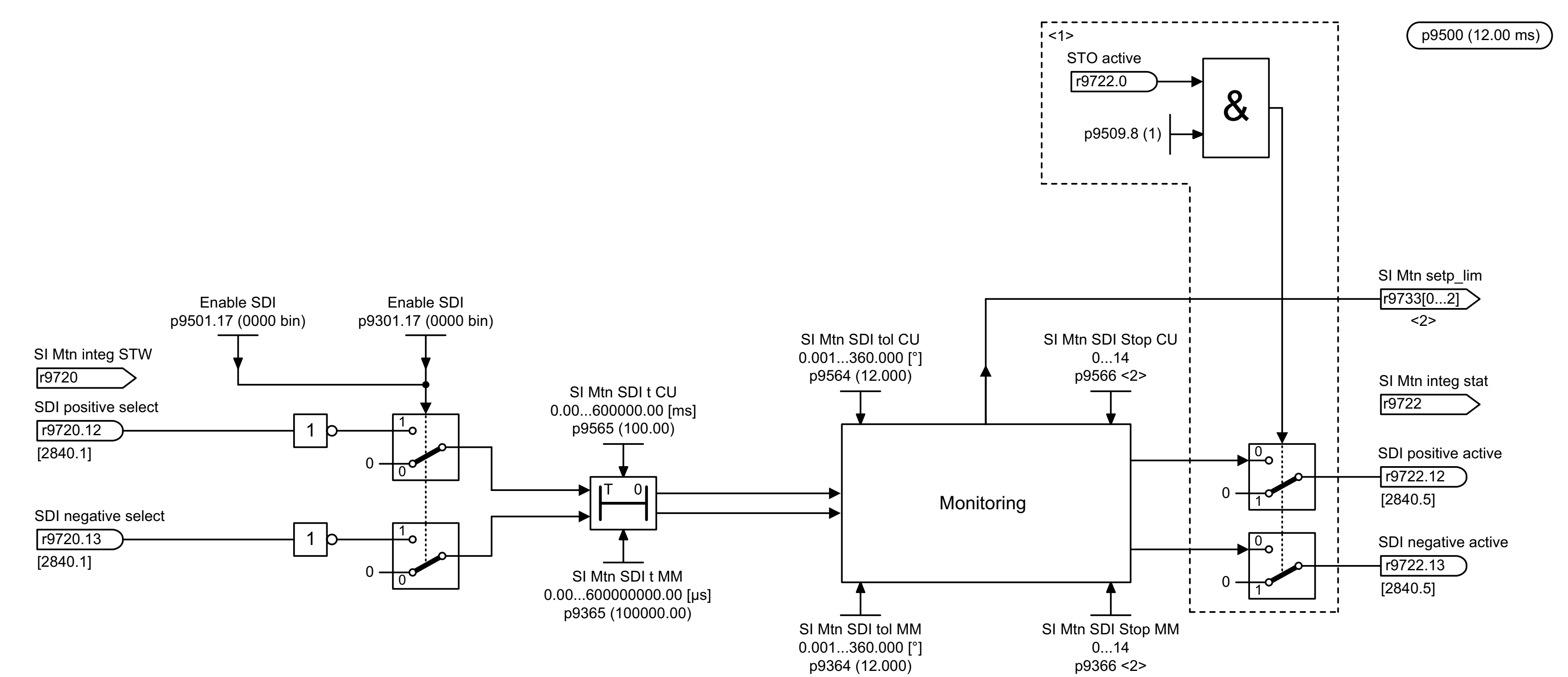
Fig. 3-86 2822 – SLP (Safely-Limited Position)



<1> Only for p9506 = 1 or 3 “Safety without encoder“.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2823_54_eng.vsd	Function diagram	- 2823 -
SI Extended Functions - SSM (Safe Speed Monitor)					07.11.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-88 2824 – SDI (Safe Direction)



<1> Only for p9506 = 1 or 3 "Safety without encoder".

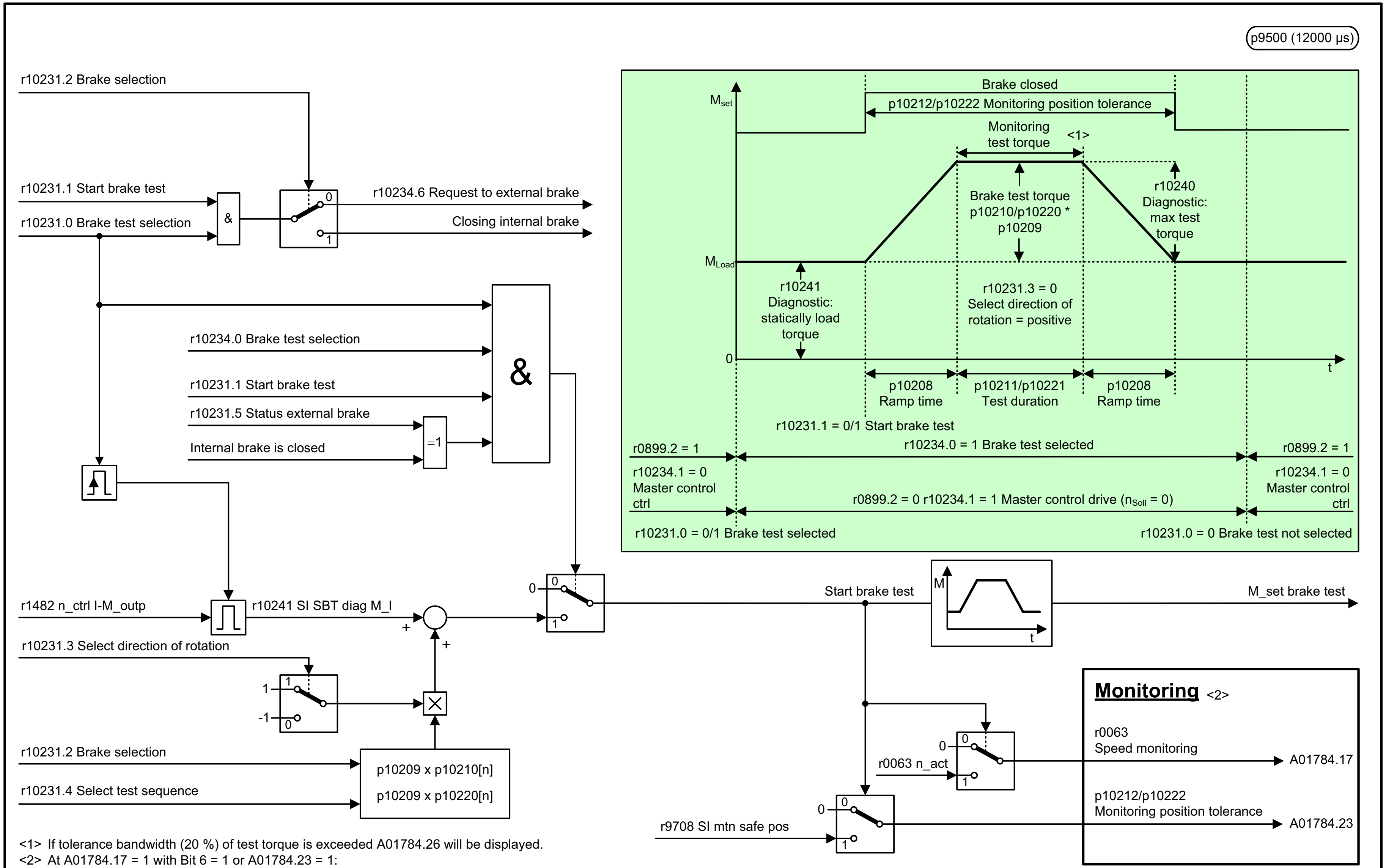
<2>

Selected SI-Function	r9733[0] Setpoint limiting positive	r9733[1] Setpoint limiting negative	r9733[2] Setpoint limit absolute
SDI positive	p1082	0	|p1082|
SDI negative	0	–p1082	|p1082|
SDI positive + SLSx	p9531[x] x p9533	0	|p9531[x] x p9533|
SDI negativ + SLSx	0	–p9531[x] x p9533	|p9531[x] x p9533|

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2824_54_eng.vsd	Function diagram	- 2824 -
SI Extended Functions - SDI (Safe Direction)	19.06.12 V04.07.00	S120/S150/G130/G150	

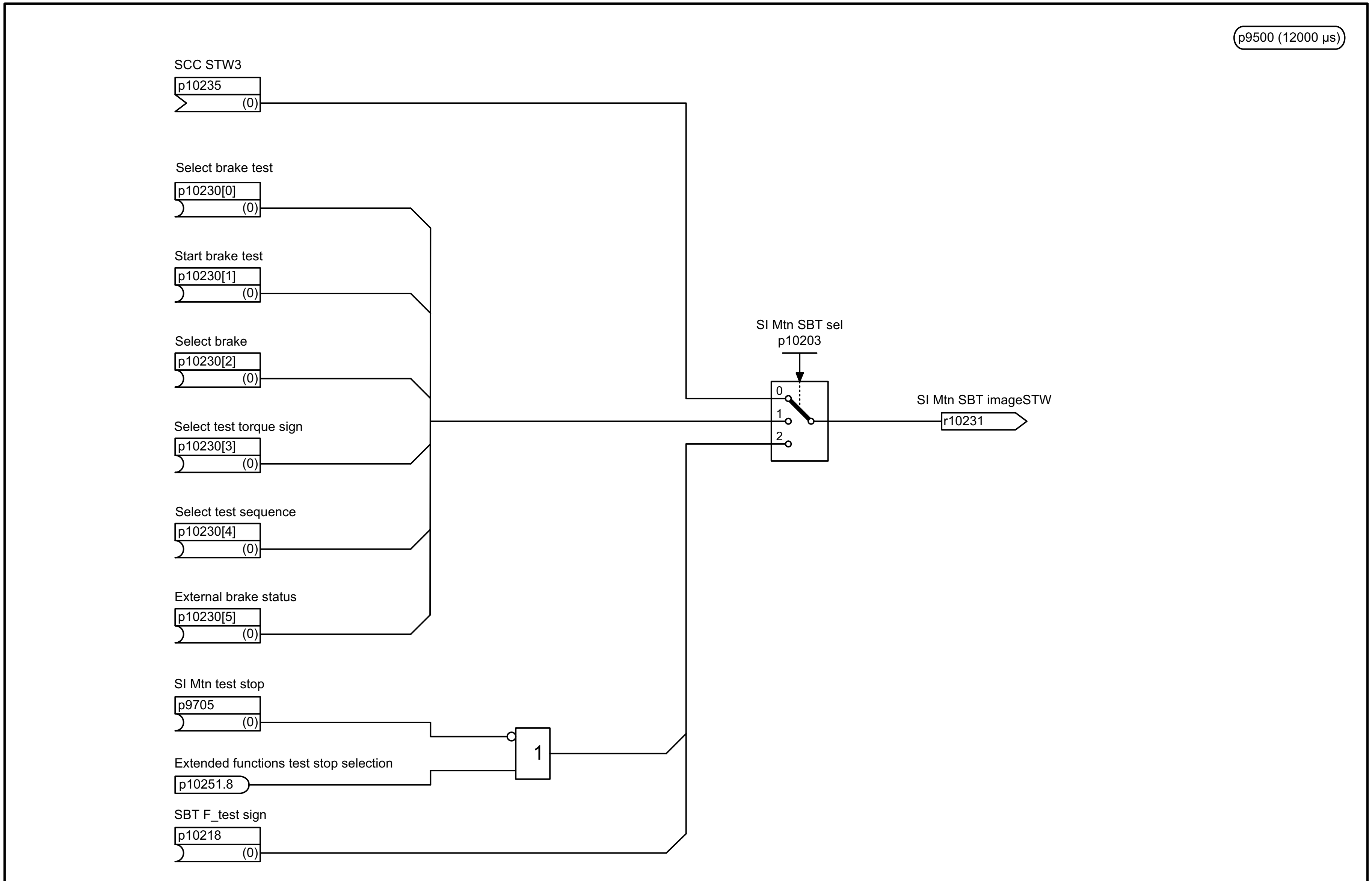
Fig. 3-89 2836 – SBT (Safe Brake Test)



<1> If tolerance bandwidth (20 %) of test torque is exceeded A01784.26 will be displayed.
<2> At A01784.17 = 1 with Bit 6 = 1 or A01784.23 = 1:
If value in p1217 is too low, the brake will be closed too late at SBT-Start. Adapting of p1217 is necessary.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2836_54_eng.vsd	Function diagram	- 2836 -
SI Extended Functions - SBT (Safe Brake Test)					22.11.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-90 2837 – Selection of active control word



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2837_54_eng.vsd	Function diagram	- 2837 -
SI Extended Functions - Selection of active control word					11.09.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-91 2840 – SI Motion drive-integrated control signals/status signals

SI Motion drive-integrated control signals

SI Mtn integ STW → r9720

Source	Bit No.	Meaning
<1> [2855.3] <2> [2858.3]	0	**1 = De-select STO**
<1> [2855.3] <2> [2858.3]	1	**1 = De-select SS1**
<1> [2855.3] <2> [2858.3]	2	**1 = De-select SS2**
<1> [2855.3] <2> [2858.3]	3	**1 = De-select SOS**
<1> [2855.3] <2> [2858.3]	4	**1 = De-select SLS**
	...	**Reserved**
<1> [2855.3] <2> [2858.3]	6	**1 = De-select SLP**
<1> [2855.3] <2> [2858.3]	7	**1/0 = Acknowledgement**
	...	**Reserved**
<1> [2855.3] <2> [2858.3]	9	**1 = Select SLS bit 0**
<1> [2855.3] <2> [2858.3]	10	**1 = Select SLS bit 1**
	...	**Reserved**
<1> [2855.3] <2> [2858.3]	12	**1 = Deselect SDI positive**
	13	**1 = Deselect SDI negative**
	...	**Reserved**
<1> [2855.3] <2> [2858.3]	19	**1 = Select SLP position range** (0 = SLP1, 1 = SLP2)

SI Motion drive-integrated status signals

p9500 (12.00 ms)

SI Mtn integ stat → r9722

Source	Bit No.	Meaning
<1> [2855.6] <2> [2858.6]	0	**1 = STO or safe pulse cancellation active**
<1> [2855.6] <2> [2858.6]	1	**1 = SS1 active**
<1> [2855.6] <2> [2858.6]	2	**1 = SS2 active**
<1> [2855.6] <2> [2858.6]	3	**1 = SOS active**
<1> [2855.6] <2> [2858.6]	4	**1 = SLS active**
	...	**Reserved**
<1> [2855.6] <2> [2858.6]	6	**1 = SLP active**
<1> [2855.6] <2> [2858.6]	7	**1 = Internal event no**
	...	**Reserved**
<1> [2855.6] <2> [2858.6]	9	**Active SLS stage bit 0** (0 = SLS1, 1 = SLS2, 2 = SLS3, 3 = SLS4)
<1> [2855.6] <2> [2858.6]	10	**Active SLS stage bit 1**
<1> [2855.6] <2> [2858.6]	11	**1 = SOS selected** <3>
<1> [2855.6] <2> [2858.6]	12	**1 = SDI pos active**
<1> [2855.6] <2> [2858.6]	13	**1 = SDI neg active**
	...	**Reserved**
<2> [2858.6]	15	**1 = SSM (speed below limit value)**
	...	**Reserved**
<1> [2855.6] <2> [2858.6]	19	**SLP active position area** (0 = SLS1, 1 = SLS2)
	...	**Reserved**
<1> [2855.6] <2> [2858.6]	22	**1 = SP valid**
<1> [2855.6] <2> [2858.6]	23	**1 = Safely referenced**
	...	**Reserved**
<1> [2855.6] <2> [2858.6]	30	**1 = SLP limit upper maintained**
<1> [2855.6] <2> [2858.6]	31	**1 = SLP limit lower maintained**

<1> Only at drive of the Extended Functions via TM54F or onboard interface for CU310-2.
<2> Only at drive of the Extended Functions via PROFIsafe.
<3> S_ZSW1.11 or S_ZSW2.29 depending on the telegram number selected in p9611/p9811 when actuating the Extended Functions via PROFIsafe.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2840_54_eng.vsd	Function diagram	- 2840 -
SI Extended Functions - SI Motion drive-integrated control signals/status signals	09.01.13 V04.07.00	S120/S150/G130/G150	

2 x p9500 (24.00 ms)

S_STW1 Safety control word 1

[2858.2] → S_STW1 [2858.3]

Bit No.	Meaning
0	1 = Deselect STO
1	1 = Deselect SS1
2	1 = Deselect SS2
3	1 = Deselect SOS
4	1 = Deselect SLS
...	Reserved
6	1 = Deselect SLP
7	1/0 = Acknowledgement
...	Reserved
9	1 = Select SLS bit 0
10	1 = Select SLS bit 1
...	Reserved
12	1 = Deselect SDI positive
13	1 = Deselect SDI negative
... 15	Reserved

S_ZSW1 Safety status word 1

S_ZSW1 [2858.7]

Source	Bit No.	Meaning	
[2858.6]	0	1 = STO or safe pulse cancellation active	
[2858.6]	1	1 = SS1 active	
[2858.6]	2	1 = SS2 active	
[2858.6]	3	1 = SOS active	
[2858.6]	4	1 = SLS active	
	...	Reserved	
[2858.6]	6	1 = SLP active	
r9722.7 [2858.6] (1)	7	1 = Internal event	
	...	Reserved	
[2858.6]	9	Active SLS stage bit 0	0 = SLS1 1 = SLS2 2 = SLS3 3 = SLS4
[2858.6]	10	Active SLS stage bit 1	
[2858.6]	11	1 = SOS selected	
[2858.6]	12	1 = SDI positiv active	
[2858.6]	13	1 = SDI negativ active	
	...	Reserved	
[2858.6]	15	1 = SSM (speed below limit value)	

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2842_54_eng.vsd	Function diagram	- 2842 -
SI Extended Functions - S_STW1 Safety control word 1, S_ZSW1 Safety status word 1	21.03.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-92 2842 – S_STW1 Safety control word 1, S_ZSW1 Safety status word 1

Fig. 3-93 2843 – S_STW2 Safety control word 2, S_ZSW2 Safety status word 2

2 x p9500 (24.00 ms)

S_STW2 Safety control word 2

[2858.2] → S_STW2 [2858.3]

Bit No.	Meaning		
0	1 = Deselection STO		
1	1 = Deselection SS1		
2	1 = Deselection SS2		
3	1 = Deselection SOS		
4	1 = Deselection SLS		
5	Reserved		
6	1 = Deselection SLP		
7	1/0 = Acknowledgement		
8	Reserved		
9	1 = Select SLS bit 0		
10	1 = Select SLS bit 1		
11	Reserved		
12	1 = Deselection SDI positive		
13	1 = Deselection SDI negative		
. . .	Reserved		
19	SLP position area	0 = SLP1	1 = SLP2
. . .	Reserved		

S_ZSW2 Safety status word 2

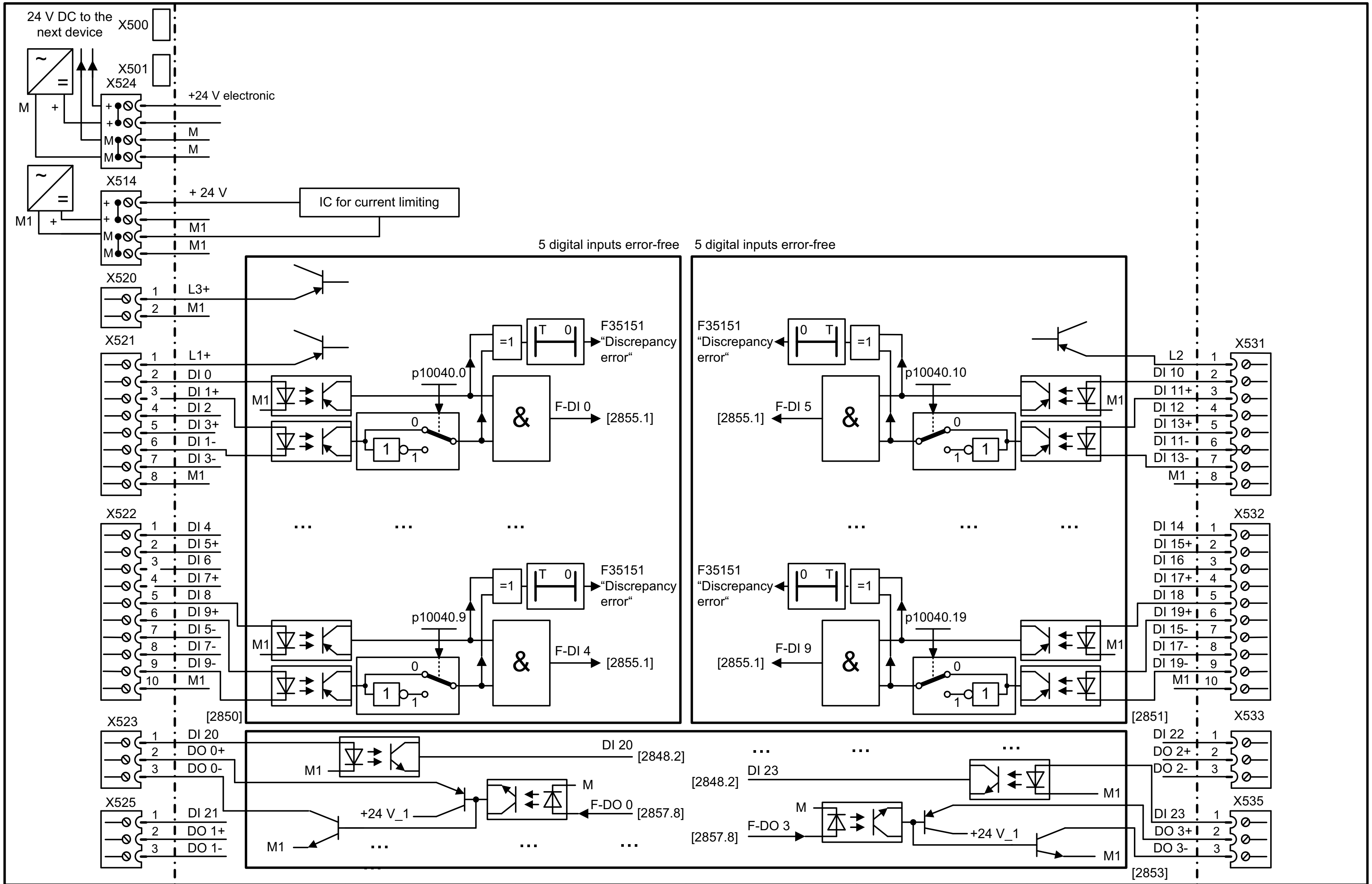
S_ZSW2 [2858.7]

Input	Bit No.	Meaning		
	0	1 = STO or safe pulse cancellation active		
[2858.6]	1	1 = SS1 active		
[2858.6]	2	1 = SS2 active		
[2858.6]	3	1 = SOS active		
[2858.6]	4	1 = SLS active		
	5	Reserved		
[2858.6]	6	1 = SLP active		
[2858.6], r9722.7, [2858.6] → 1	7	1 = Internal event		
	8	Reserved		
[2858.6]	9	Active SLS stage bit 0	0 = SLS1	1 = SLS2
[2858.6]	10	Active SLS stage bit 1	2 = SLS3	3 = SLS4
	11	Reserved		
[2858.6]	12	1 = SDI pos active		
[2858.6]	13	1 = SDI neg active		
	14	Reserved		
[2858.6]	15	SSM (Speed below limit value)		
	. . .	Reserved		
[2858.6]	19	SLP active position area	0 = SLP1	1 = SLP2
	. . .	Reserved		
[2858.6]	22	1 = SP valid		
[2858.6]	23	1 = Safety referenced		
[2070.8]	24	1 = F-DI 0 inactive	<1>	
[2070.8]	25	1 = F-DI 1 inactive	<1>	
[2070.8]	26	1 = F-DI 2 inactive	<1>	
	. . .	Reserved		
[2858.6]	29	1 = SOS selected		
[2858.6]	30	1 = SLP limit upper maintained		
[2858.6]	31	1 = SLP limit lower maintained		

<1> Nur bei CU310-2

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_2843_54_eng.vsd	Function diagram	- 2843 -
SI Extended Functions - S_STW2 Safety control word 2, S_ZSW2 Safety status word 2					05.04.12 V04.07.00	S120/S150/G130/G150	

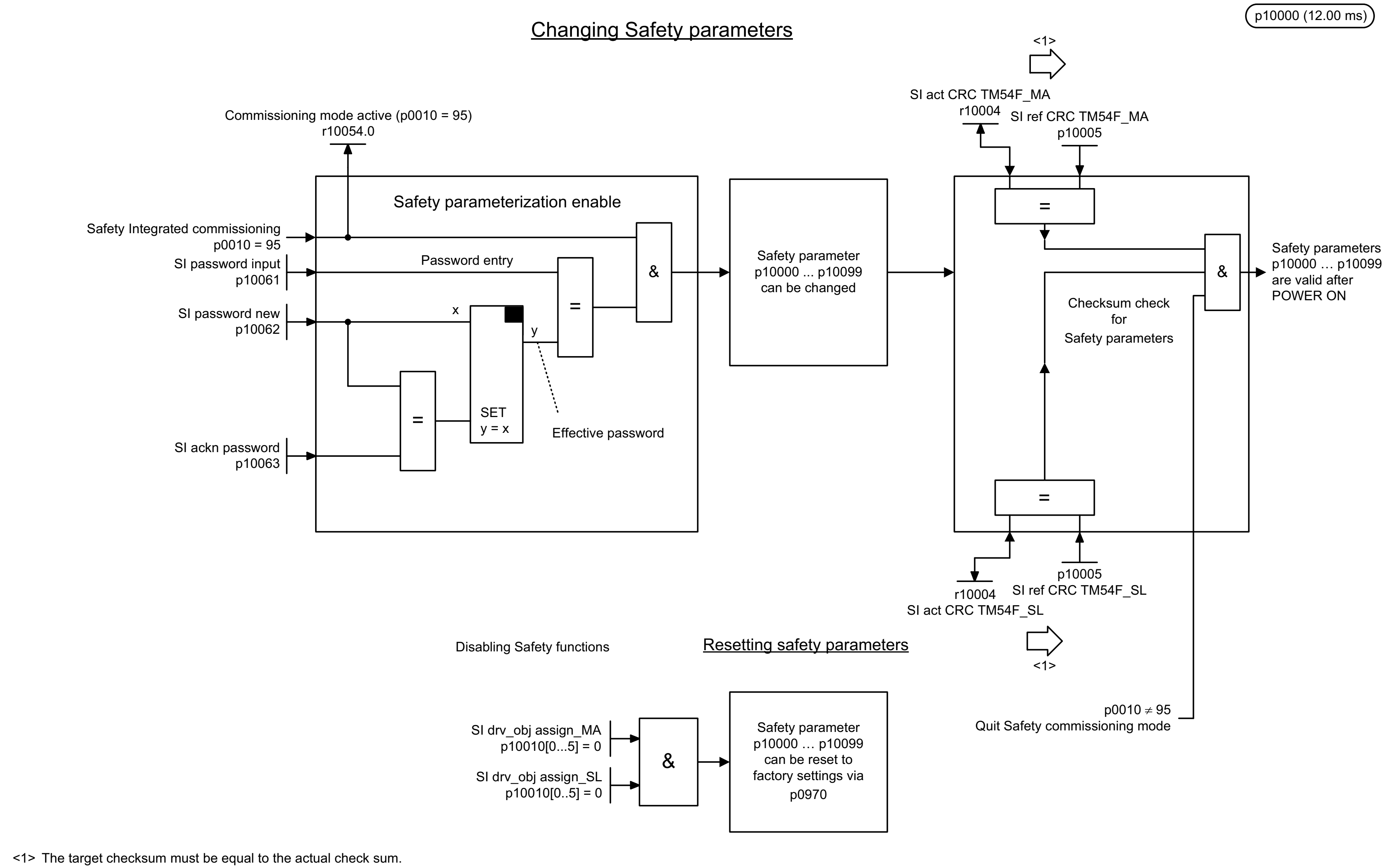
Fig. 3-94 2846 – TM54F overview



1	2	3	4	5	6	7	8

DO : TM54F_MA, TM54F_SL	fp_2846_51_eng.vsd	Function diagram	- 2846 -
SI Extended Functions - TM54F overview	12.03.13 V04.07.00	SINAMICS	

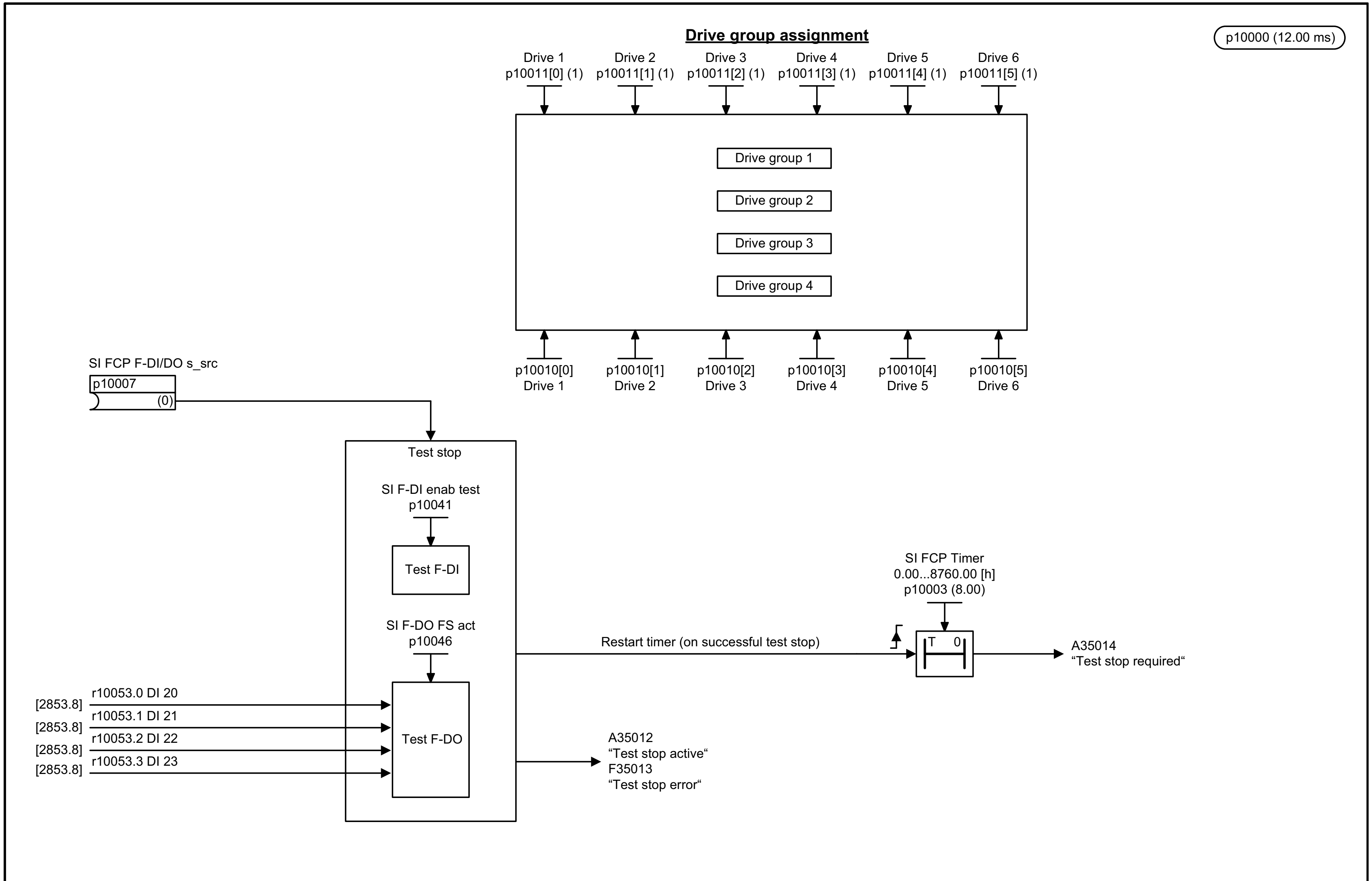
Fig. 3-95 2847 – TM54F parameter manager



<1> The target checksum must be equal to the actual check sum.

1	2	3	4	5	6	7	8
DO: TM54F_MA, TM54F_SL					fp_2847_51_eng.vsd	Function diagram	- 2847 -
SI Extended Functions - TM54F parameter manager					06.03.13 V04.07.00	SINAMICS	

Fig. 3-96 2848 – TM54F configuration, F-DI/F-DO test



1	2	3	4	5	6	7	8
DO: TM54F_MA, TM54F_SL					fp_2848_51_eng.vsd	Function diagram	- 2848 -
SI Extended Functions - TM54F configuration, F-DI/F-DO test					07.12.12 V04.07.00	SINAMICS	

Fig. 3-97 2850 – TM54F (F-DI 0 ... F-DI 4)

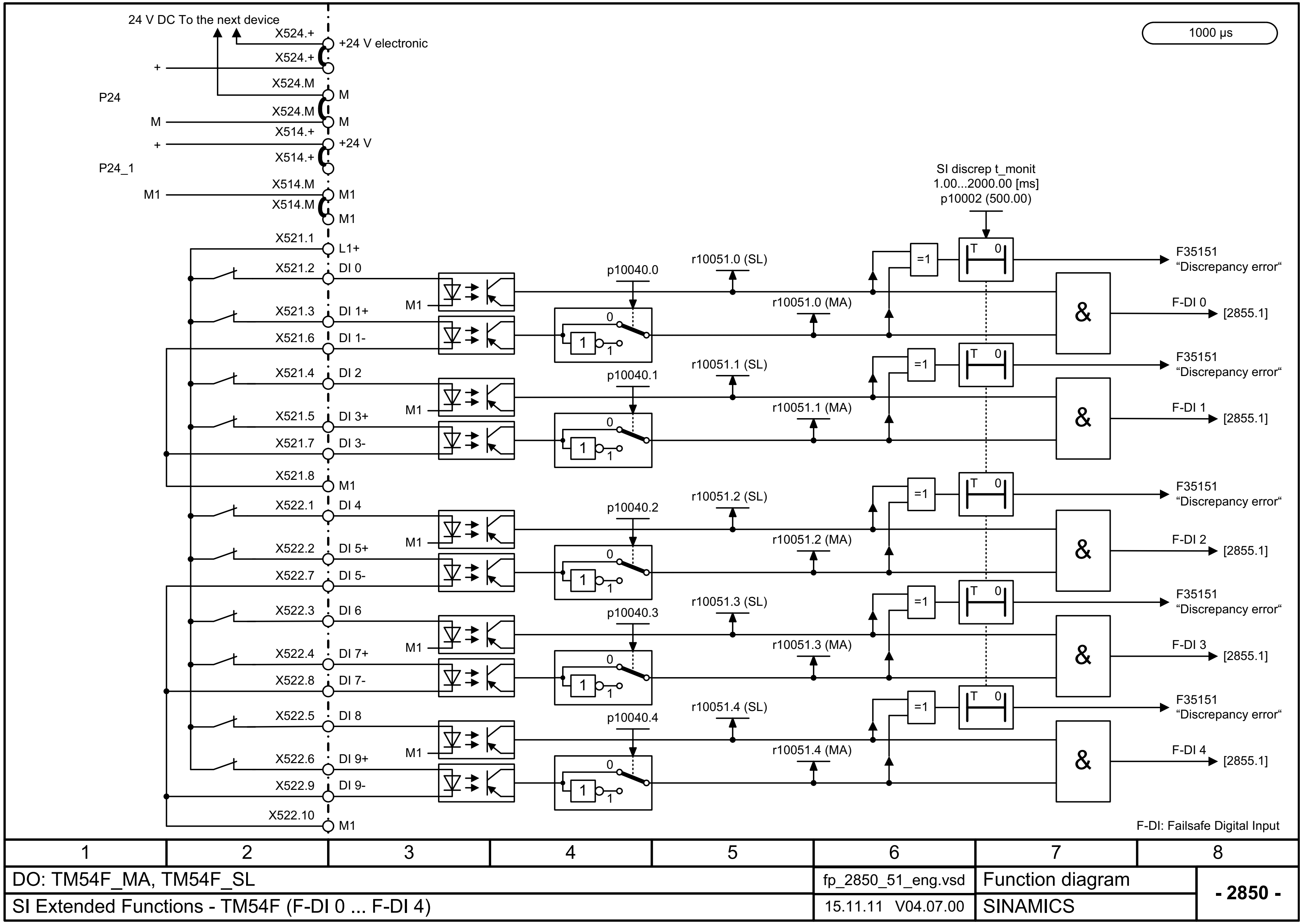
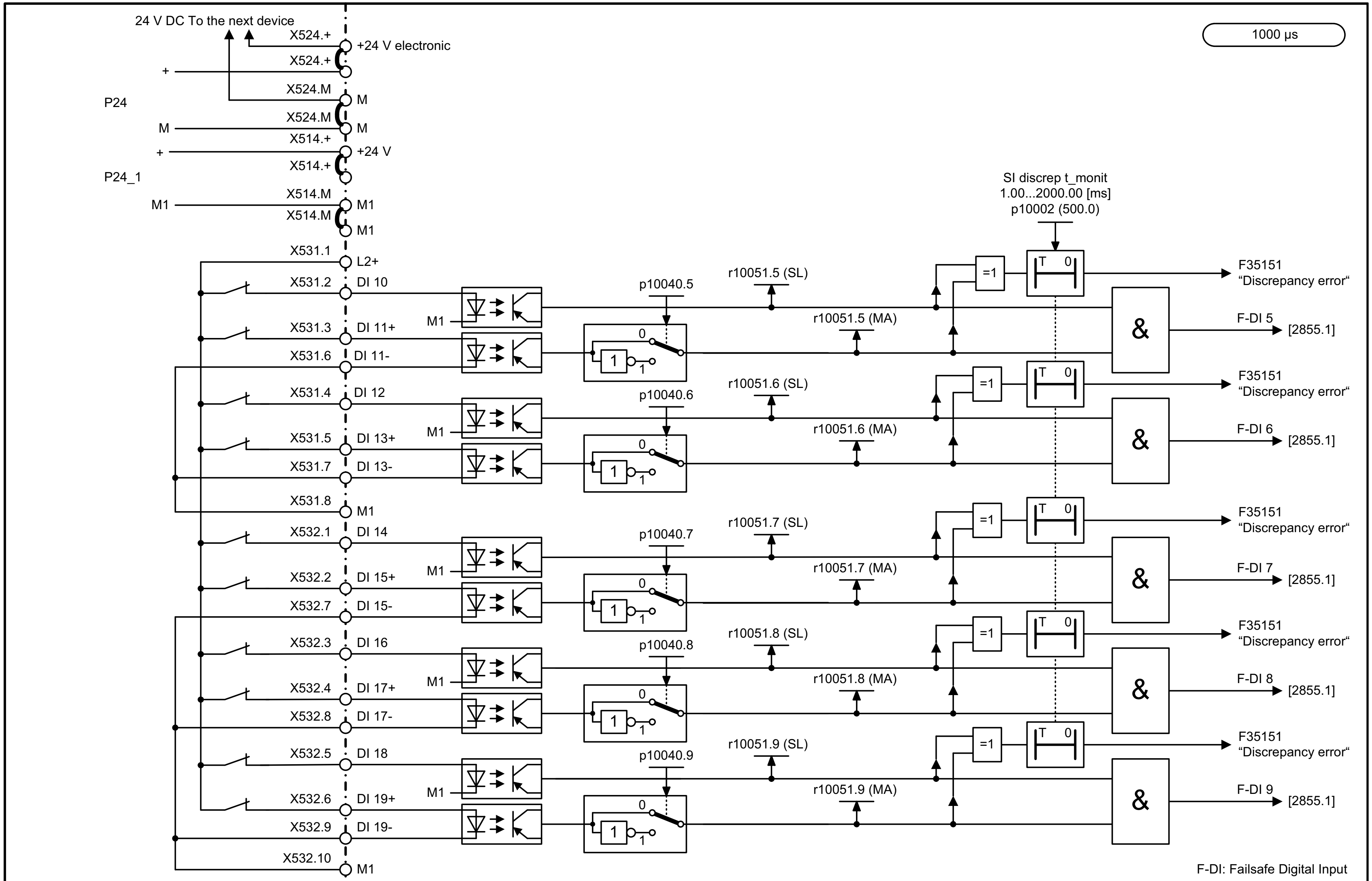
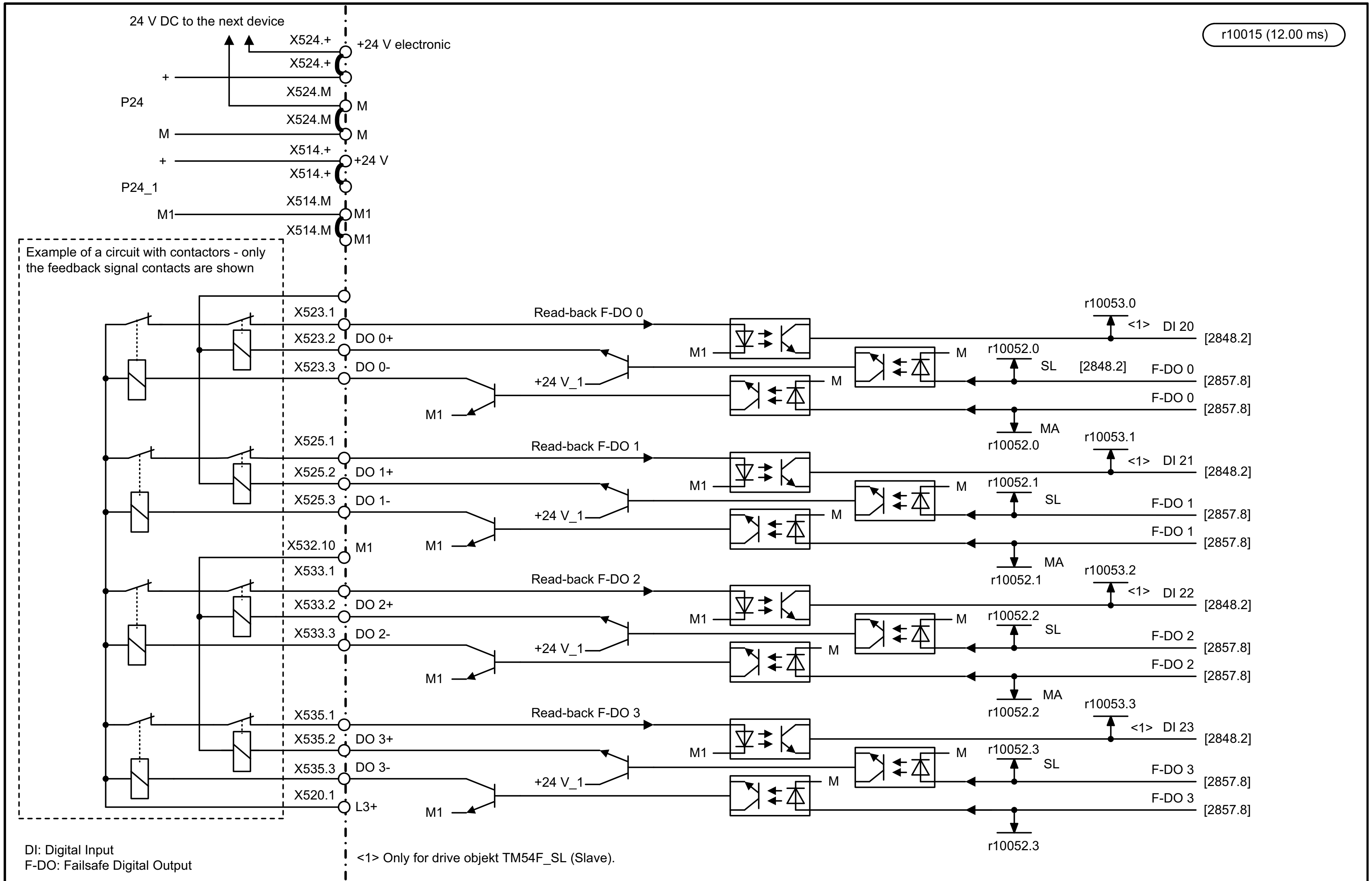


Fig. 3-98 2851 – TM54F (F-DI 5 ... F-DI 9)

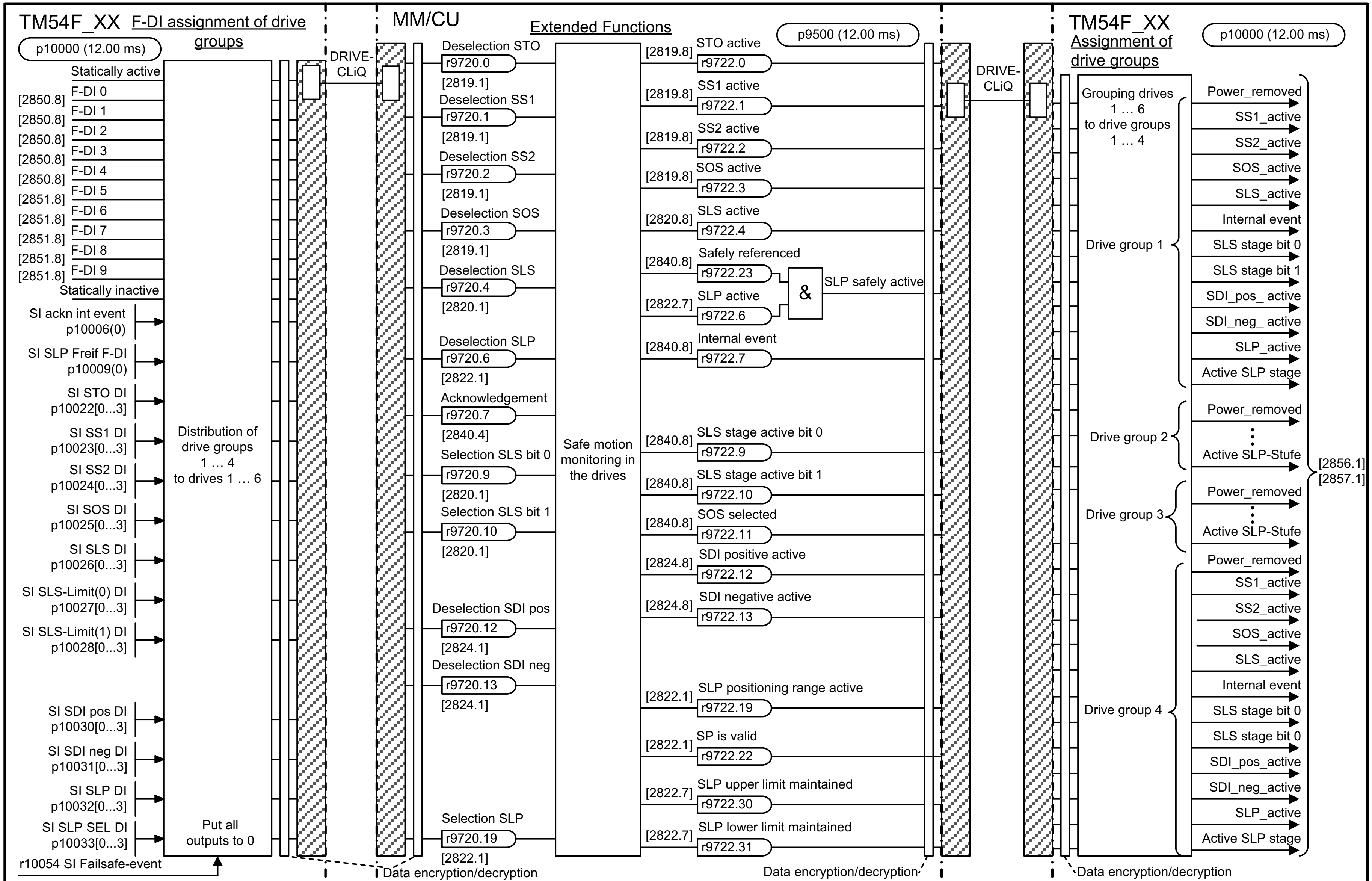


1	2	3	4	5	6	7	8
DO: TM54F_MA, TM54F_SL					fp_2851_51_eng.vsd	Function diagram	- 2851 -
SI Extended Functions - TM54F (F-DI 5 ... F-DI 9)					14.11.11 V04.07.00	SINAMICS	



1	2	3	4	5	6	7	8
DO: TM54F_MA, TM54F_SL					fp_2853_51_eng.vsd	Function diagram	- 2853 -
SI Extended Functions - TM54F (F-DO 0 ... F-DO 3, DI 20 ... DI 23)					19.09.13 V04.07.00	SINAMICS	

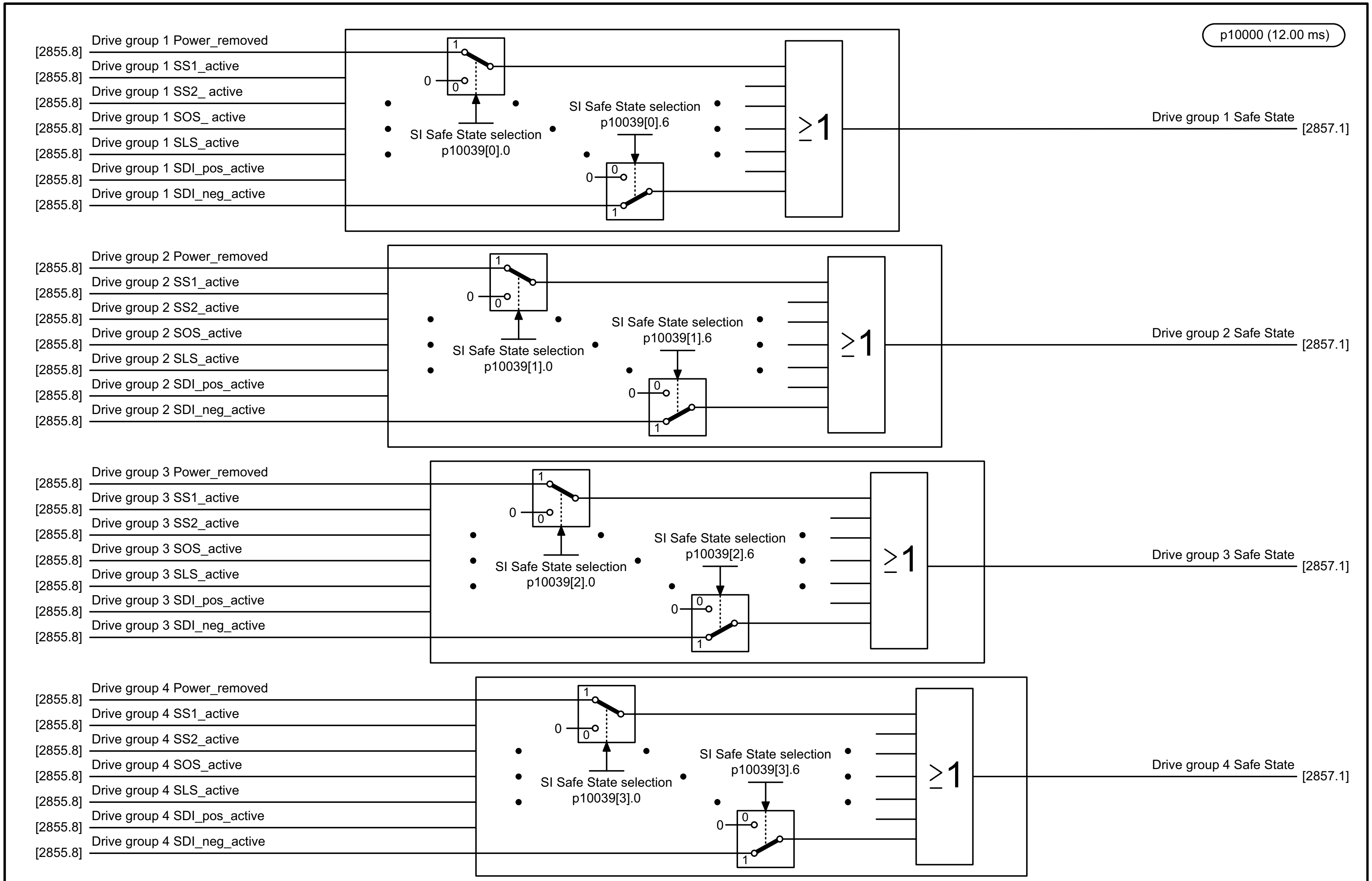
Fig. 3-100 2855 – TM54F control interface (p9601.2 = 1 & p9601.3 = 0)



1	2	3	4	5	6	7	8

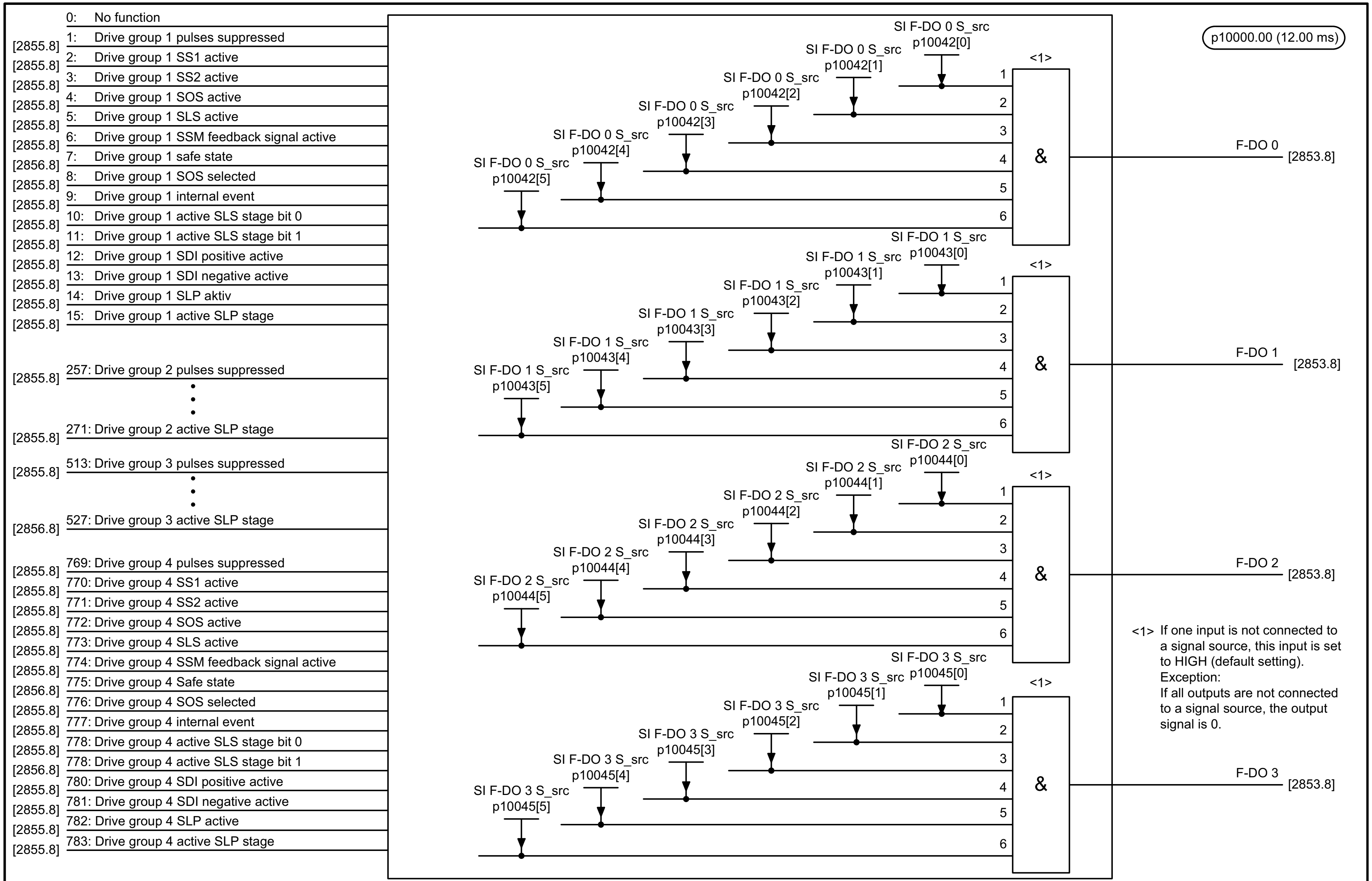
DO: TM54F_MA, TM54F_SL	fp_2855_51_eng.vsd	Function diagram	- 2855 -
SI Extended Functions - TM54F control interface (p9601.2 = 1 & p9601.3 = 0)	07.11.12 V04.07.00	SINAMICS	

Fig. 3-101 2856 – TM54F Safe State selection



1	2	3	4	5	6	7	8
DO: TM54F_MA, TM54F_SL					fp_2856_51_eng.vsd	Function diagram	- 2856 -
SI Extended Functions - TM54F Safe State selection					05.06.12 V04.07.00	SINAMICS	

Fig. 3-102 2857 – TM54F assignment (F-DO 0 ... F-DO 3)



1	2	3	4	5	6	7	8

DO: TM54F_MA, TM54F_SL	fp_2857_51_eng.vsd	Function diagram	- 2857 -
SI Extended Functions - TM54F assignment (F-DO 0 ... F-DO 3)	23.03.12 V04.07.00	SINAMICS	

3.11 Safety Integrated PROFIsafe

Function diagrams

SI Ps telegr par p60022 | SI Ps telegr CU p9611 | SI Ps telegr MM p9811

<1>

Only at Basic Functions: 2 x r9780
Only at Extended Functions: 2 x p9500 (24.00 ms)

Interconnection is made according to				
Telegram	30		31	
Appl. class	-		-	
PZD1	S_STW1	S_ZSW1	S_STW2	S_ZSW2
PZD2				
PZD3				
PZD4				
PZD5				
PZD6				
PZD7				
PZD8				
PZD9				
PZD10				
PZD11				
PZD12				
PZD13				
PZD14				
PZD15				
PZD16				
PZD17				
PZD18				
PZD19				
PZD20				
PZD21				
PZD22				
PZD23				
PZD24				
PZD25				
PZD26				
PZD27				
PZD28				
PZD29				
PZD30				
PZD31				
PZD32	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET

<1> Depending on the hardware and software version of the drive product used (SINAMICS G, SINAMICS S, software version, ...), only subsets of the Safety Integrated functions (SI functions) listed may be configured.
The current Safety Integrated Function Manual (FHS) describes which SI functions are supported by which drive products.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_2915_54_eng.vsd	Function diagram	- 2915 -
PROFIsafe - Standard telegrams	04.12.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-103 2915 – Standard telegrams

Fig. 3-104 2917 – Manufacturer-specific telegrams

SI Ps telegr_sel p60022 | SI Ps telegr CU p9611 | SI Ps telegr MM p9811 | <1>

Only at Basic Functions: 2 x r9780
Only at Extended Functions: 2 x p9500 (24.00 ms)

Interconnection is made according to					
Telegram	901		902		
Appl. class	-		-		
PZD1	S_STW2	S_ZSW2	S_STW2	S_ZSW2	
PZD2					
PZD3	S_SLS_LIMIT_A	S_SLS_LIMIT_A_ACTIVE	S_SLS_LIMIT_A	S_SLS_LIMIT_A_ACTIVE	
PZD4		S_CYCLE_COUNT		S_CYCLE_COUNT	
PZD5		S_XIST16		S_XIST32	
PZD6					
PZD7					
PZD8					
PZD9					
PZD10					
PZD11					
PZD12					
PZD13					
PZD14					
PZD15					
PZD16					
PZD17					
PZD18					
PZD19					
PZD20					
PZD21					
PZD22					
PZD23					
PZD24					
PZD25					
PZD26					
PZD27					
PZD28					
PZD29					
PZD30					
PZD31					
PZD32					
	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	Receive telegram from PROFIBUS/PROFINET	Send telegram to PROFIBUS/PROFINET	

<1> Depending on the hardware and software version of the drive product used (SINAMICS G, SINAMICS S, software version, ...), only subsets of the Safety Integrated functions (SI functions) listed may be configured.
The current Safety Integrated Function Manual (FHS) describes which SI functions are supported by which drive products.

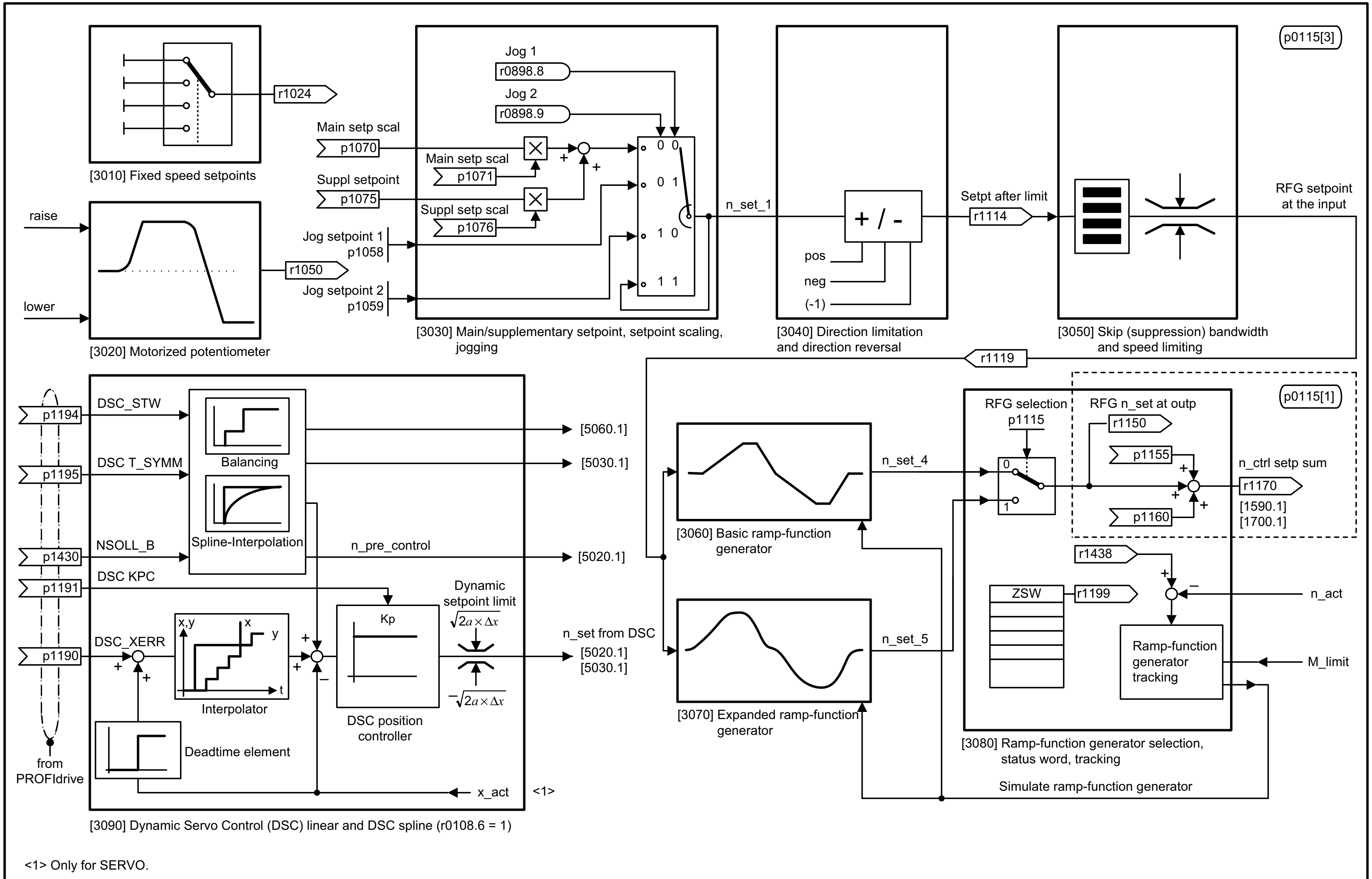
1	2	3	4	5	6	7	8

DO: SERVO, VECTOR | fp_2917_54_eng.vsd | Function diagram | - 2917 -
SI PROFIsafe - Manufacturer-specific telegrams | 04.12.12 V04.07.00 | S120/S150/G130/G150

3.12 Setpoint channel

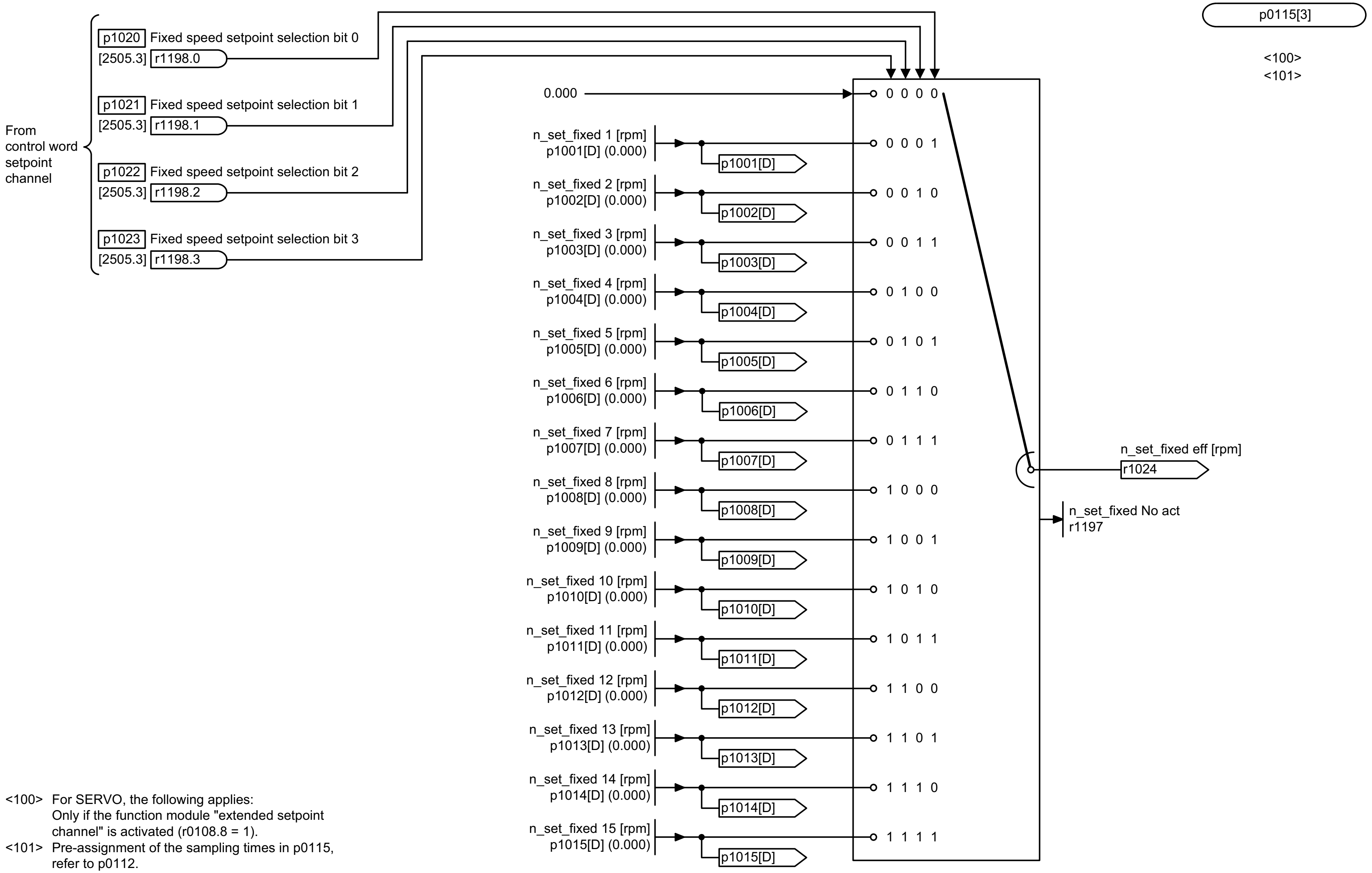
Function diagrams

Fig. 3-105 3001 – Overview



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3001_51_eng.vsd	Function diagram	- 3001 -
Setpoint channel - Overview					16.10.13 V04.07.00	SINAMICS	

Fig. 3-106 3010 – Fixed speed setpoints

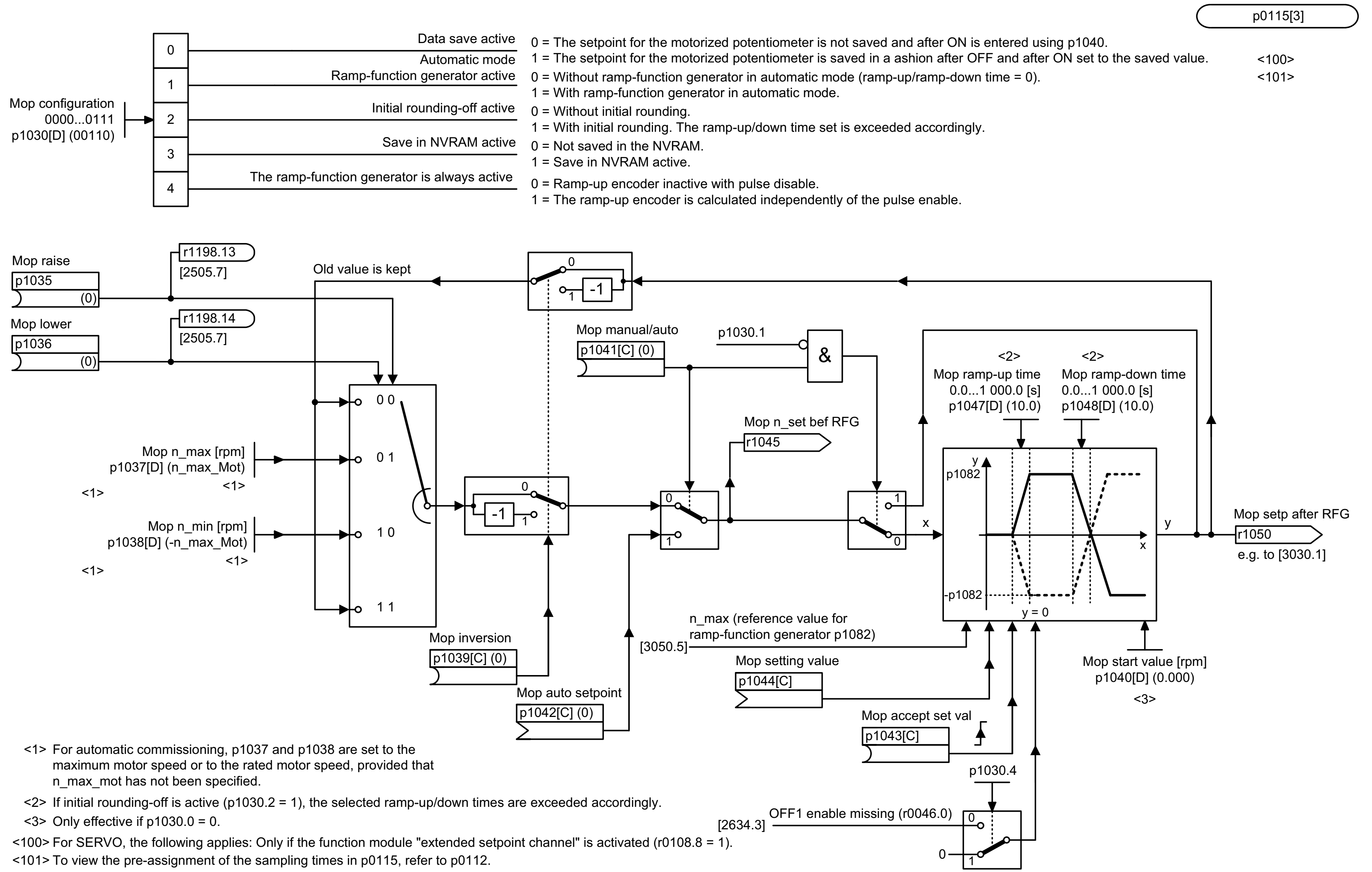


<100> For SERVO, the following applies: Only if the function module "extended setpoint channel" is activated (r0108.8 = 1).

<101> Pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3010_51_eng.vsd	Function diagram	- 3010 -
Setpoint channel - Fixed speed setpoints					16.10.13 V04.07.00	SINAMICS	

Fig. 3-107 3020 – Motorized potentiometer



<1> For automatic commissioning, p1037 and p1038 are set to the maximum motor speed or to the rated motor speed, provided that n_max_mot has not been specified.

<2> If initial rounding-off is active (p1030.2 = 1), the selected ramp-up/down times are exceeded accordingly.

<3> Only effective if p1030.0 = 0.

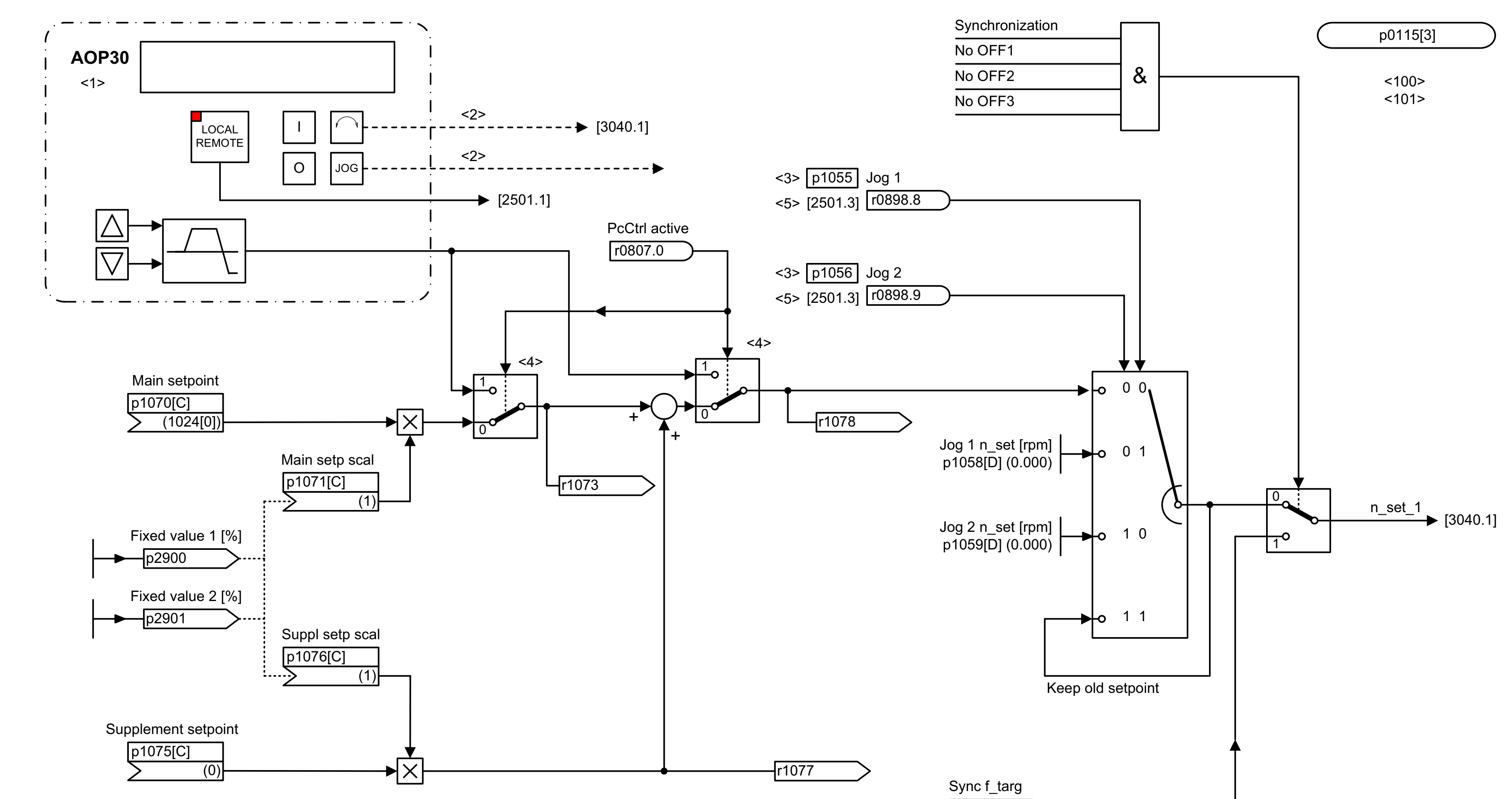
<100> For SERVO, the following applies: Only if the function module "extended setpoint channel" is activated (r0108.8 = 1).

<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8

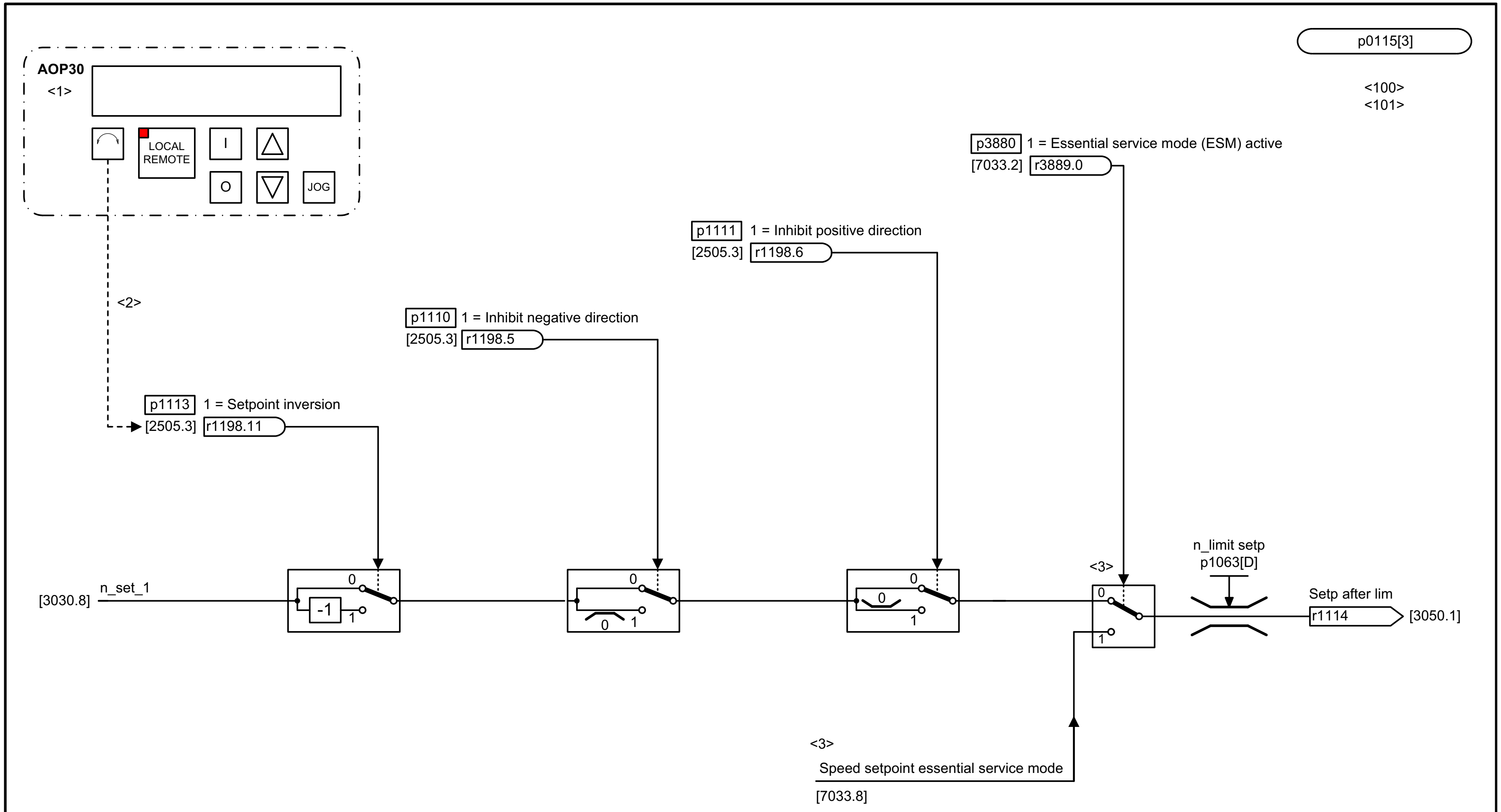
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL	fp_3020_51_eng.vsd	Function diagram	- 3020 -
Setpoint channel - Motorized potentiometer	16.10.13 V04.07.00	SINAMICS	

Fig. 3-108 3030 – Main/supplementary setpoint, setpoint scaling, jogging



<1> AOP30 not at SINAMICS SM150.
<2> Only active in LOCAL mode (r0807.0 = 1) [2501.2].
<3> Jogging can only be activated in the following operating states (sequencer see [2610]):
- For SERVO and VECTOR: In the “Ready to start (S2)“ operating state.
- For VECTORGL and VECTORMV: In the “Operation (S4)“ operating strate.
<4> Only if control priority is with control panel with speed setpoint input.
<5> With simultaneous jog 1 and 2 (p1055 = p1056 = 1) the last setpoint remains effective (Freeze ramp-function generator).
<100> For SERVO, the following applies: Only if the function module “extended setpoint channel“ is activated (r0108.8 = 1).
<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3030_51_eng.vsd	Function diagram	- 3030 -
Setpoint channel - Main/supplementary setpoint, setpoint scaling, jogging					16.10.13 V04.07.00	SINAMICS	

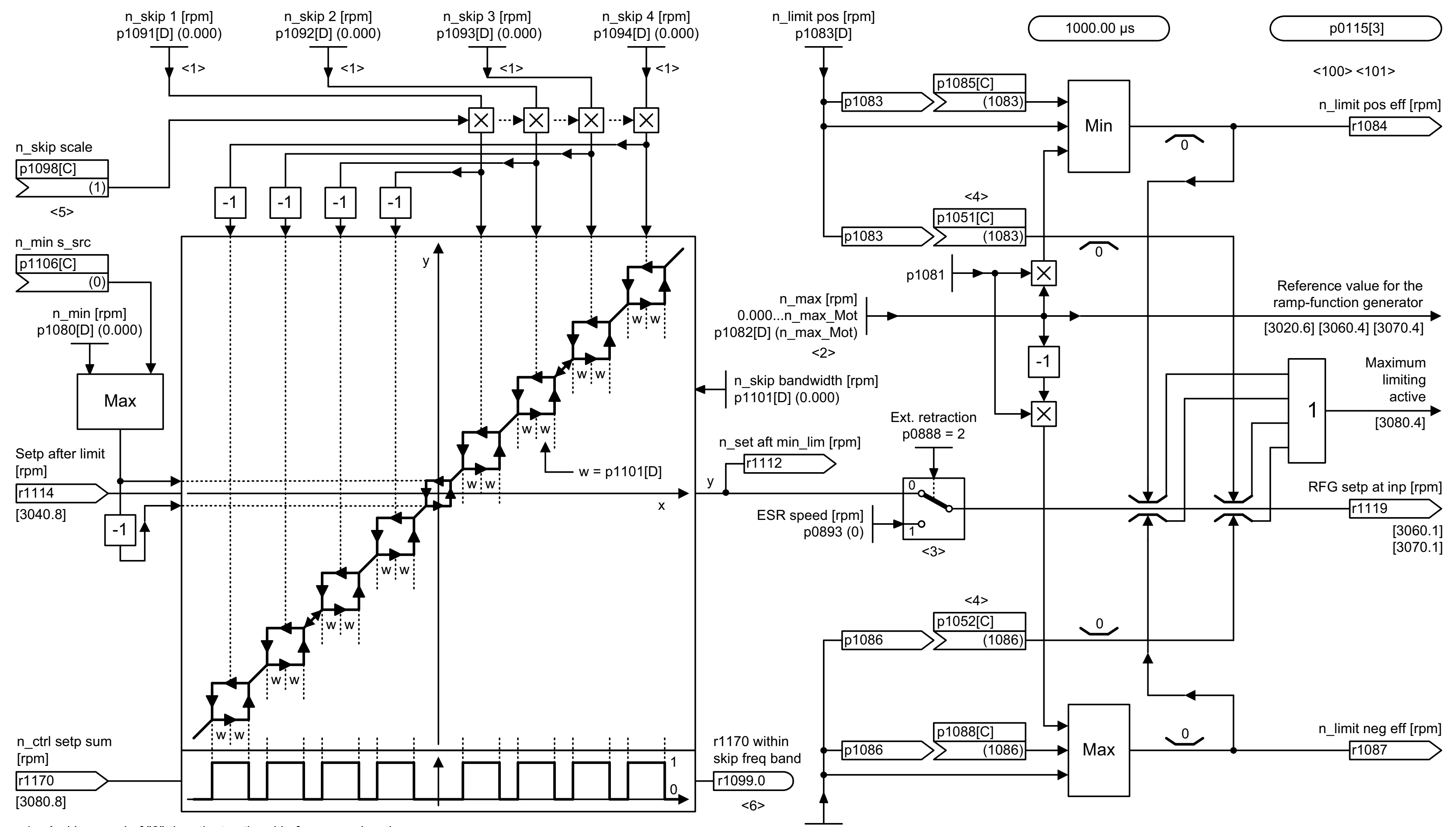


<1> AOP30 not at SINAMICS SM150.
<2> Only active in LOCAL mode (r0807.0 = 1) [2501.2].
<3> Only for G130/G150.
<100> For SERVO, the following applies: Only if the function module “extended setpoint channel“ is activated (r0108.8 = 1).
<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3040_51_eng.vsd	Function diagram	- 3040 -
Setpoint channel - Direction limitation and direction reversal					16.10.13 V04.07.00	SINAMICS	

Fig. 3-109 3040 – Direction limitation and direction reversal

Fig. 3-110 3050 – Skip frequency bands and speed limitations

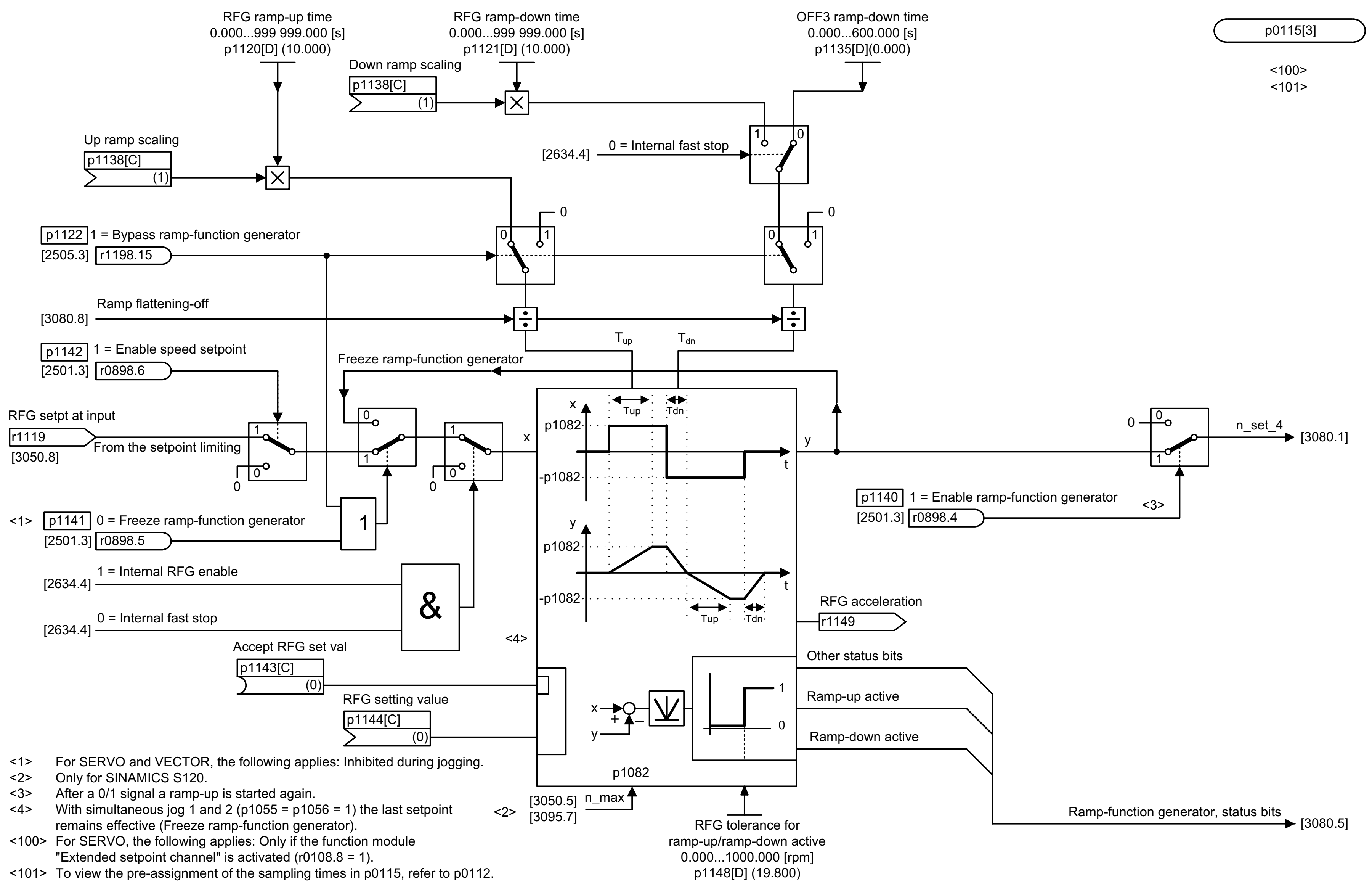


<1> A skip speed of "0" deactivates the skip frequency band.
<2> n_max_Mot: Value is appropriately pre-assigned after quick commissioning (p0010 = 1).
<3> Only for SERVO and activated "Extended stop and retract" function module (r0108.9 = 1).
<4> When the limit is being reduced the OFF3 ramp-down time (p1135) is effective.
<5> For VECTORGL the following interconnection allows tracking corresponding to line frequency: CI: p1098[C] = r6310.
<6> BO: r1099.0 may be used for DDS changeover.

<100> For SERVO, the following applies: Only if the function module "Extended setpoint channel" is activated (r0108.8 = 1). For r0108.8 = 0, [3095] applies for the generation of the speed limits.
<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3050_51_eng.vsd	Function diagram	- 3050 -
Setpoint channel - Skip frequency bands and speed limitations					16.10.13 V04.07.00	SINAMICS	

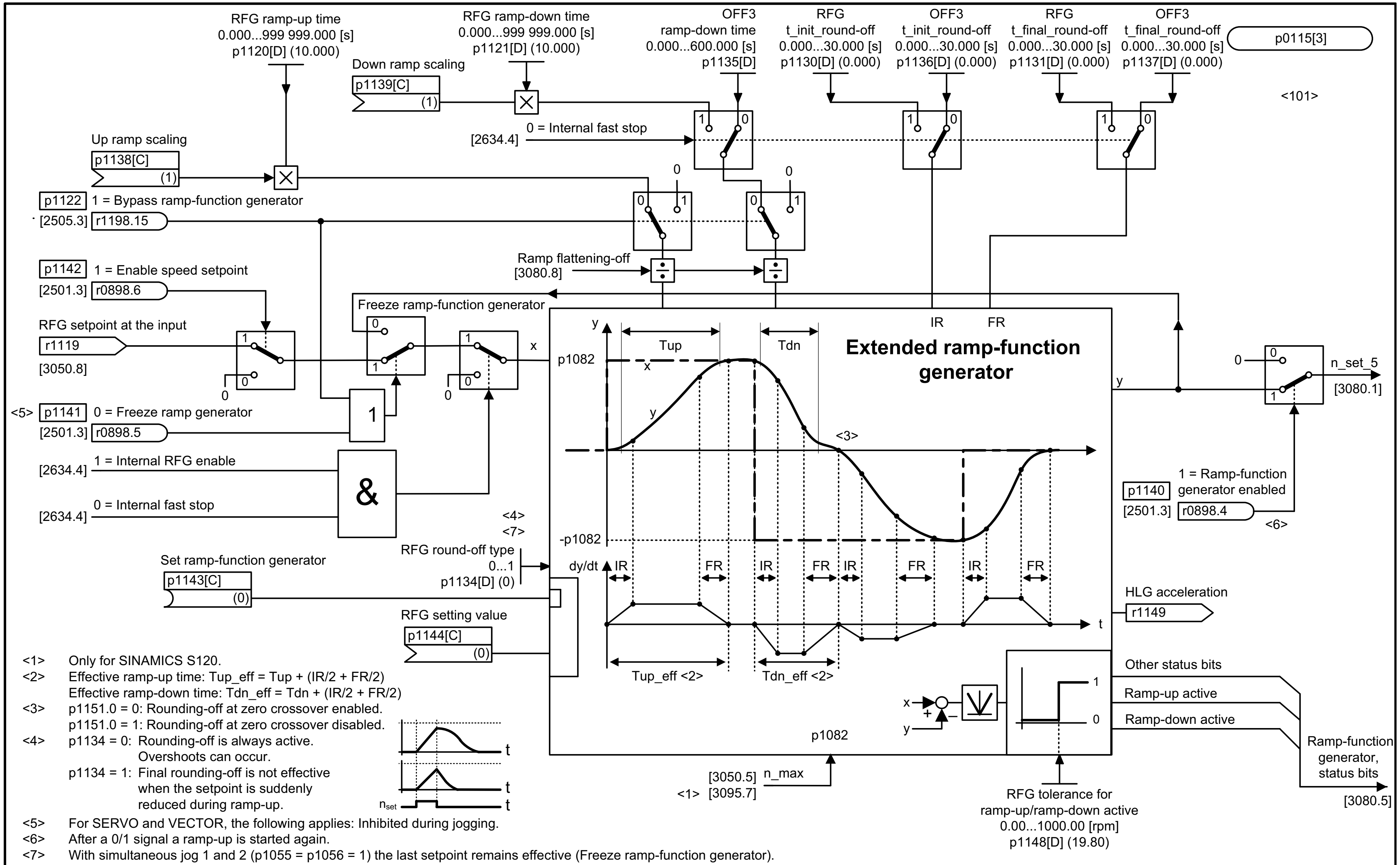
Fig. 3-111 3060 – Basic ramp-function generator



<1> For SERVO and VECTOR, the following applies: Inhibited during jogging.
<2> Only for SINAMICS S120.
<3> After a 0/1 signal a ramp-up is started again.
<4> With simultaneous jog 1 and 2 (p1055 = p1056 = 1) the last setpoint remains effective (Freeze ramp-function generator).
<100> For SERVO, the following applies: Only if the function module "Extended setpoint channel" is activated (r0108.8 = 1).
<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

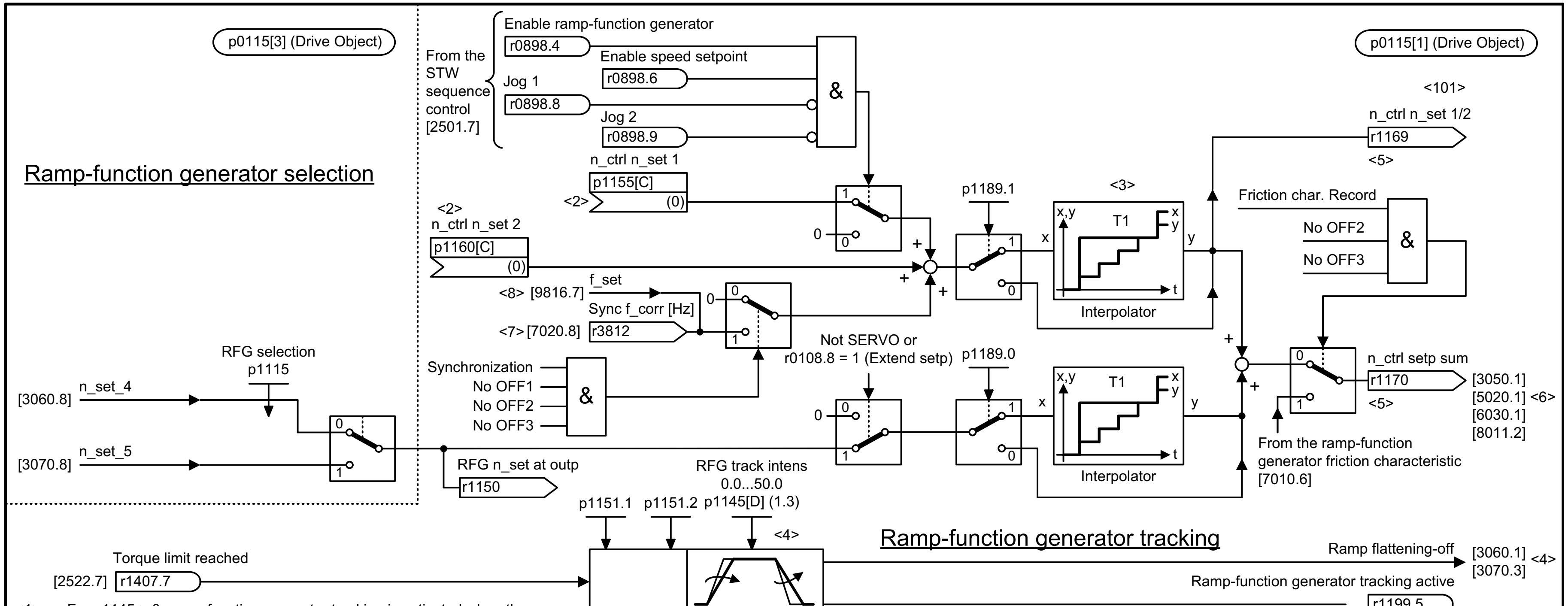
1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3060_51_eng.vsd	Function diagram	- 3060 -
Setpoint channel - Basic ramp-function generator					16.01.14 V04.07.00	SINAMICS	

Fig. 3-112 3070 – Extended ramp-function generator



<1> Only for SINAMICS S120.
<2> Effective ramp-up time: Tup_eff = Tup + (IR/2 + FR/2)
Effective ramp-down time: Tdn_eff = Tdn + (IR/2 + FR/2)
<3> p1151.0 = 0: Rounding-off at zero crossover enabled.
p1151.0 = 1: Rounding-off at zero crossover disabled.
<4> p1134 = 0: Rounding-off is always active.
Overshoots can occur.
p1134 = 1: Final rounding-off is not effective when the setpoint is suddenly reduced during ramp-up.
<5> For SERVO and VECTOR, the following applies: Inhibited during jogging.
<6> After a 0/1 signal a ramp-up is started again.
<7> With simultaneous jog 1 and 2 (p1055 = p1056 = 1) the last setpoint remains effective (Freeze ramp-function generator).
<100> For SERVO, the following applies: Only if the function module "extended setpoint channel" is activated (r0108.8 = 1).
<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3070_51_eng.vsd	Function diagram	- 3070 -
Setpoint channel - Extended ramp-function generator					16.10.13 V04.07.00	SINAMICS	



<1> For p1145 > 0, ramp-function generator tracking is activated when the torque limiting responds. This means that the speed controller output only exceeds the torque limit by a deviation that can be set via p1145.

<2> For OFF1/OFF3, the ramp-function generator ramp is active. The ramp-function generator is set (SERVO: to the actual value, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL: to the setpoint (r1170)) and stops the drive with the ramp-downtime (p1121 or p1135). STW1.4 (enable ramp-function generator) is effective while the drive is stopped via the ramp-function generator. Depending on the p1115, the basic ramp-function generator [3060] or the extended ramp-function generator [3070] is effective.
For SERVO is valid: When the function module "extended setpoint channel" is not active (r0108.8 = 0), for OFF1/OFF3 the down ramp of the basic ramp-function generator is effective (refer to n_set_4 on [3060.8]).

<3> The interpolator is only active with activated "basic positioner" Function Module or with isochronous PROFIdrive mode and sign of life received by the master (STW2.12 ... STW2.15).

<4> Behavior of the response ramp of the torque limiting:
p1145 = 0.0: No ramp-function generator tracking. The ramp-function generator ramp is no longer in the range of the speed actual value.
p1145 = 1.0: The ramp-function generator ramp remains as close as possible to the speed actual value.
p1145 > 1.0: The ramp-function generator ramp is steeper than for p1145 = 1.0 (higher "speed following error").

<5> The value is displayed correctly only with r0899.2 = 1 (Operation enabled).

<6> For SERVO only.

<7> For VECTOR, VECTOR3P, VECTORMV only.

<8> For VECTORGL only.

<101> To view the pre-assignment of the sampling times in p0115, refer to p0112.

Ramp-function generator status word

Input	Bit	Ramp-function generator status word	RFG ZSW
	Bit	Ramp-function generator status word	r1199
[3060.8] [3070.8]	0	Ramp-up active	r1199.0 [6300.1]
[3060.8] [3070.8]	1	Ramp-down active	
≥1	2	Ramp-function generator active	r1199.2 [6726.4]
	3	Ramp-function generator set	r1199.3 [6031.1]
	4	Ramp-function generator held	
[3080.8]	5	Ramp-function generator tracking active	<1> r1199.5 [6031.1]
[3050.8]	6	Maximum limiting active	
	7	Ramp-function generator speedup positiv	
	8	Ramp-function generator speedup negativ	
	9	Reserved	
	10	Reserved	
	11	Reserved	
	12	Reserved	
	13	Reserved	
	14	Reserved	
	15	Reserved	

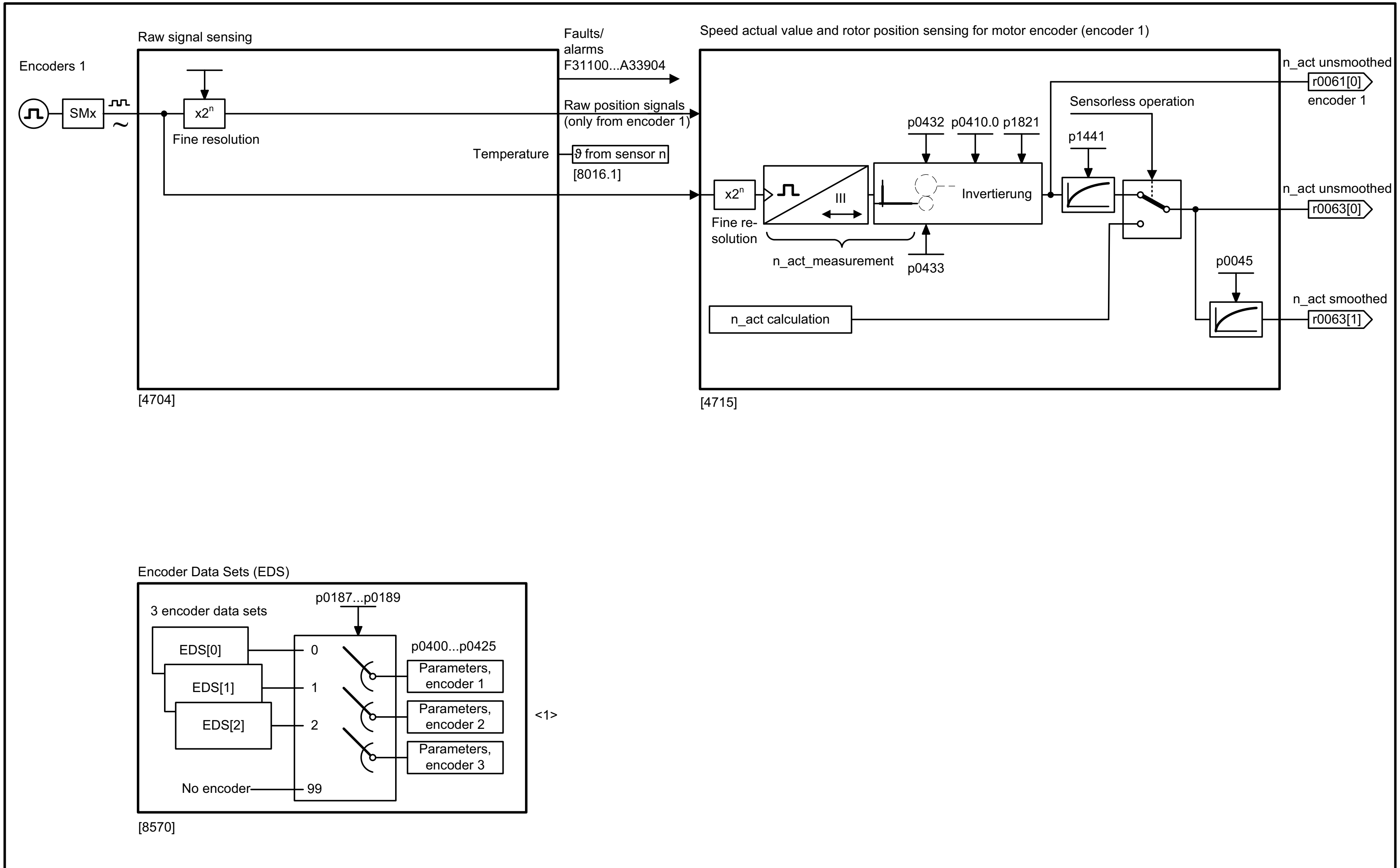
1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORM2C, VECTORMV, VECTORSL					fp_3080_51_eng.vsd	Function diagram	- 3080 -
Setpoint channel - Ramp-function generator selection, status word, tracking					16.10.13 V04.07.00	SINAMICS	

Fig. 3-113 3080 – Ramp-function generator selection, status word, tracking

3.13 Encoder evaluation

Function diagrams

Fig. 3-114 4702 – Overview

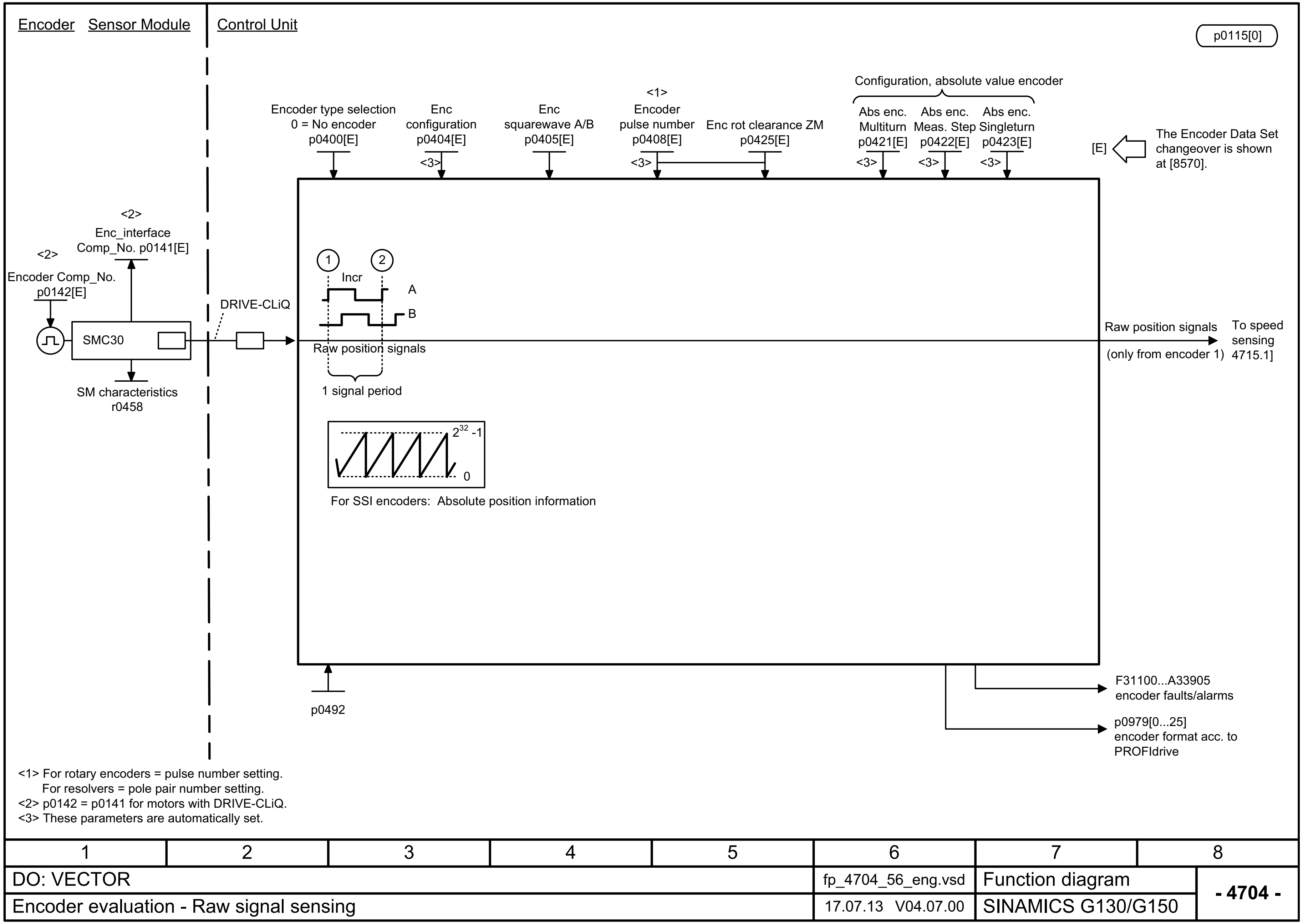


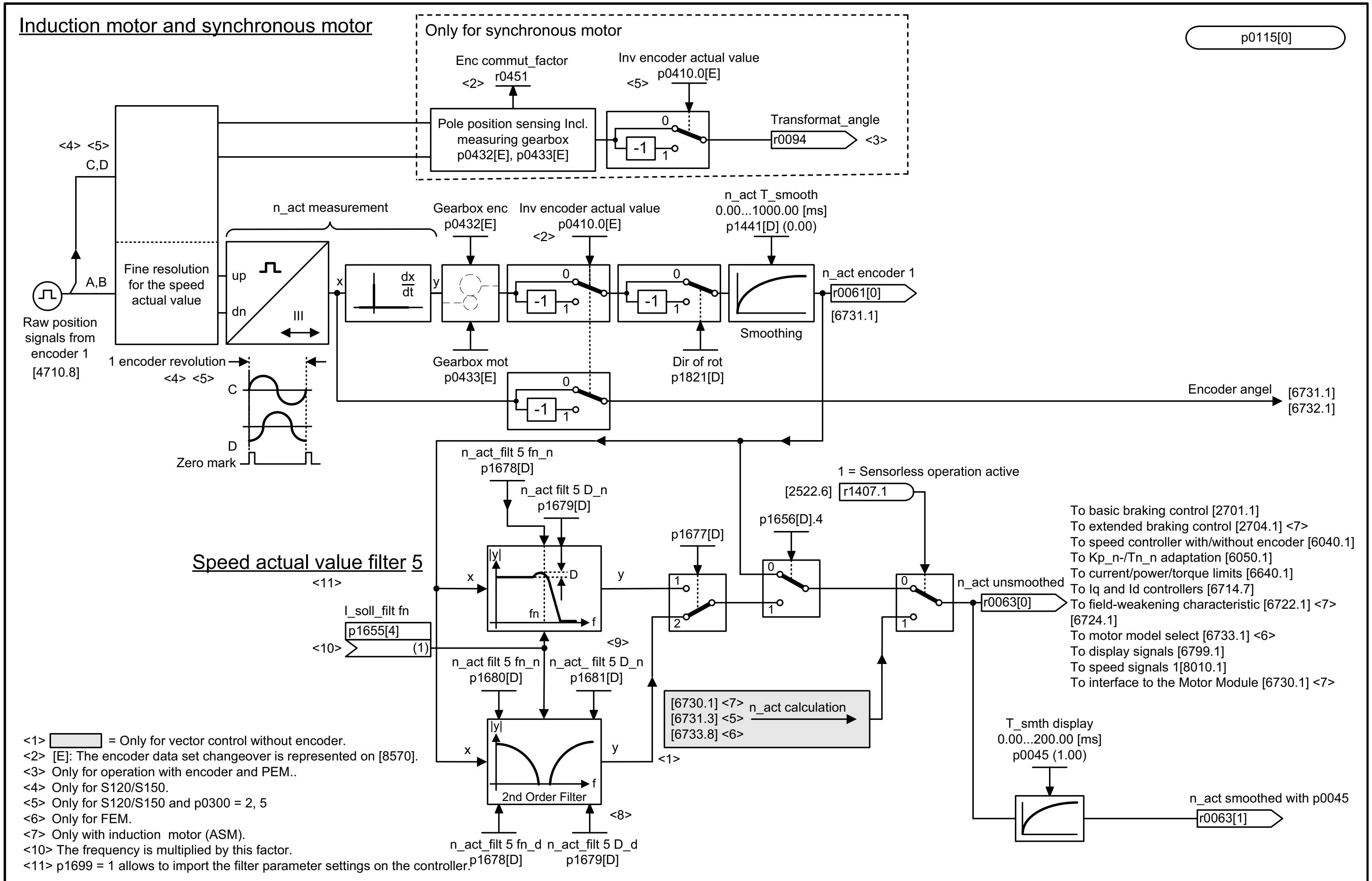
<1> Only 1 encoder for G130/G150.

1	2	3	4	5	6	7	8

DO: VECTOR	fp_4702_56_eng.vsd	Function diagram	- 4702 -
Encoder evaluation - Overview	24.05.13 V04.07.00	SINAMICS G130/G150	

Fig. 3-115 4704 – Raw signal sensing





1	2	3	4	5	6	7	8

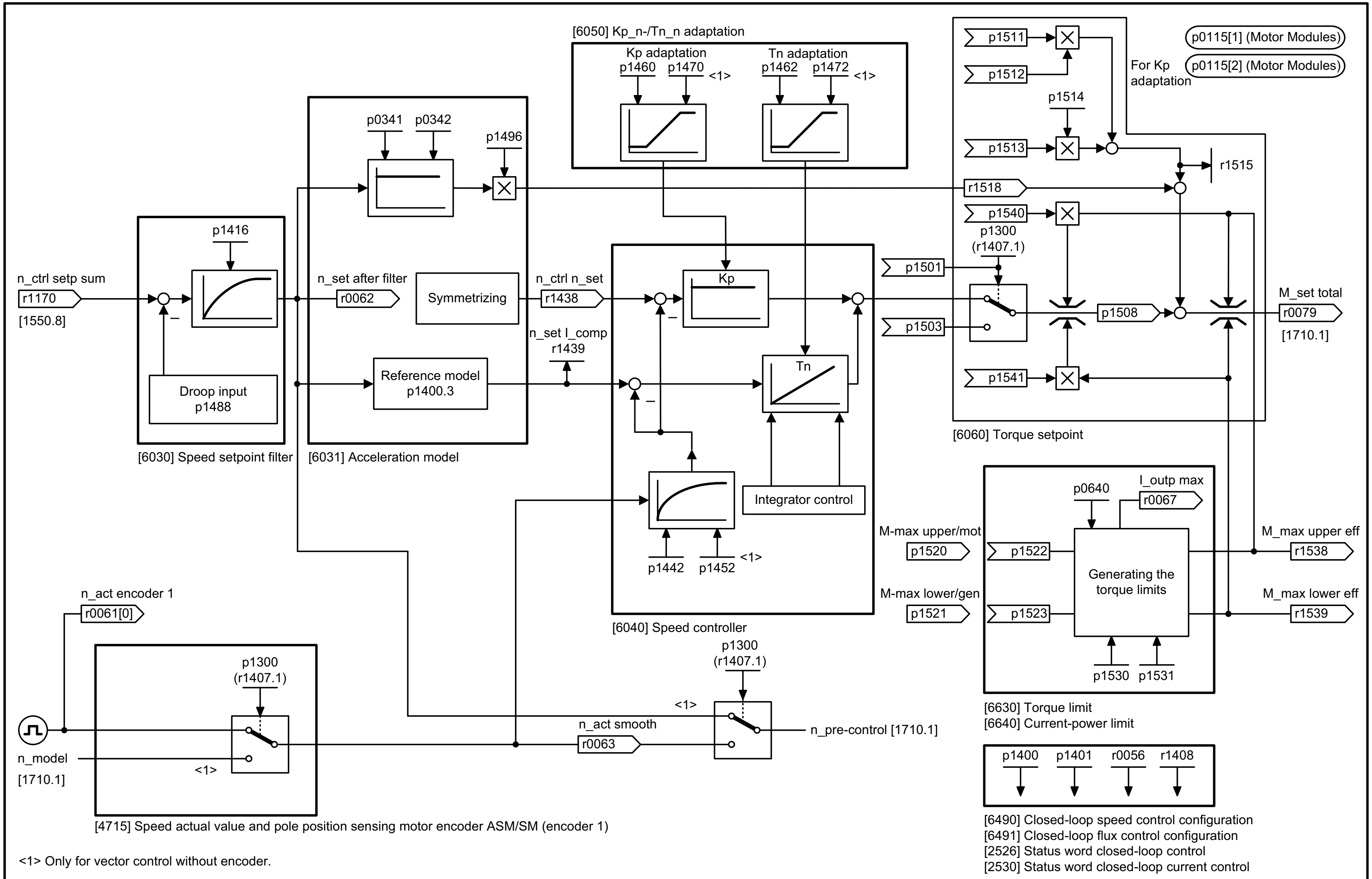
DO: VECTOR	fp_4715_54_eng.vsd	Function diagram	- 4715 -
Encoder evaluation - Speed act. value and pole pos. sensing, motor enc. (enc. 1), n_act_filt 5	12.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-116 4715 – Speed actual value and pole pos. sensing, motor encoder ASM/SM (encoder 1)

3.14 Vector control

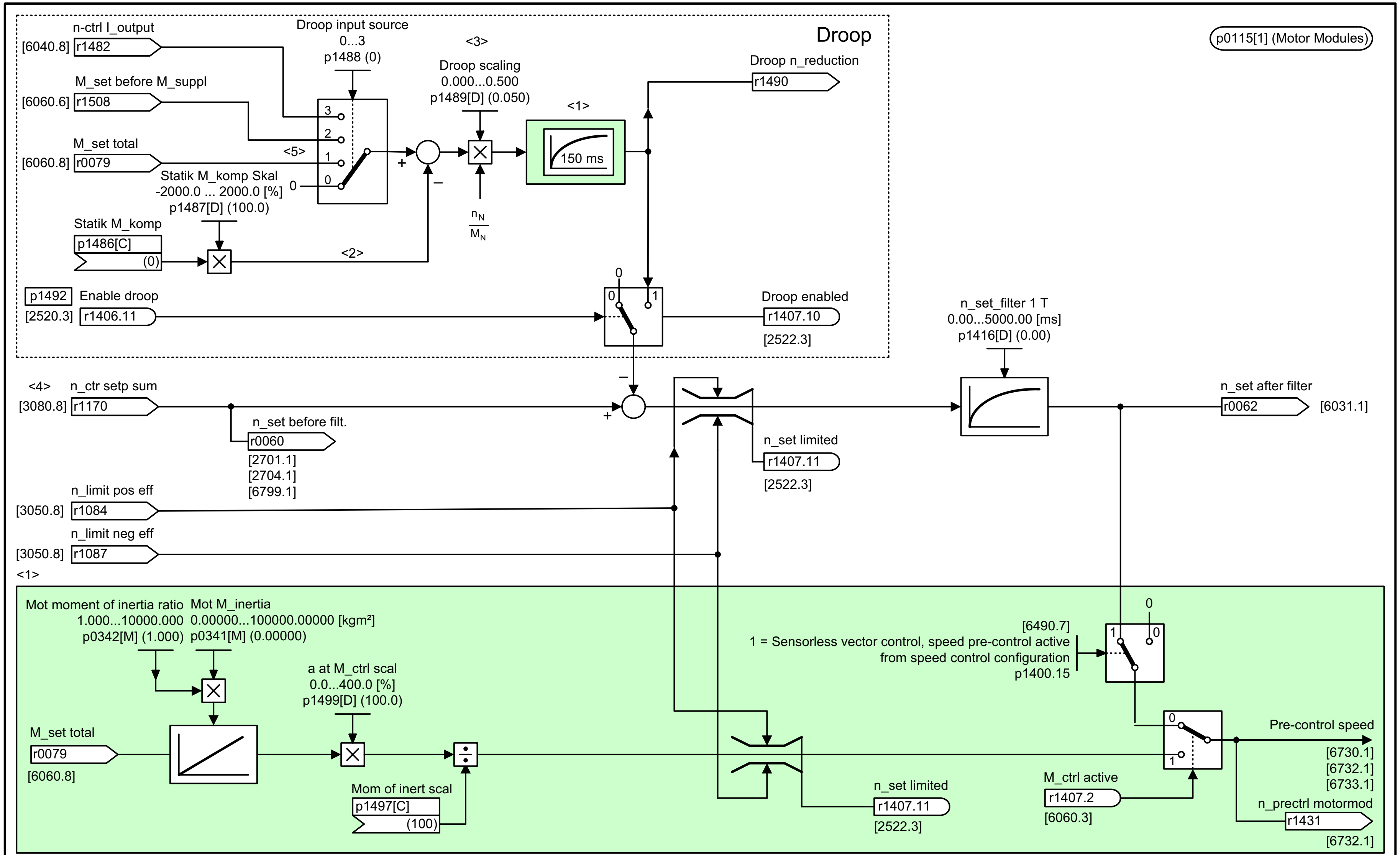
Function diagrams

Fig. 3-117 6020 – Speed control and generation of the torque limits, overview



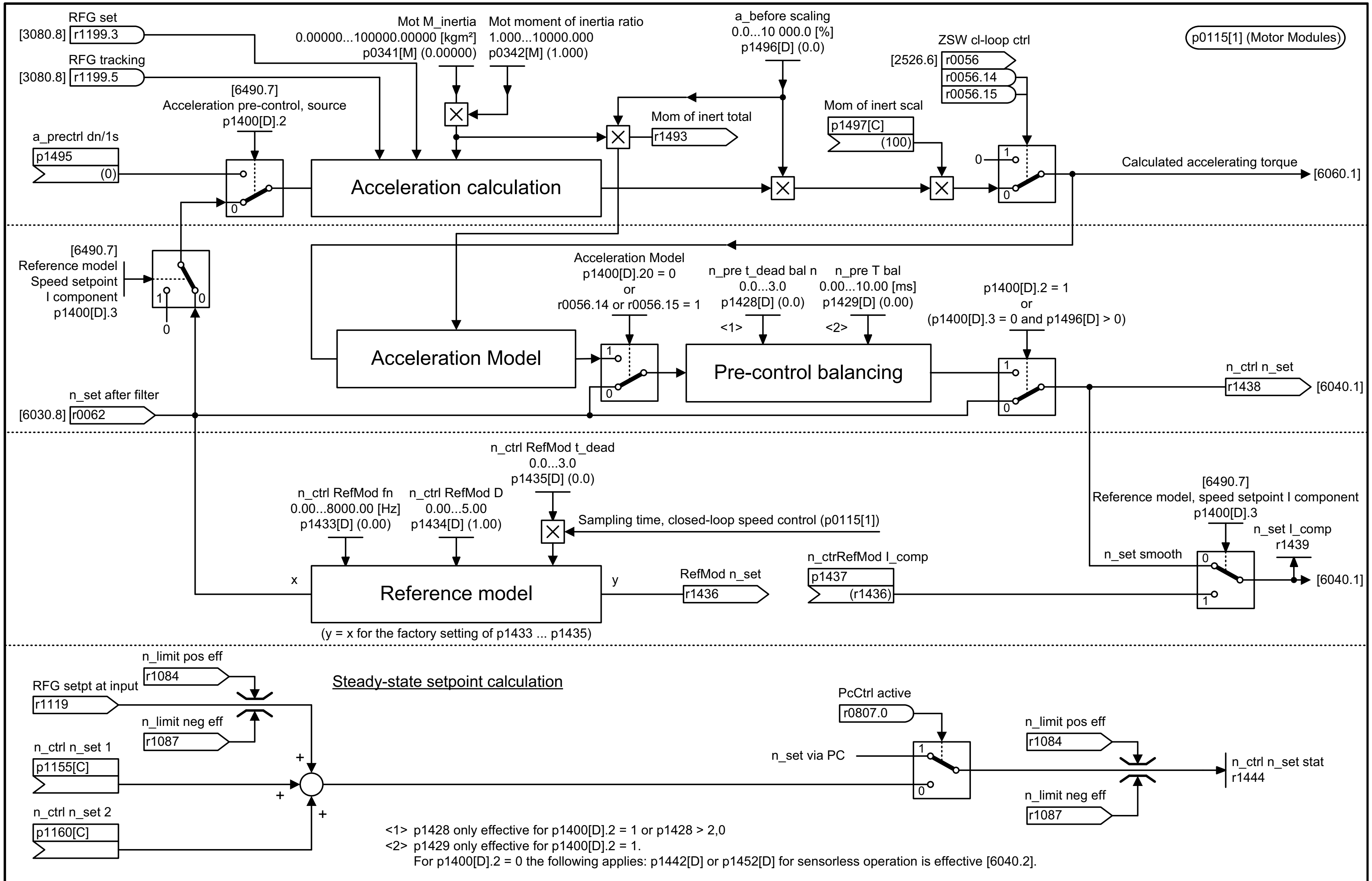
1	2	3	4	5	6	7	8
DO: VECTOR					fp_6020_54_eng.vsd	Function diagram	- 6020 -
Vector control - Speed control and generation of the torque limits, overview					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-118 6030 – Speed setpoint, droop



<1> = Only for vector control without encoder.
<2> Only for p1488 > 0.
<3> Scaling: p1489 = 0.100 - for a rated motor torque of r0333 - results in a speed setpoint reduction of 0.1 x p0311.
<4> The value is displayed correctly only with r0899.2 = 1 (Operation enabled).
<5> p1488 = 1 Not recommended with active acceleration calculation [6031].

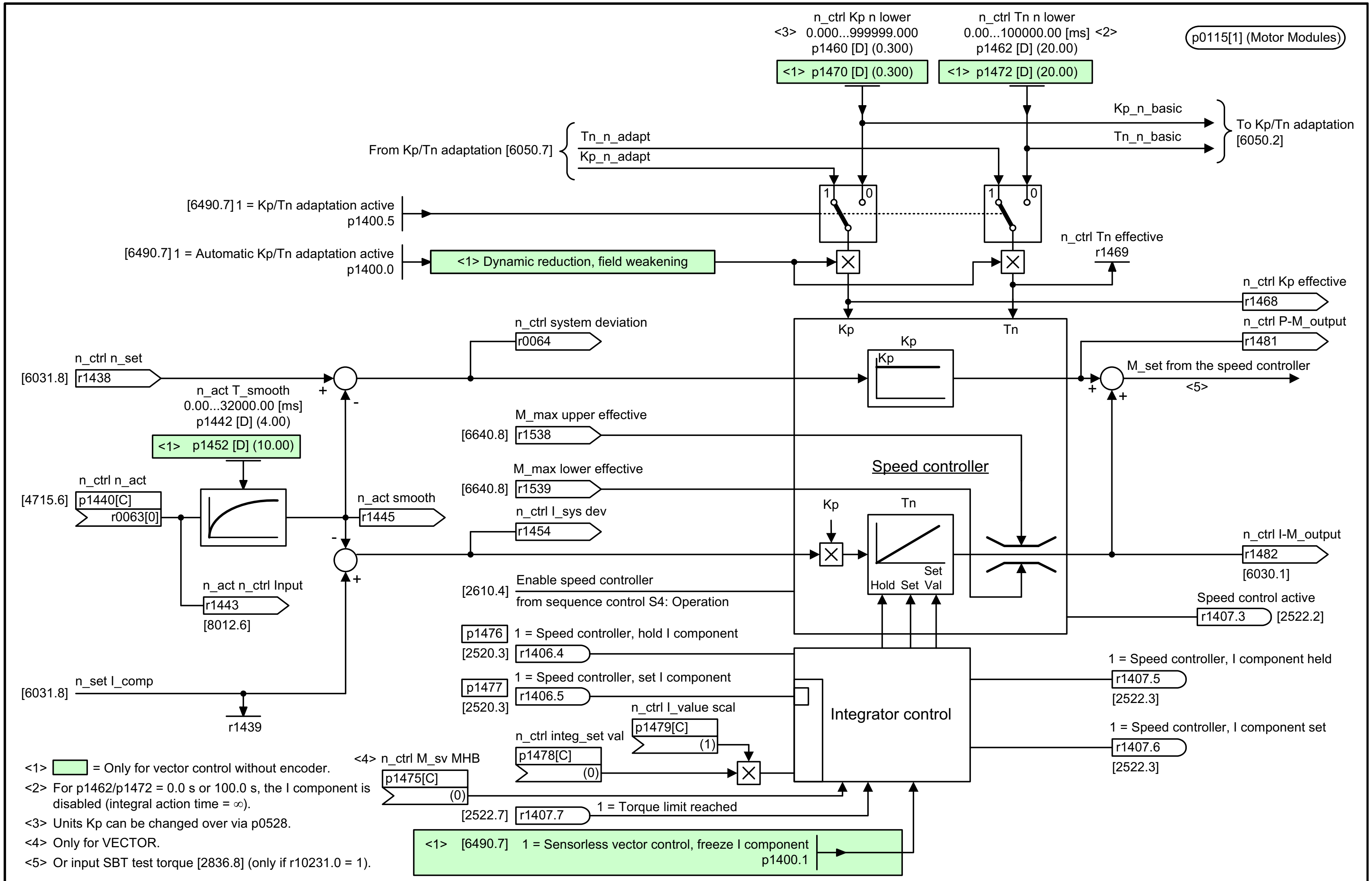
1	2	3	4	5	6	7	8
DO: VECTOR					fp_6030_54_eng.vsd	Function diagram	- 6030 -
Vector control - Speed setpoint, droop					12.07.13 V04.07.00	S120/S150/G130/G150	



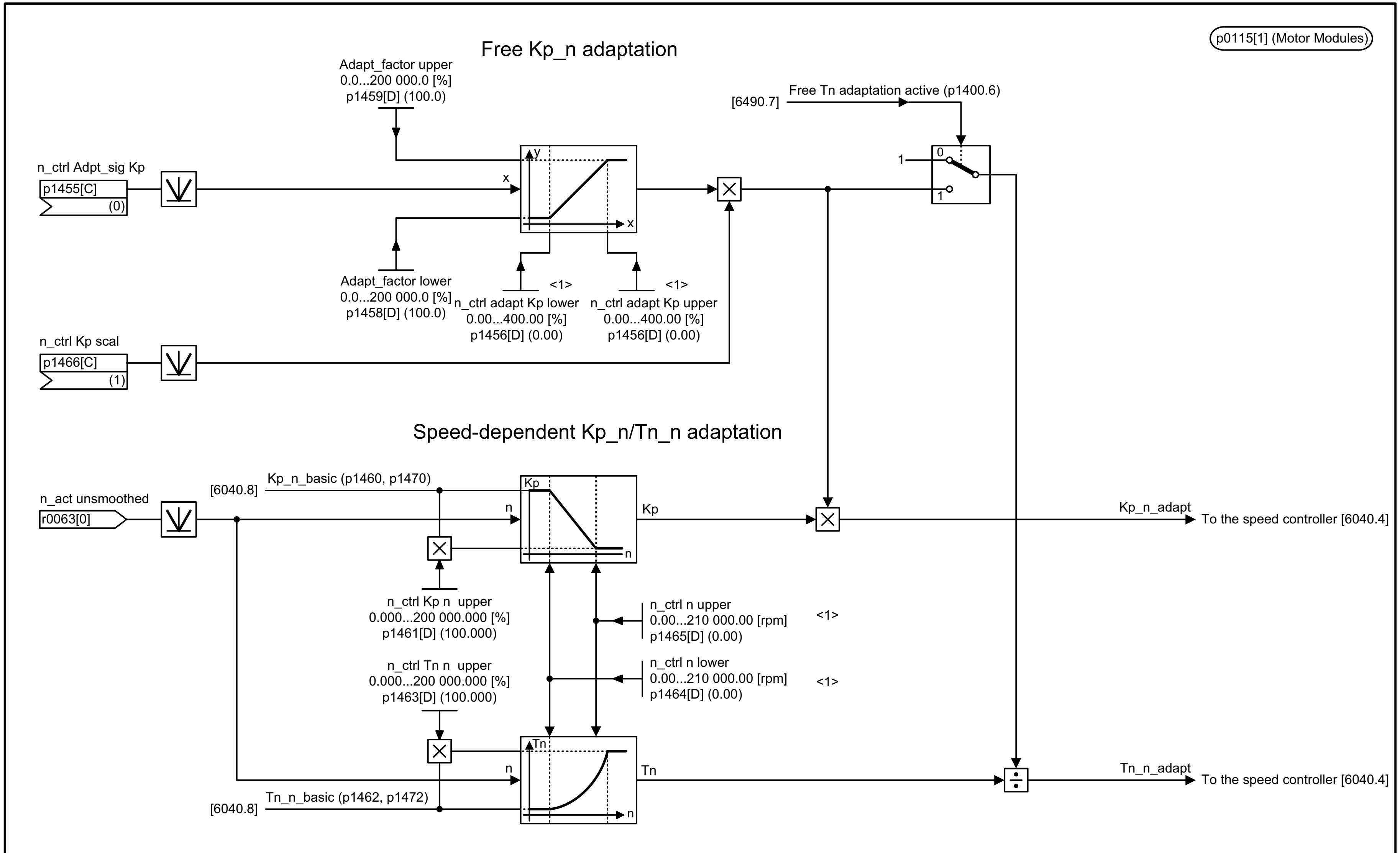
1	2	3	4	5	6	7	8
DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_6031_51_eng.vsd	Function diagram	- 6031 -
Vector control - Pre-control balancing, reference/acceleration model					04.07.13 V04.07.00	SINAMICS	

Fig. 3-119 6031 – Pre-control balancing, reference/acceleration model

Fig. 3-120 6040 – Speed controller with/without encoder



1	2	3	4	5	6	7	8
DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_6040_51_eng.vsd	Function diagram	- 6040 -
Vector control - Speed controller with/without encoder					05.07.13 V04.07.00	SINAMICS	

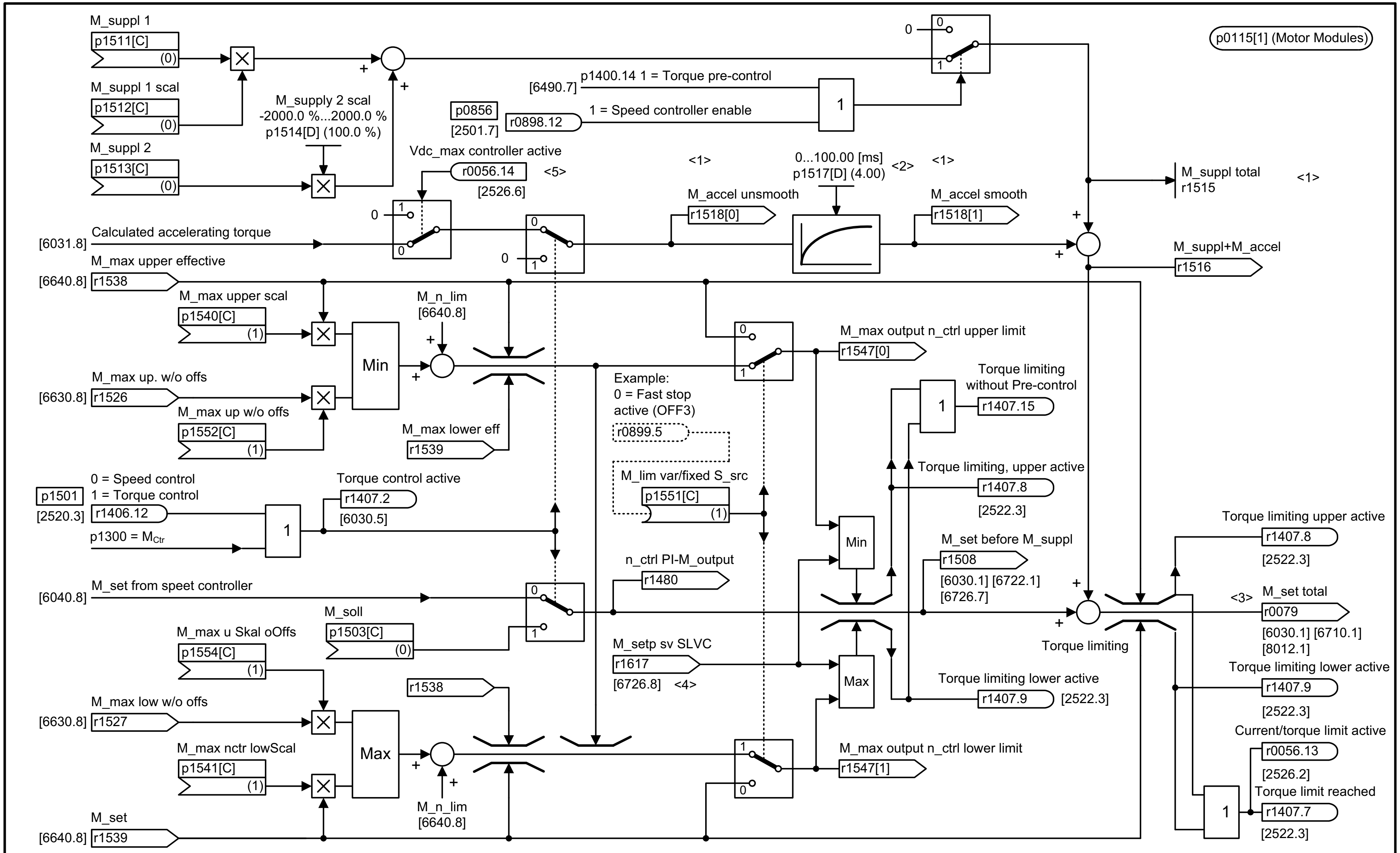


<1> If the lower transition point exceeds the upper transition point, the Kp-adaptation also changes over.

1	2	3	4	5	6	7	8
DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_6050_51_eng.vsd	Function diagram	- 6050 -
Vector control - Speed controller adaptation (Kp_n/Tn_n adaptation)					05.07.13 V04.07.00	SINAMICS	

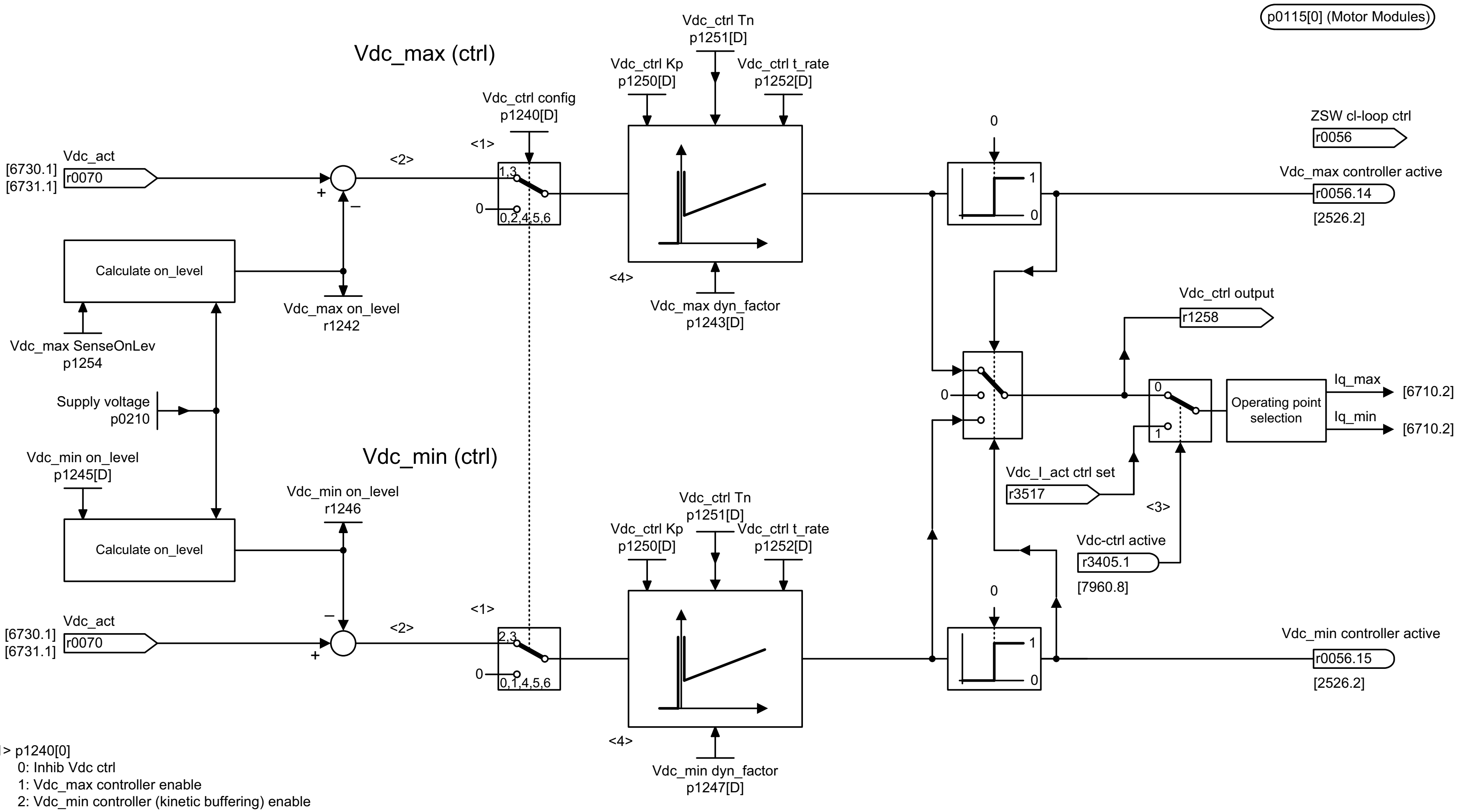
Fig. 3-121 6050 – Speed controller adaptation (Kp_n/Tn_n adaptation)

Fig. 3-122 6060 – Torque setpoint



<1> The signal is only effective after magnetization has been completed (r0056.4 = 1).
<2> Acceleration control is inhibited for p1517 = 100 ms.
<3> M_set is also influenced by the speed limit controller.
<4> Only for DO: VECTOR and sensorless FEM with speed controller inhibited r1776[4] = 0.
<5> Not for DO: VECTORGL.

1	2	3	4	5	6	7	8
DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_6060_51_eng.vsd	Function diagram	- 6060 -
Vector control - Torque setpoint					05.07.13 V04.07.00	SINAMICS	



<1> p1240[0]
0: Inhib Vdc ctrl
1: Vdc_max controller enable
2: Vdc_min controller (kinetic buffering) enable
3: Vdc_min controller and Vdc_max controller enable
4: Vdc_Activates Vdc_max monitoring
5: Vdc_Activates Vdc_min monitoring
6: Vdc_Activates Vdc_min monitoring and Vdc_max monitoring

<2> The Vdc controller is switched on when reaching the threshold value. The switch-off hysteresis is 5% of the switch-on level.

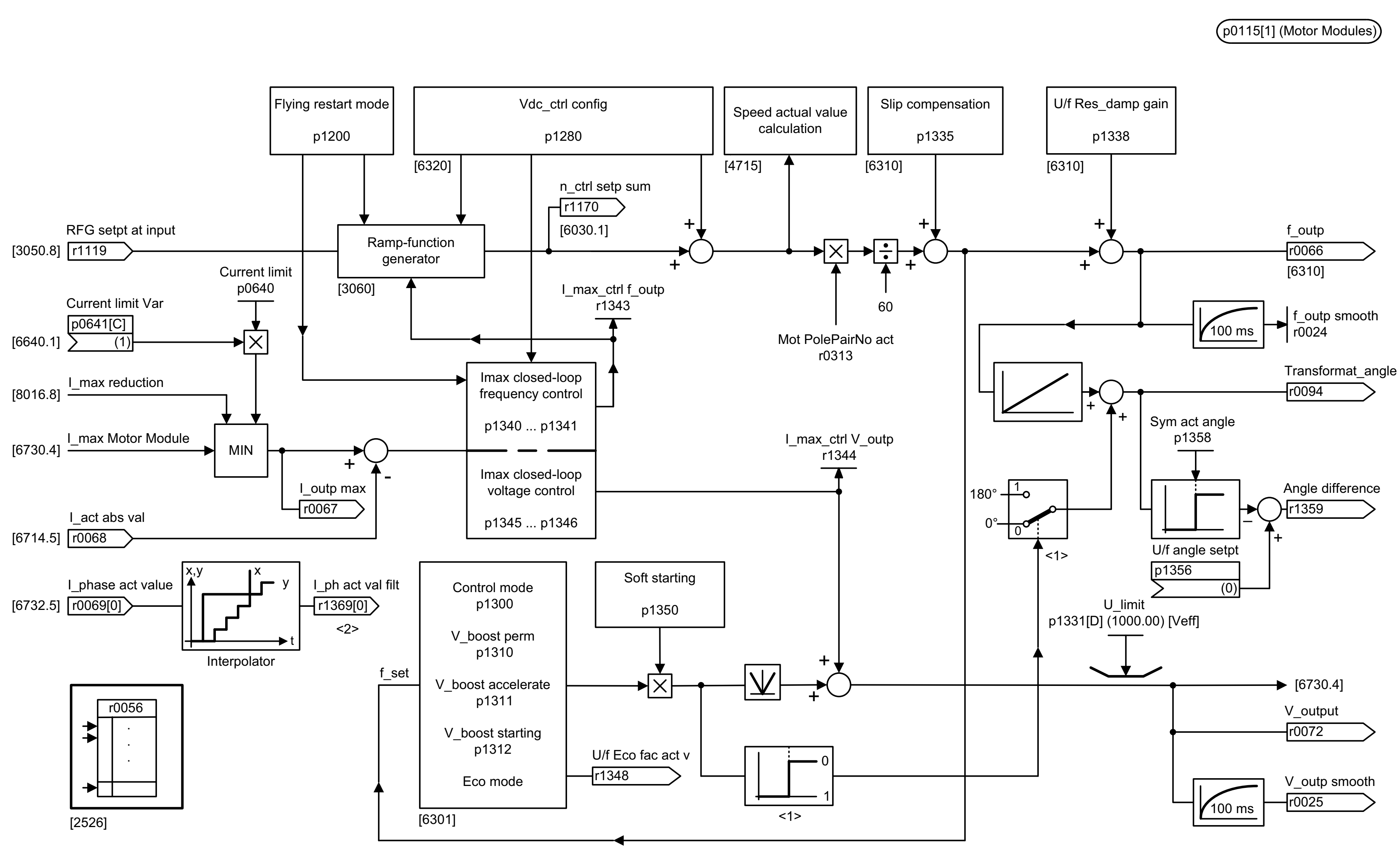
<3> Only for VECTOR and if the “technology controller“ function module is active (r0108.16 = 1).

<4> As standard, the controller is designed as a P controller.

1	2	3	4	5	6	7	8
DO: VECTOR, VECTOR3P, VECTORMV					fp_6220_51_eng.vsd	Function diagram	- 6220 -
Vector control - Vdc_max controller and Vdc_min controller					05.07.13 V04.07.00	SINAMICS	

Fig. 3-123 6220 – Vdc_max controller and Vdc_min controller

Fig. 3-124 6300 – U/f control, overview

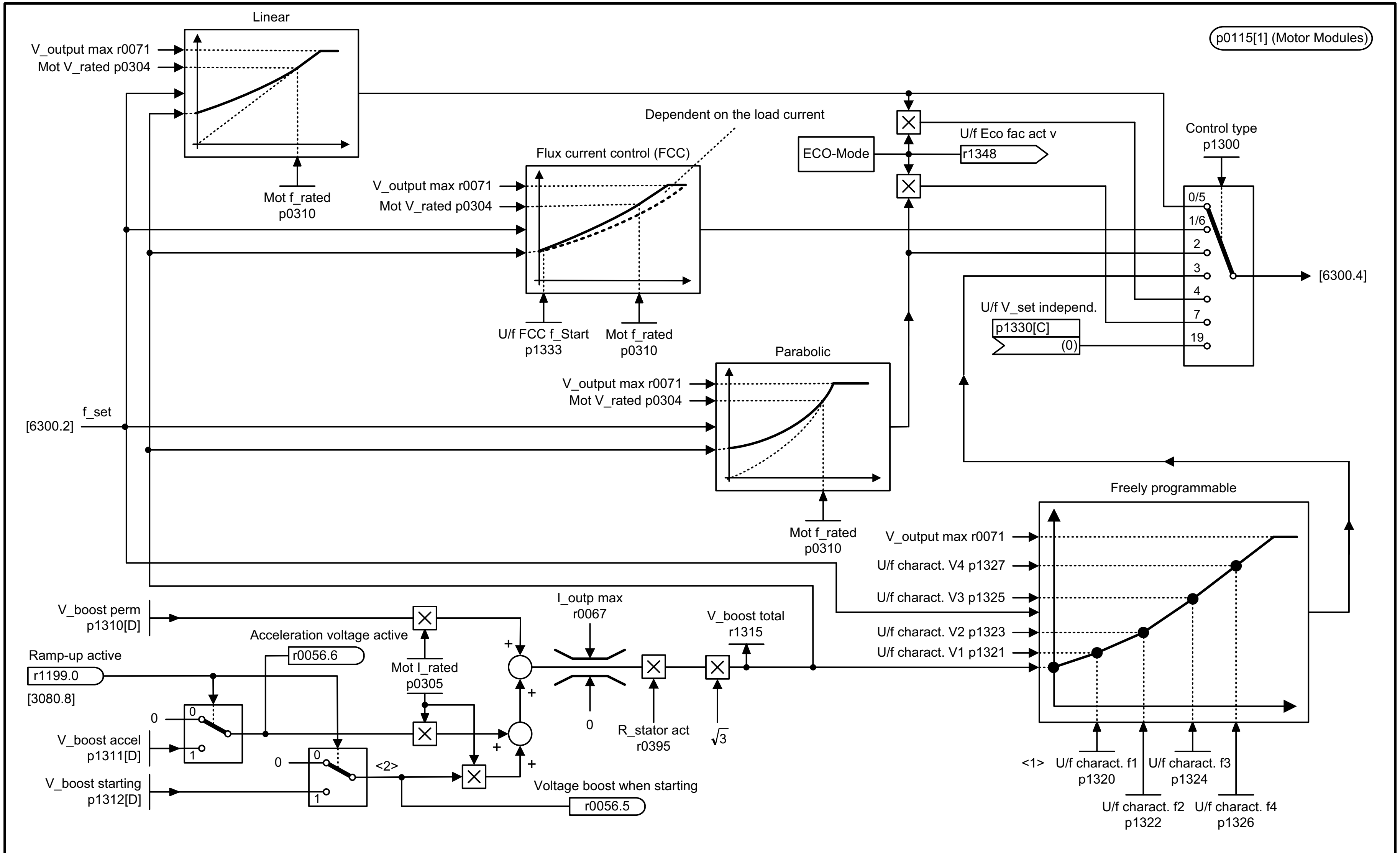


<1> Only for p1300 = 19 and p1302.1 = 1.
<2> Only for p1300 = 19.

1	2	3	4	5	6	7	8

DO: VECTOR	fp_6300_54_eng.vsd	Function diagram	- 6300 -
Vector control - U/f control, overview	08.11.13 V04.07.00	S120/S150/G130/G150	

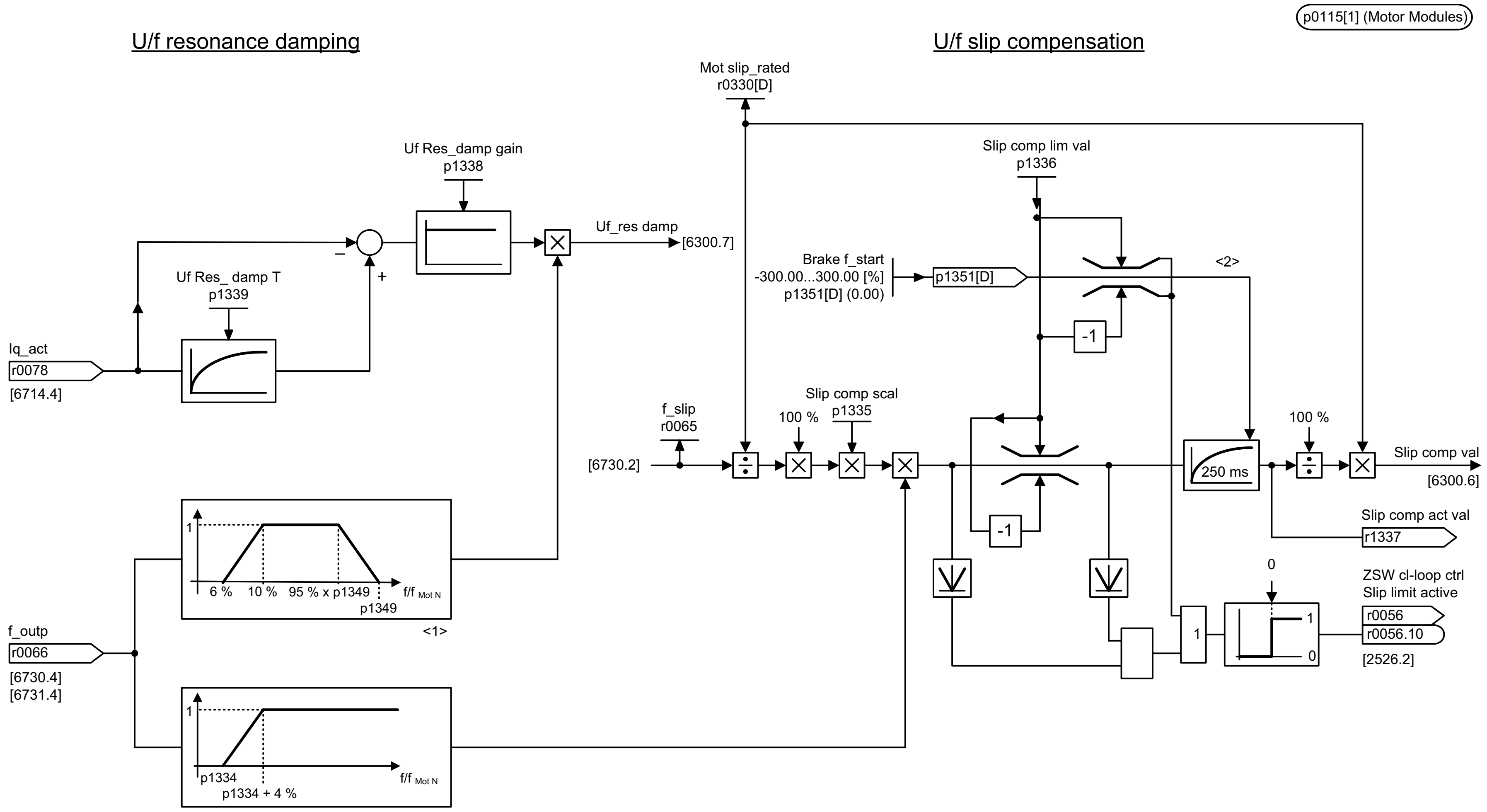
Fig. 3-125 6301 – U/f characteristic and voltage boost



<1> For p1320 = 0, the voltage boost via p1310 is not effective.
<2> p1312 is only effective when acceleration takes place for the first time after pulse enable.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6301_54_eng.vsd	Function diagram	- 6301 -
Vector control - U/f characteristic and voltage boost					30.01.14 V04.07.00	S120/S150/G130/G150	

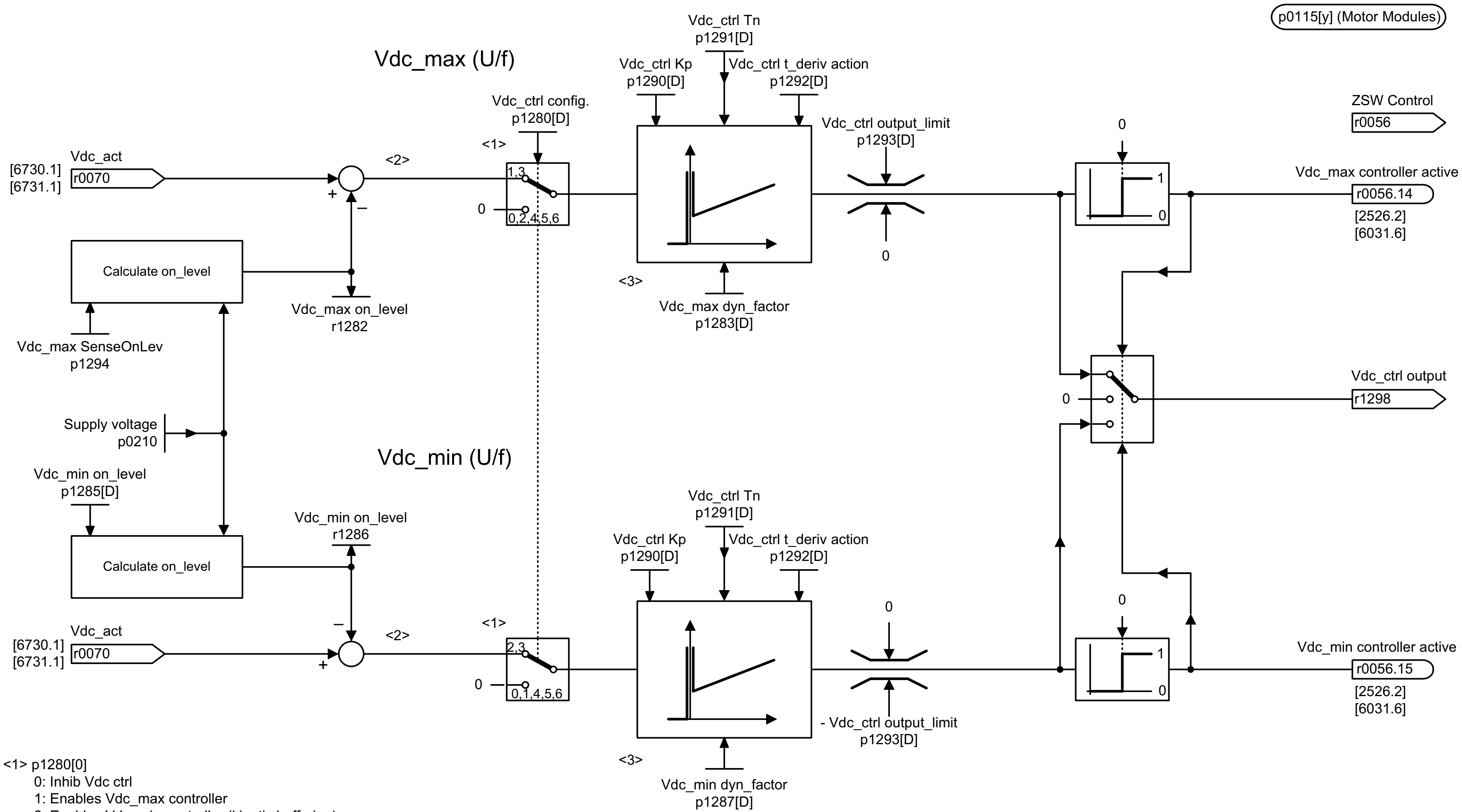
Fig. 3-126 6310 – Resonance damping and slip compensation



<1> If p1349 = 0: the limit is 0,95 x $f_{Mot\ N}$ <= 45 Hz.
<2> Preset value for r1337: Activation with r0056.4 = 1 till r0066 >= p1334 and p1216 has expired.
100 % equal r0330 (Rated motor slip)

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6310_54_eng.vsd	Function diagram	- 6310 -
Vector control - Resonance damping and slip compensation					02.12.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-127 6320 – Vdc_max controller and Vdc_min controller (U/f)



<1> p1280[0]
- 0: Inhib Vdc ctrl
- 1: Enables Vdc_max controller
- 2: Enables Vdc_min controller (kinetic buffering)
- 3: Enables Vdc_min controller and Vdc_max controller
- 4: Activates Vdc_max monitoring
- 5: Activates Vdc_min monitoring
- 6: Activates Vdc_min monitoring and Vdc_max monitoring

<2> The Vdc controller is switched on when reaching the threshold value. The switch-off hysteresis is 5% of the switch-on level.

<3> As standard, the controller is designed as a P controller.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6320_54_eng.vsd	Function diagram	- 6320 -
Vector control - Vdc_max controller and Vdc_min controller (U/f)					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-128 6490 – Speed control configuration

p0115[1] (Motor Modules)

n_ctrl config
p1400[D]

Speed control configuration

Bit No.	Meaning	Factory setting	
0	**1 = Automatic Kp/Tn adaptation active**	1	[6040.3]
1	1 = Sensorless vector control, freeze I component	0	[6040.3]
2	**0 = Acceleration pre-control, internal source (n_set)** 1 = Acceleration pre-control, external source (p1495)	0	[6031.2]
3	**0 = Reference model, speed setpoint I component Off** 1 = Reference model, speed setpoint I component On	0	[6031.1][6031.7]
4	Reserved		
5	**1 = Kp/Tn adaptation active**	1	[6040.3]
6	1 = Free Tn adaptation active	0	[6050.6]
7...13	Reserved		
14	**0 = Torque pre-control for n_ctrl enabled** 1 = Torque pre-control always active	0	[6060.4]
15	**1 = Sensorless vector control, speed pre-control active**	1	[6030.5]
16	**0 = I component for limiting hold** 1 = I component for limiting enable	0	
17...18	Reserved		
19	1 = Anti-windup for integral component active	0	
20	**0 = Acceleration model Off** 1 = Acceleration model On	0	[6031.4]
21	1 = Free Tn reduction active <1>	0	
22...31	Reserved		

<1> Only for VECTOR3P.

1	2	3	4	5	6	7	8

DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL	fp_6490_51_eng.vsd	Function diagram	- 6490 -
Vector control - Speed control configuration	05.07.13 V04.07.00	SINAMICS	

Fig. 3-129 6491 – Flux control configuration

p0115[2] (Motor Modules)

p1401[D]

Flux control, configuration

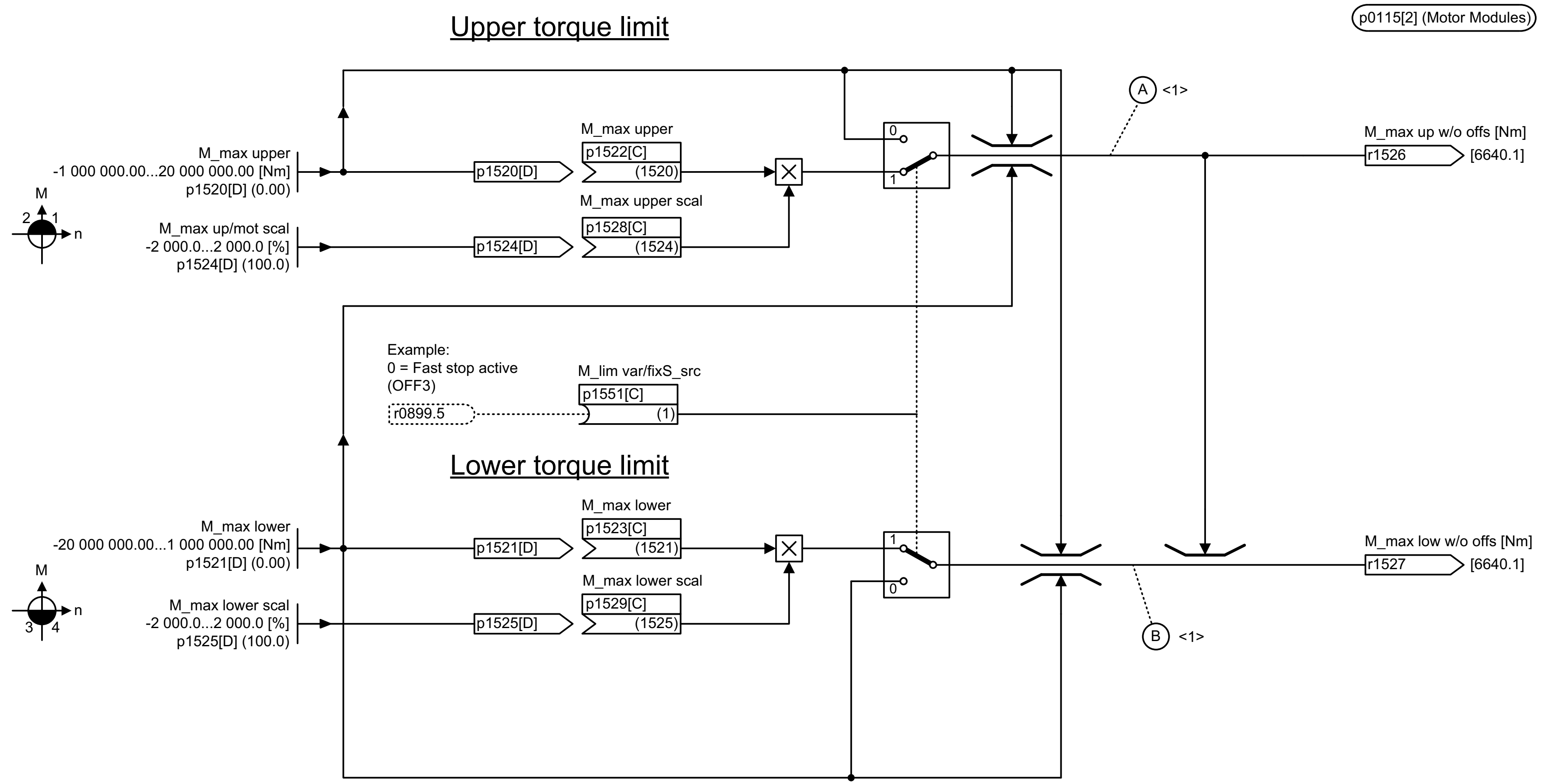
Factory setting

F_ctrl config p1401[D]

Bit No.	Meaning	Factory setting	
0	**1 = Flux setpoint, soft starting active**	0	[6722.3]
1	**1 = Flux setpoint, differentiation active**	1	[6723.7]
2	**1 = Flux build-up control active**	1	[6723.6]
3	**1 = Flux characteristic, load-dependent**	1	[6725.2]
4	**1 = Flux controller (ASM with encoder)**	1	
5	**1 = Flux impression with model chngov (ASM with encoder)** 0 = Flux impression from 30 % n_rated (ASM with encoder)	1	
6	**1 = Quick magnetizing**	1	[6722.5]
7	**Reserved**		
8	**Reserved**		
9	**Reserved**		
10	**Reserved**		
11	**Reserved**		
12	**Reserved**		
13	**Reserved**		
14	**Reserved**		
15	**Reserved**		

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6491_54_eng.vsd	Function diagram	- 6491 -
Vector control - Flux control configuration					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-130 6630 – Upper/lower torque limit

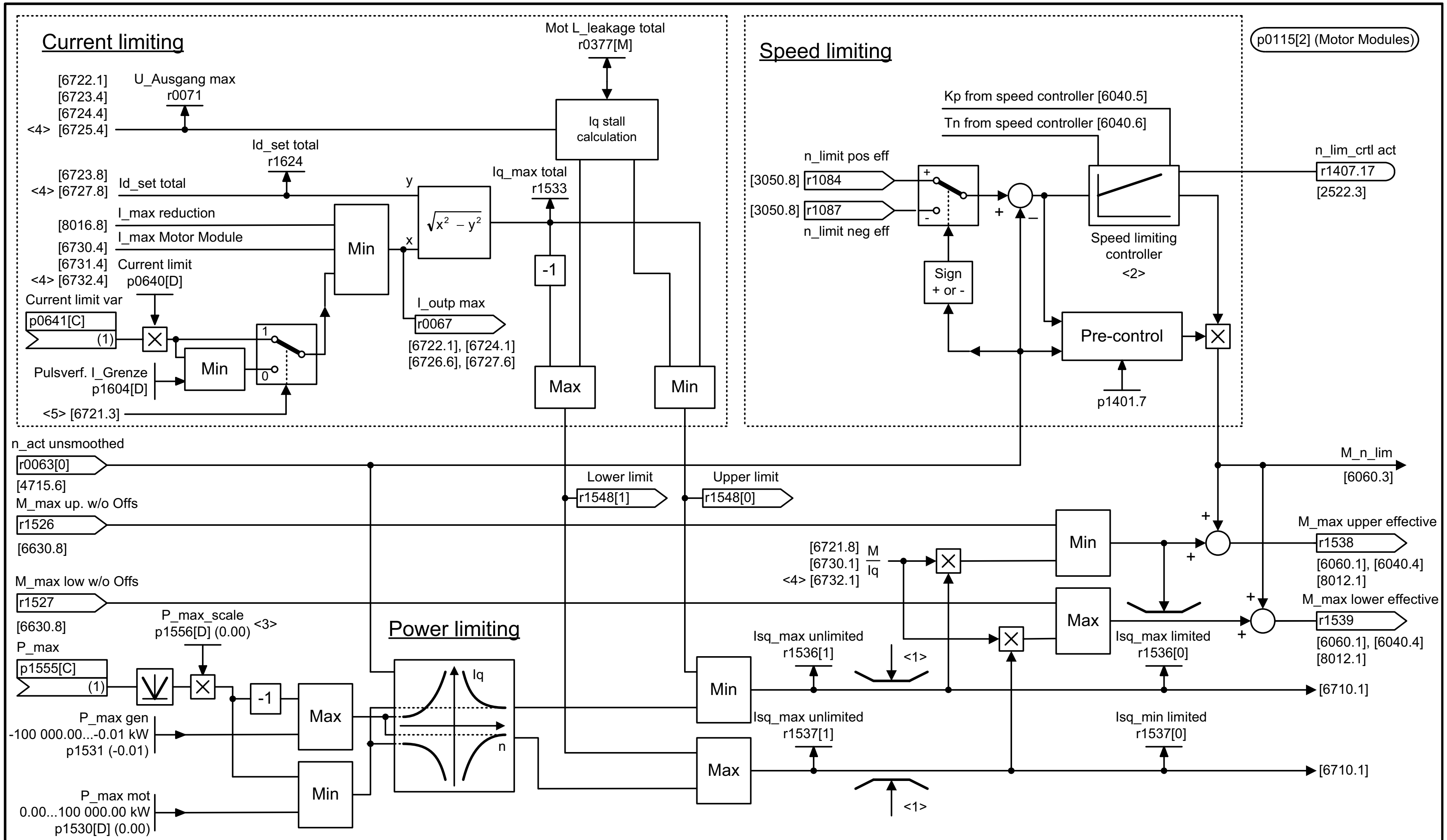


<1> Danger: Negative values at A or positive values at B represent a minimum torque for the other torque direction and can cause the motor to accelerate uncontrollably.

1	2	3	4	5	6	7	8

DO: VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL	fp_6630_51_eng.vsd	Function diagram	- 6630 -
Vector control - Upper/lower torque limit	05.07.13 V04.07.00	SINAMICS	

Fig. 3-131 6640 – Current/power/torque limits



<1> Intervention by the Vdc controller.
<2> Intervention when the speed limit is exceeded + 2 % n_{rated}.
<3> p1556 = 0 switches the evaluation of the connector input p1555 off.
<4> Only for SINAMICS S120/S150.
<5> Ony for PEM.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6640_54_eng.vsd	Function diagram	- 6640 -
Vector control - Current/power/torque limits					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-132 6700 – Current control, overview

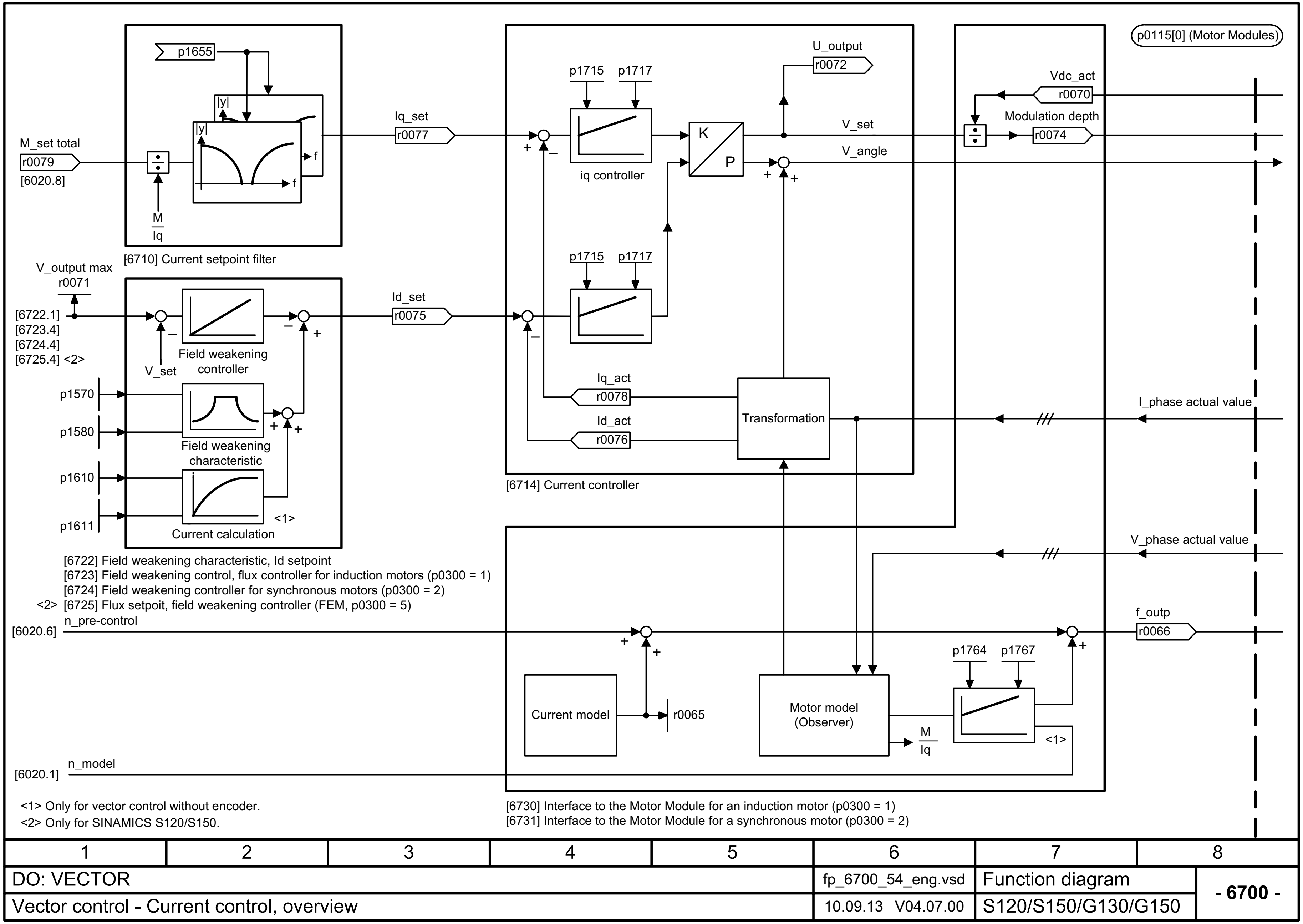
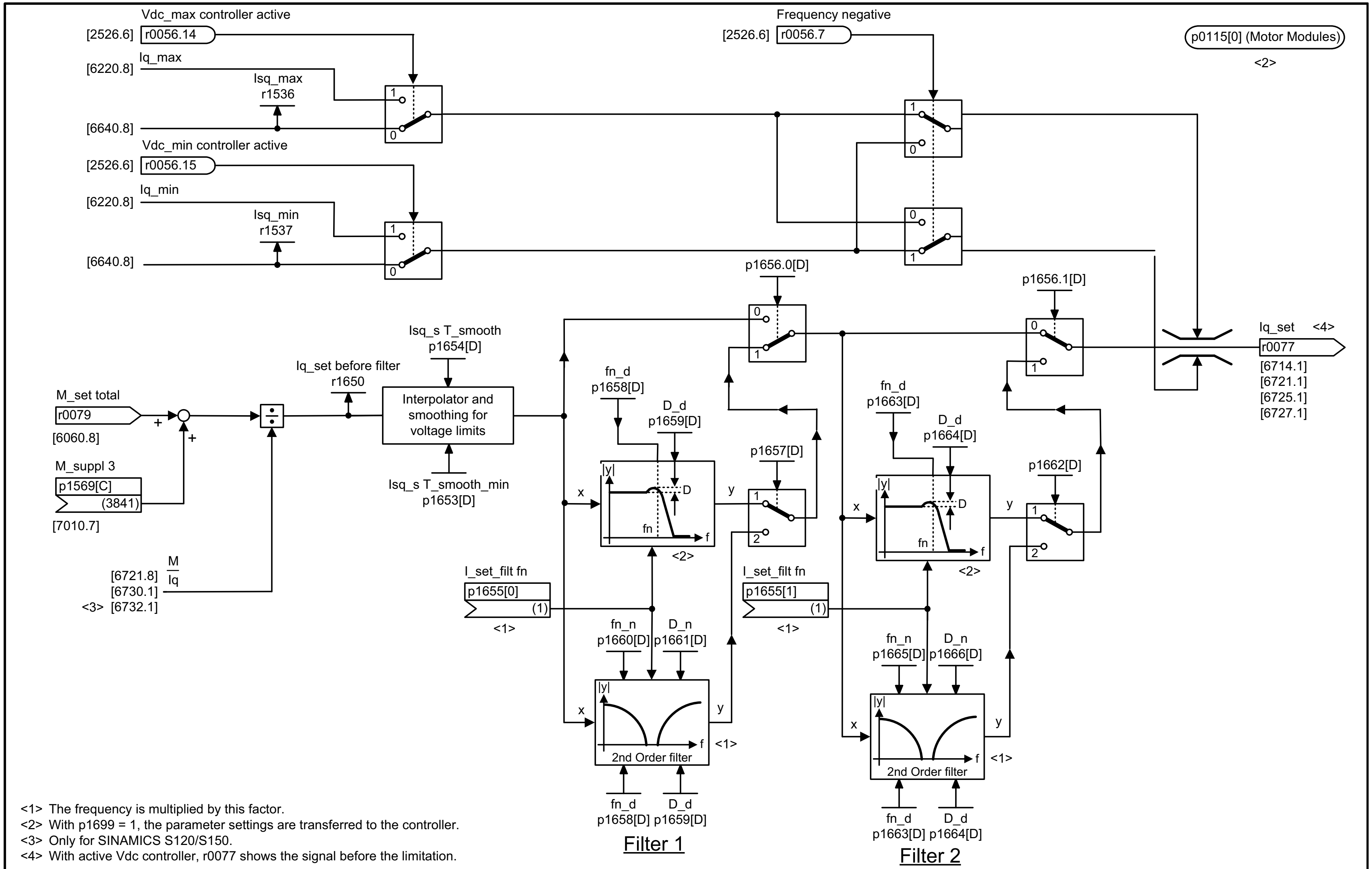


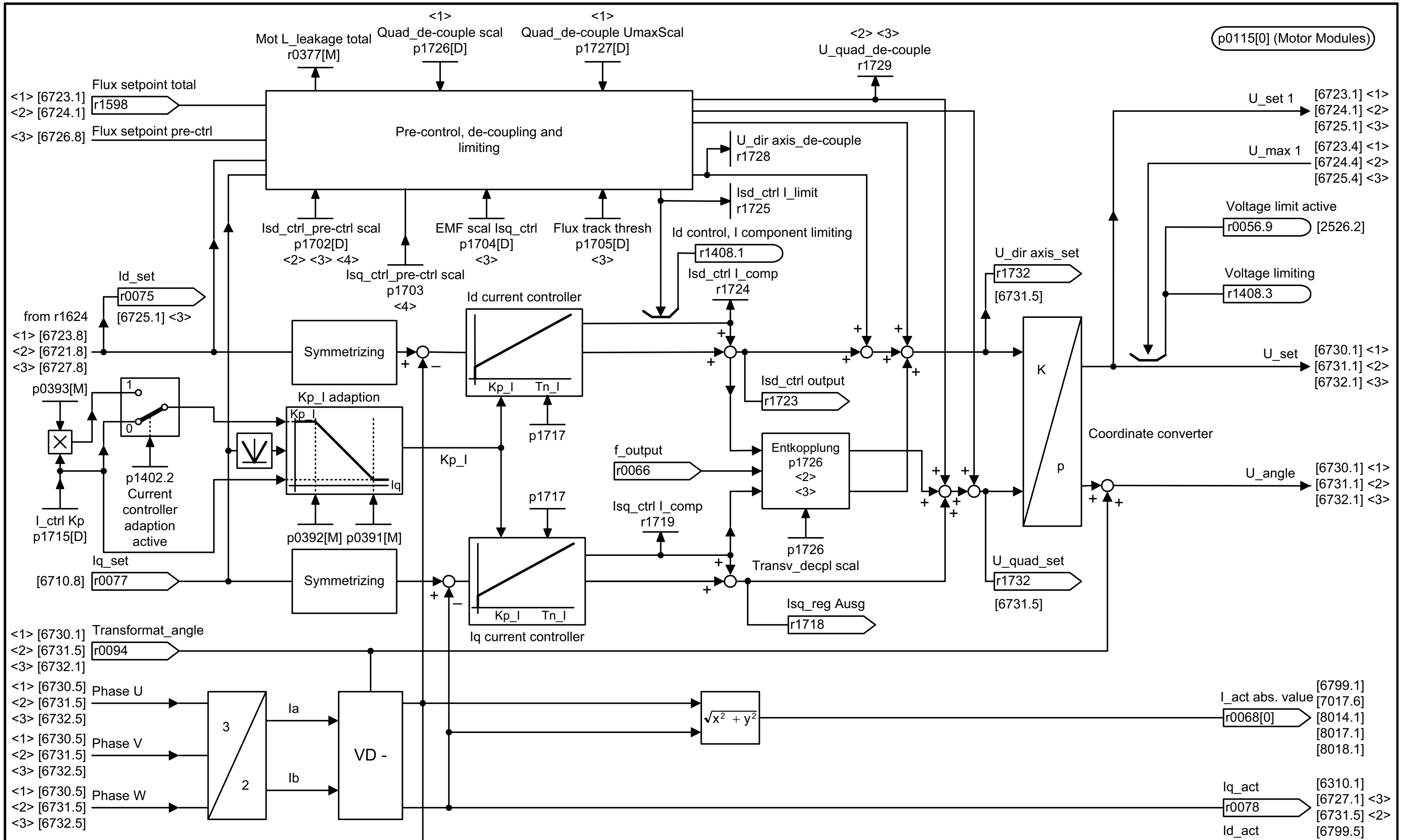
Fig. 3-133 6710 – Current setpoint filter



<1> The frequency is multiplied by this factor.
<2> With p1699 = 1, the parameter settings are transferred to the controller.
<3> Only for SINAMICS S120/S150.
<4> With active Vdc controller, r0077 shows the signal before the limitation.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6710_54_eng.vsd	Function diagram	- 6710 -
Vector control - Current setpoint filter					27.09.13 V04.07.00	S120/S150/G130/G150	

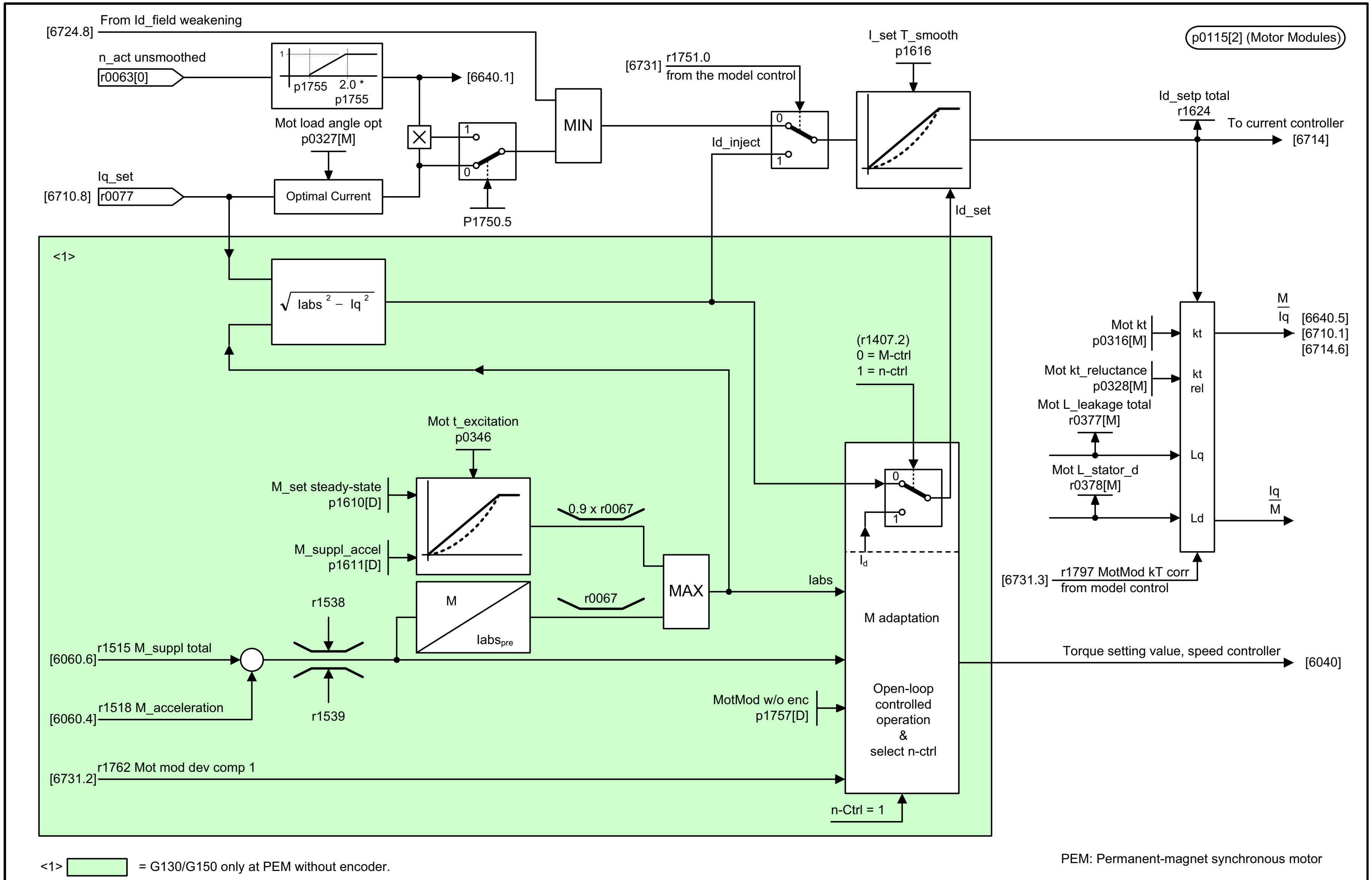
Fig. 3-134 6714 – Iq and Id controllers



<1> For induction motors.
<2> For synchronous motors.
<3> Only for SINAMIC S120/S150 and separately-excited synchronous motors.
<4> For active Vdc controller: enabled using p1402.15.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6714_54_eng.vsd	Function diagram	- 6714 -
Vector control - Iq and Id controllers					08.10.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-135 6721 – Id setpoint (PEM, p0300 = 2)

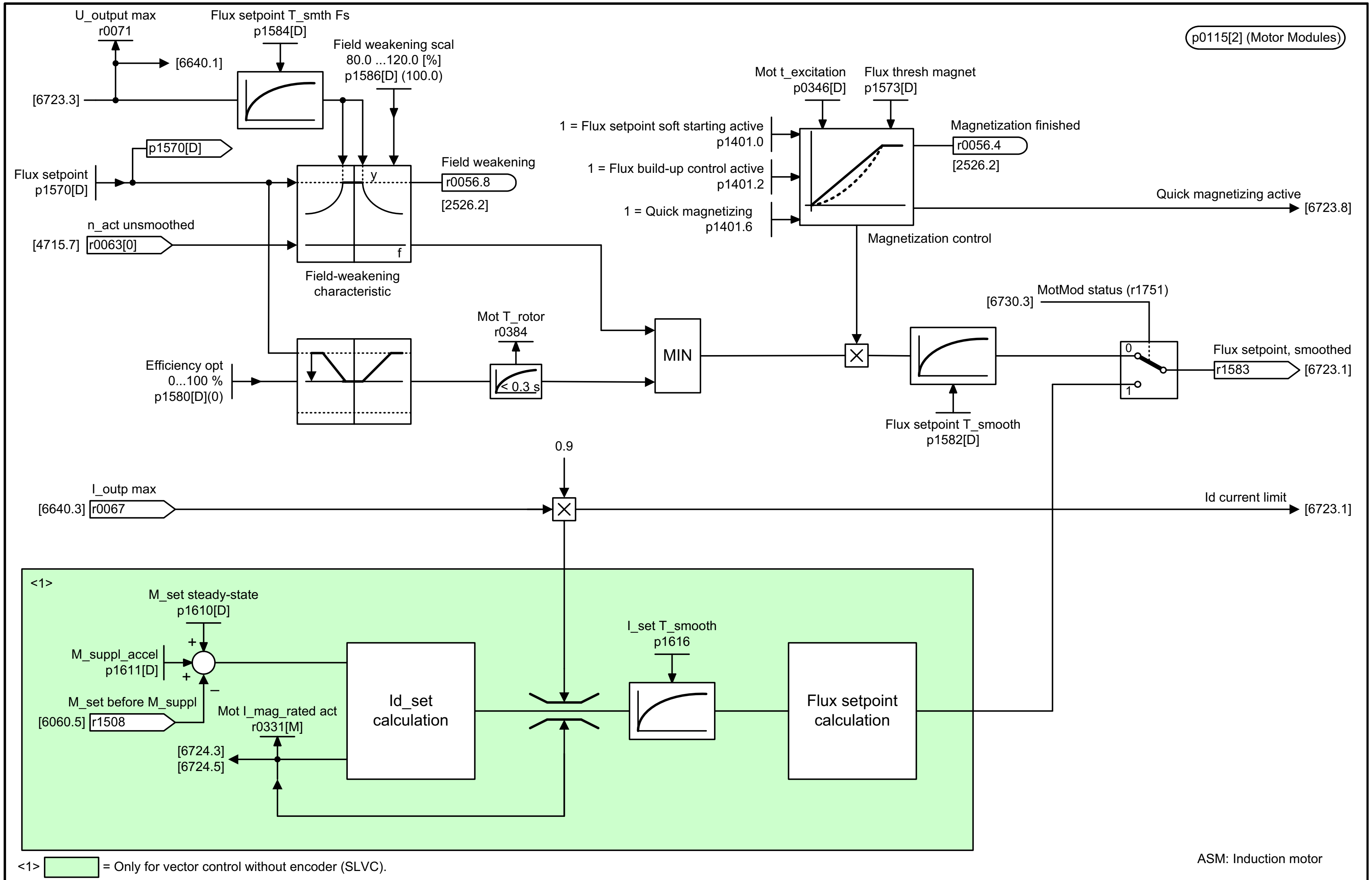


<1> = G130/G150 only at PEM without encoder.

PEM: Permanent-magnet synchronous motor

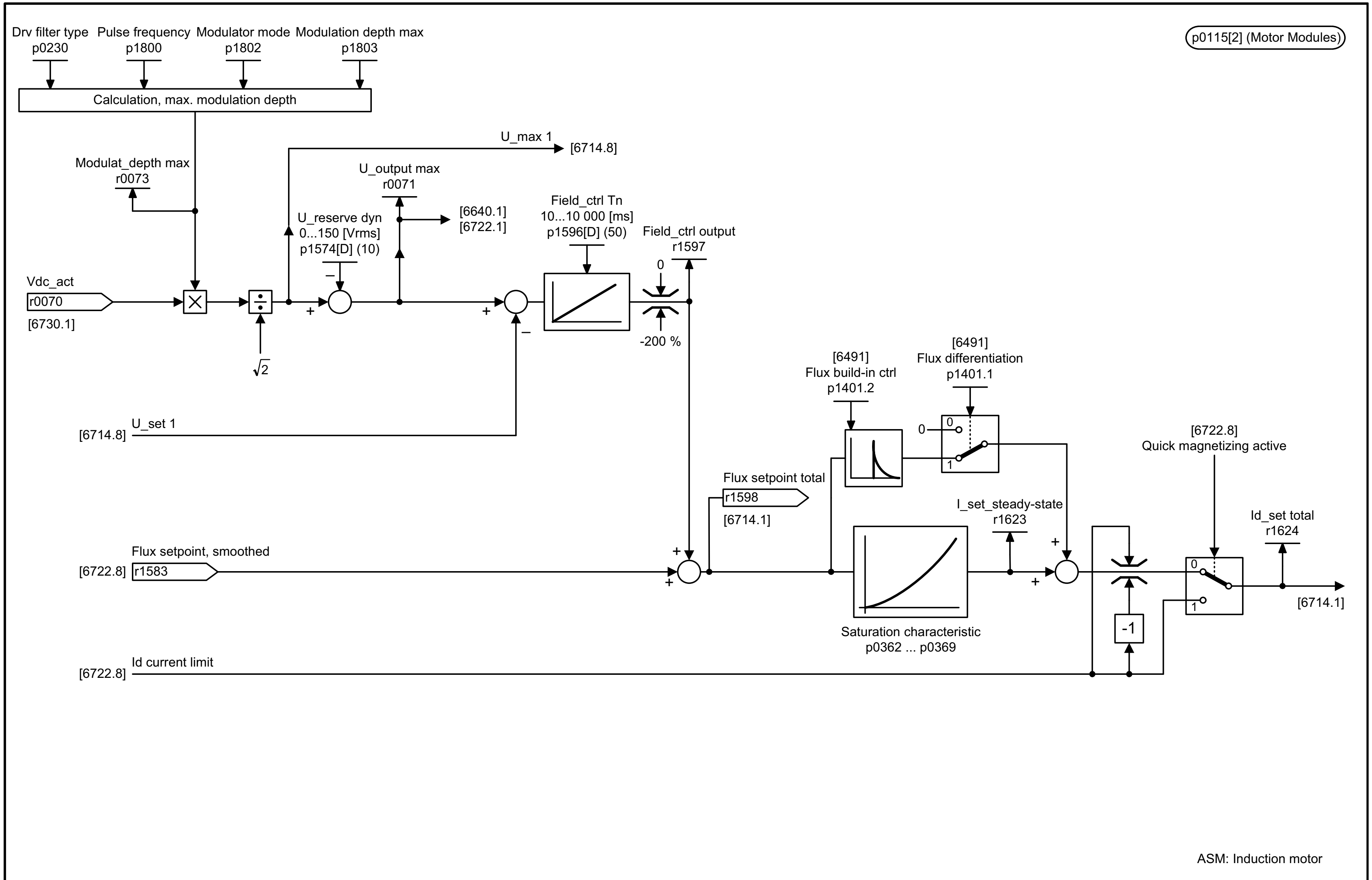
1	2	3	4	5	6	7	8
DO: VECTOR					fp_6721_54_eng.vsd	Function diagram	- 6721 -
Vector control - Id setpoint (PEM, p0300 = 2)					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-136 6722 – Field weakening characteristic, Id setpoint (ASM, p0300 = 1)



1	2	3	4	5	6	7	8
DO: VECTOR					fp_6722_54_eng.vsd	Function diagram	- 6722 -
Vector control - Field weakening characteristic, Id setpoint (ASM, p0300 = 1)					11.02.14 V04.07.00	S120/S150/G130/G150	

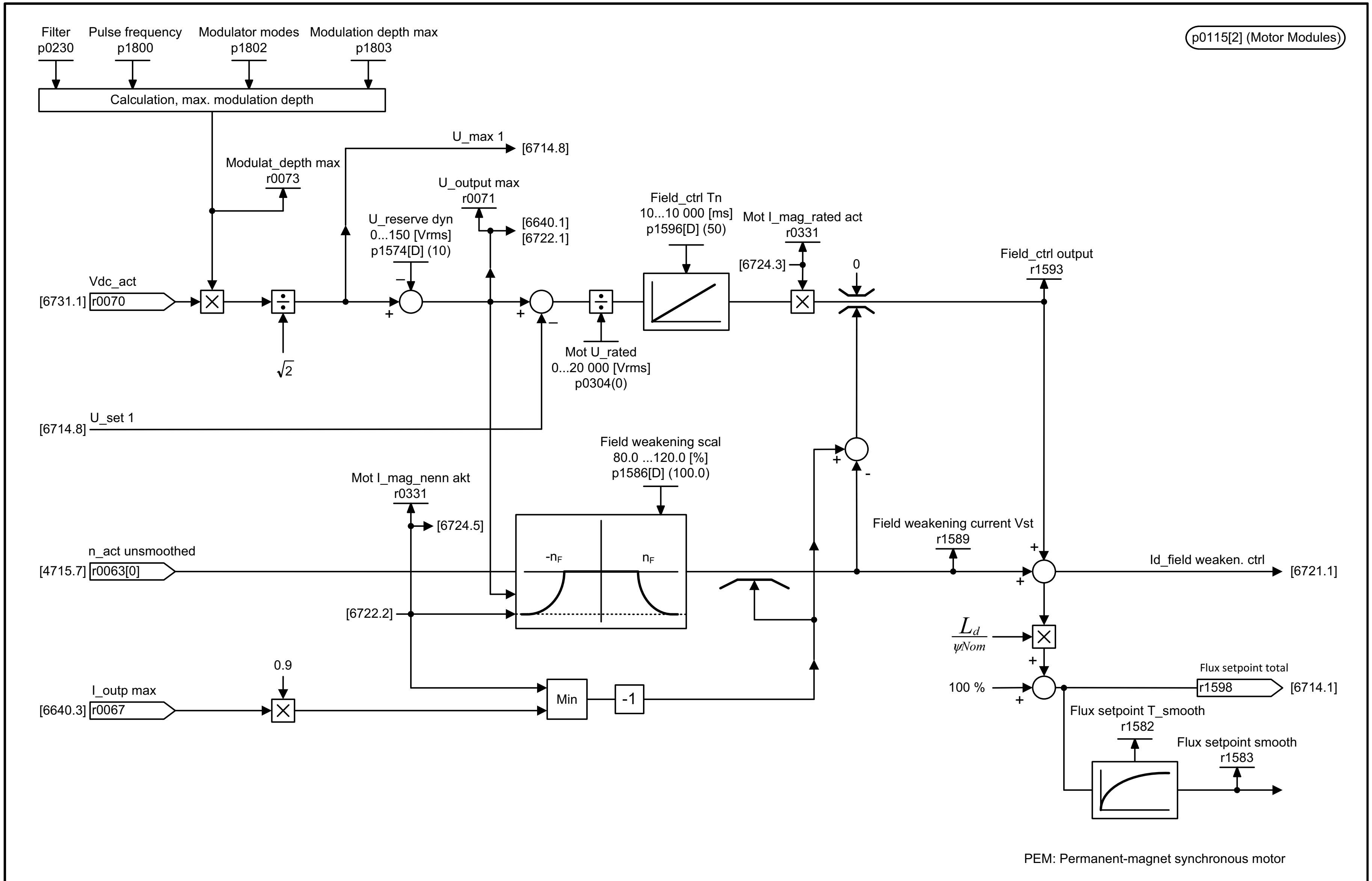
Fig. 3-137 6723 – Field weakening controller, flux controller (ASM, p0300 = 1)



1	2	3	4	5	6	7	8

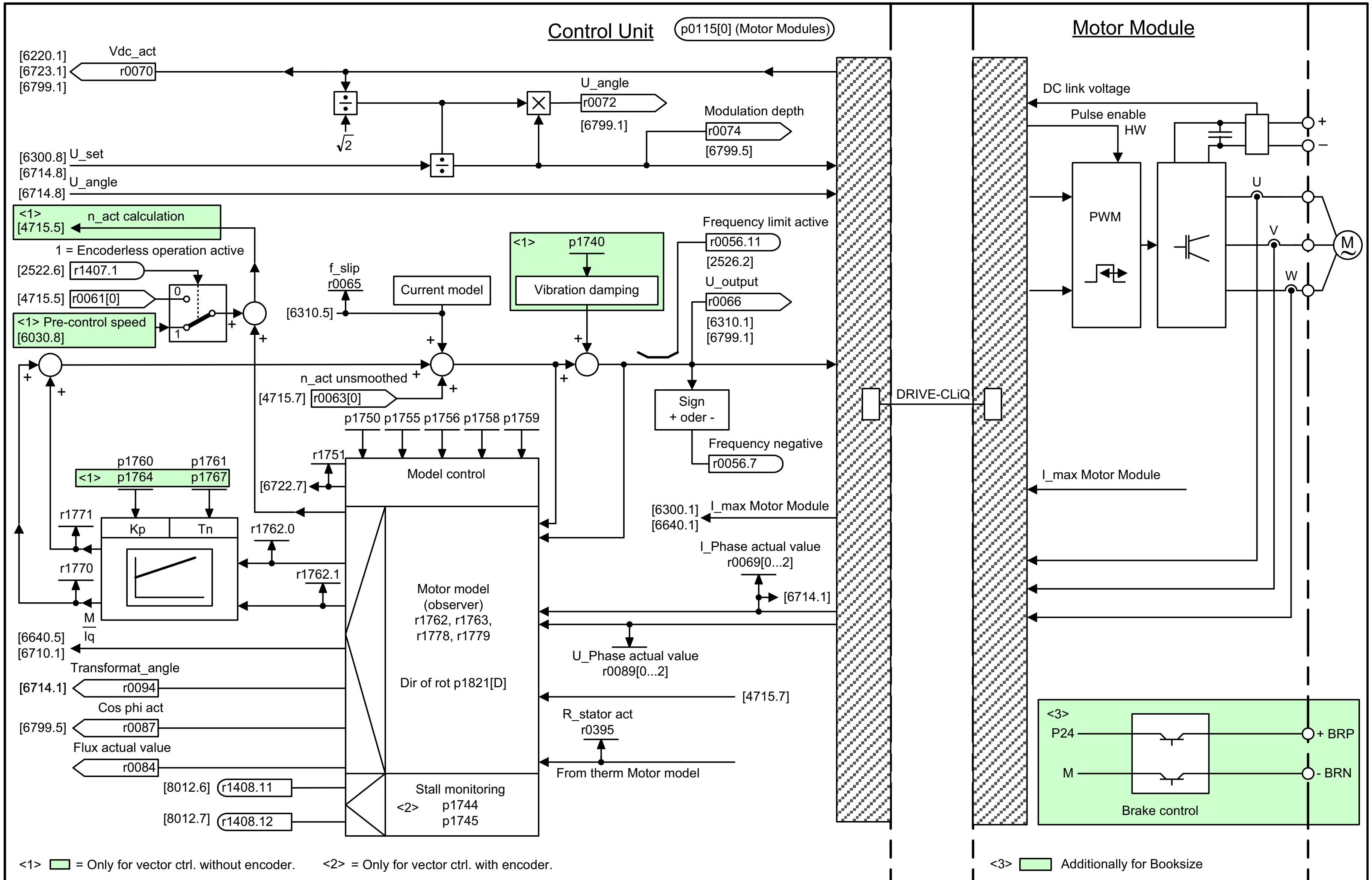
DO: VECTOR | fp_6723_54_eng.vsd | Function diagram | - 6723 -
Vector control - Field weakening controller, flux controller (ASM, p0300 = 1) | 12.07.13 V04.07.00 | S120/S150/G130/G150

Fig. 3-138 6724 – Field weakening controller (PEM, p0300 = 2)



1	2	3	4	5	6	7	8
DO: VECTOR					fp_6724_54_eng.vsd	Function diagram	- 6724 -
Vector control - Field weakening controller (PEM, p0300 = 2)					12.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-139 6730 – Interface to the Motor Module (ASM, p0300 = 1)



1	2	3	4	5	6	7	8
DO: VECTOR					fp_6730_54_eng.vsd	Function diagram	- 6730 -
Vector control - Interface to the Motor Module (ASM, p0300 = 1)					28.01.14 V04.07.00	S120/S150/G130/G150	

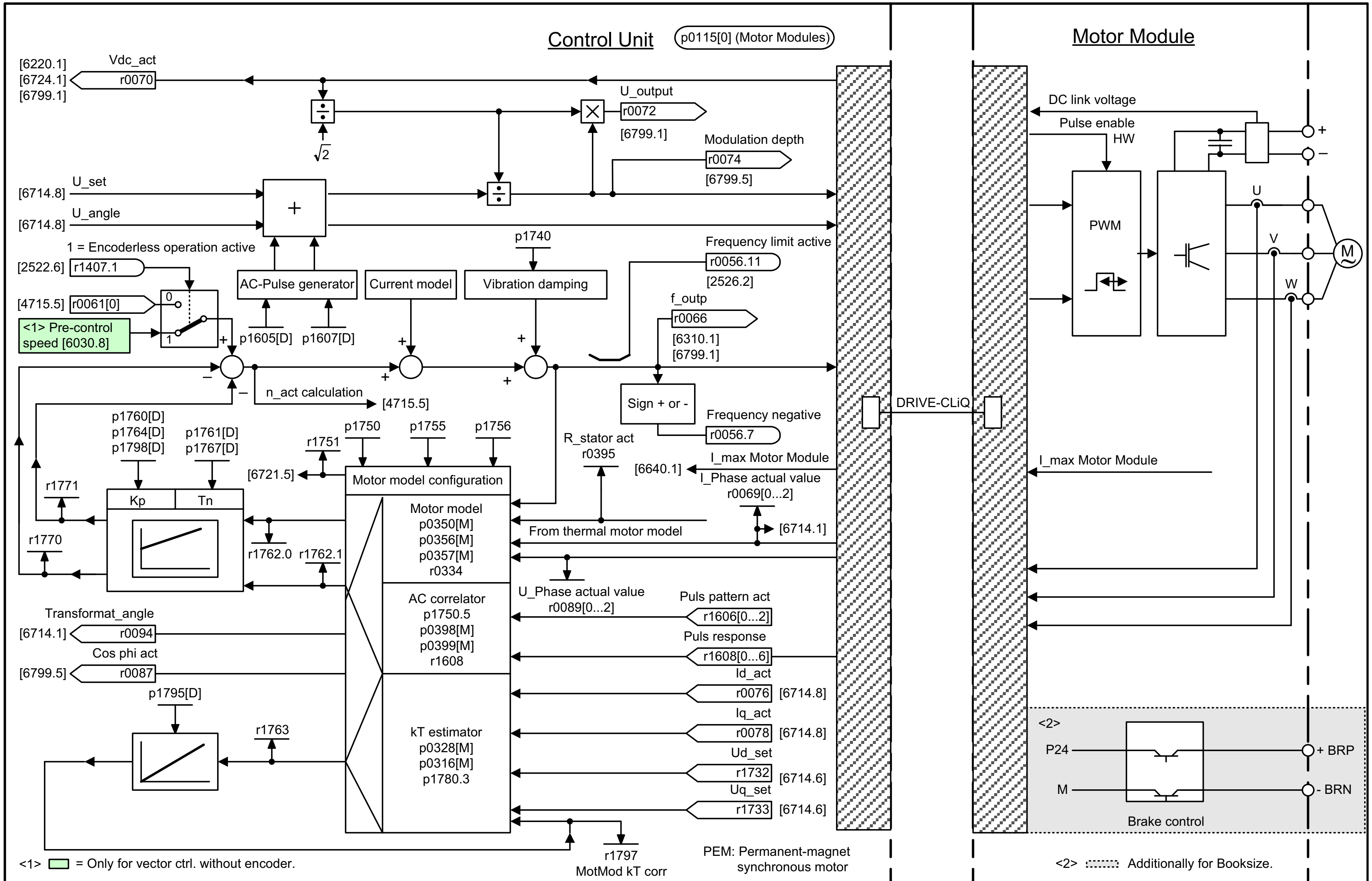
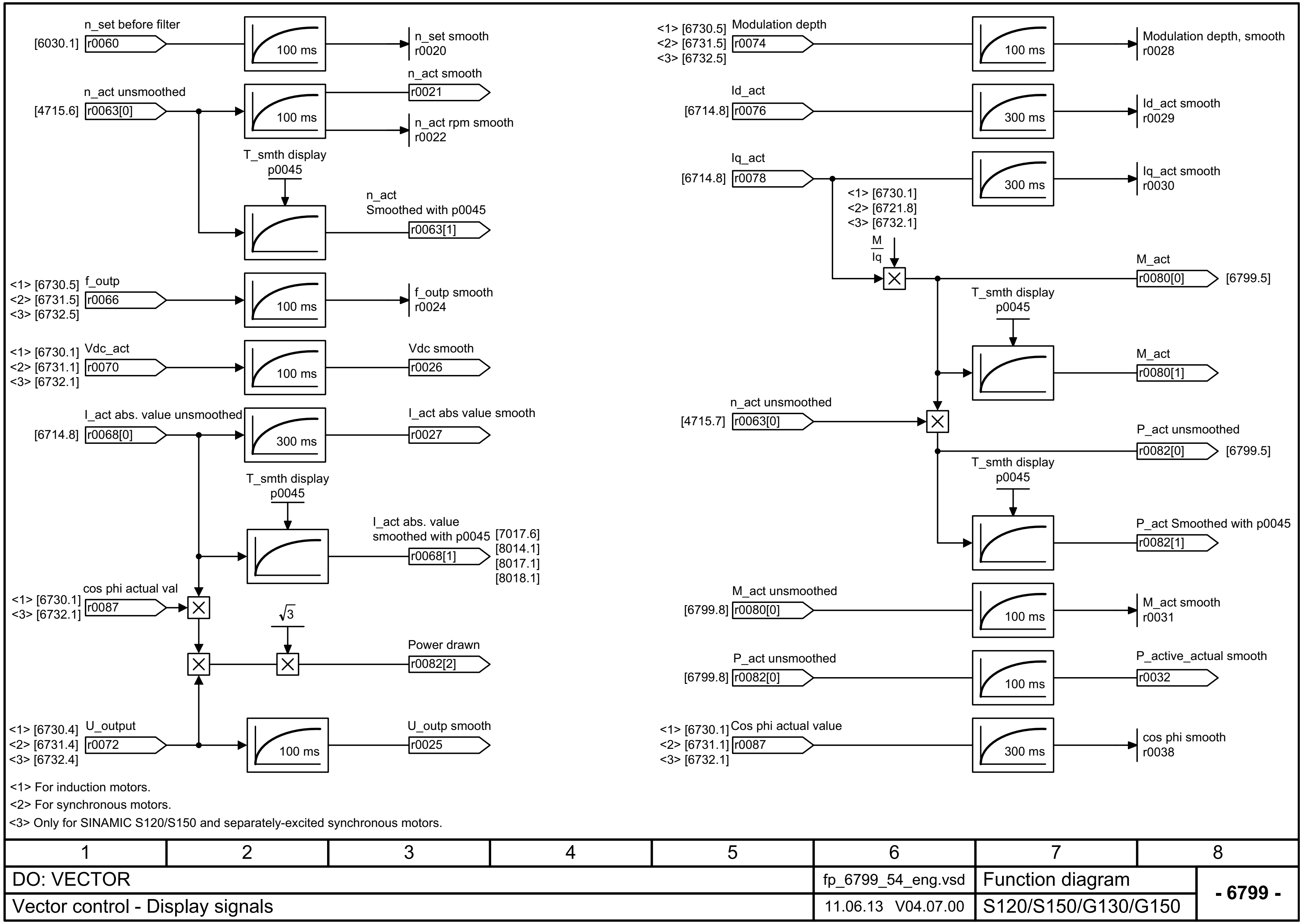


Fig. 3-140 6731 – Interface to the Motor Module (PEM, p0300 = 2)

1	2	3	4	5	6	7	8
DO: VECTOR					fp_6731_54_eng.vsd	Function diagram	- 6731 -
Vector control - Interface to the Motor Module (PEM, p0300 = 2)					10.09.13 V04.07.00	S120/S150/G130/G150	

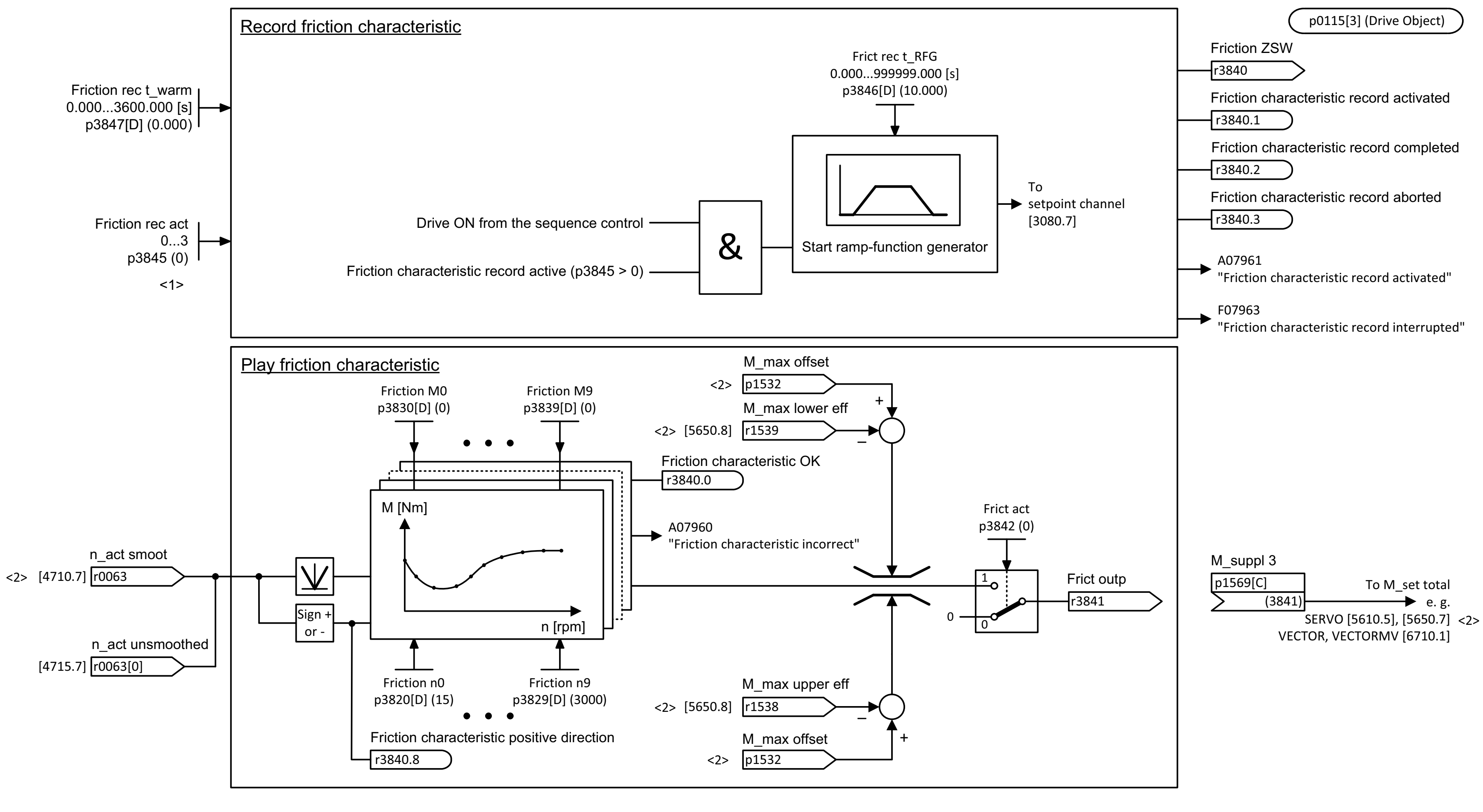
Fig. 3-141 6799 – Display signals



3.15 Technology functions

Function diagrams

Fig. 3-142 7010 – Friction characteristic

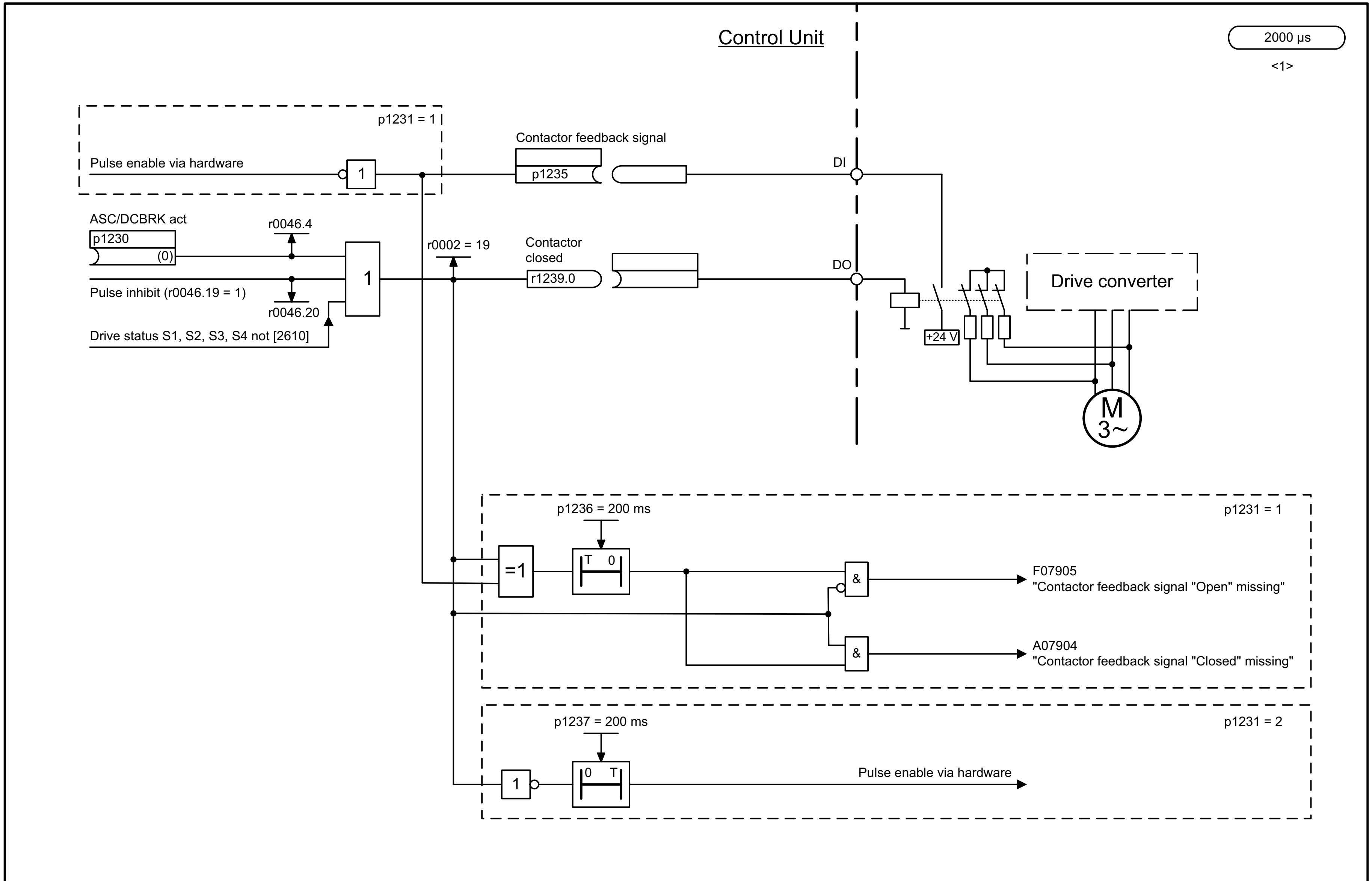


<1> p3845
= 0: Friction characteristic record deactivated
= 1: Friction char record activated for all directions
= 2: Friction char record activated for positive direction
= 3: Friction char record activated for negative direction

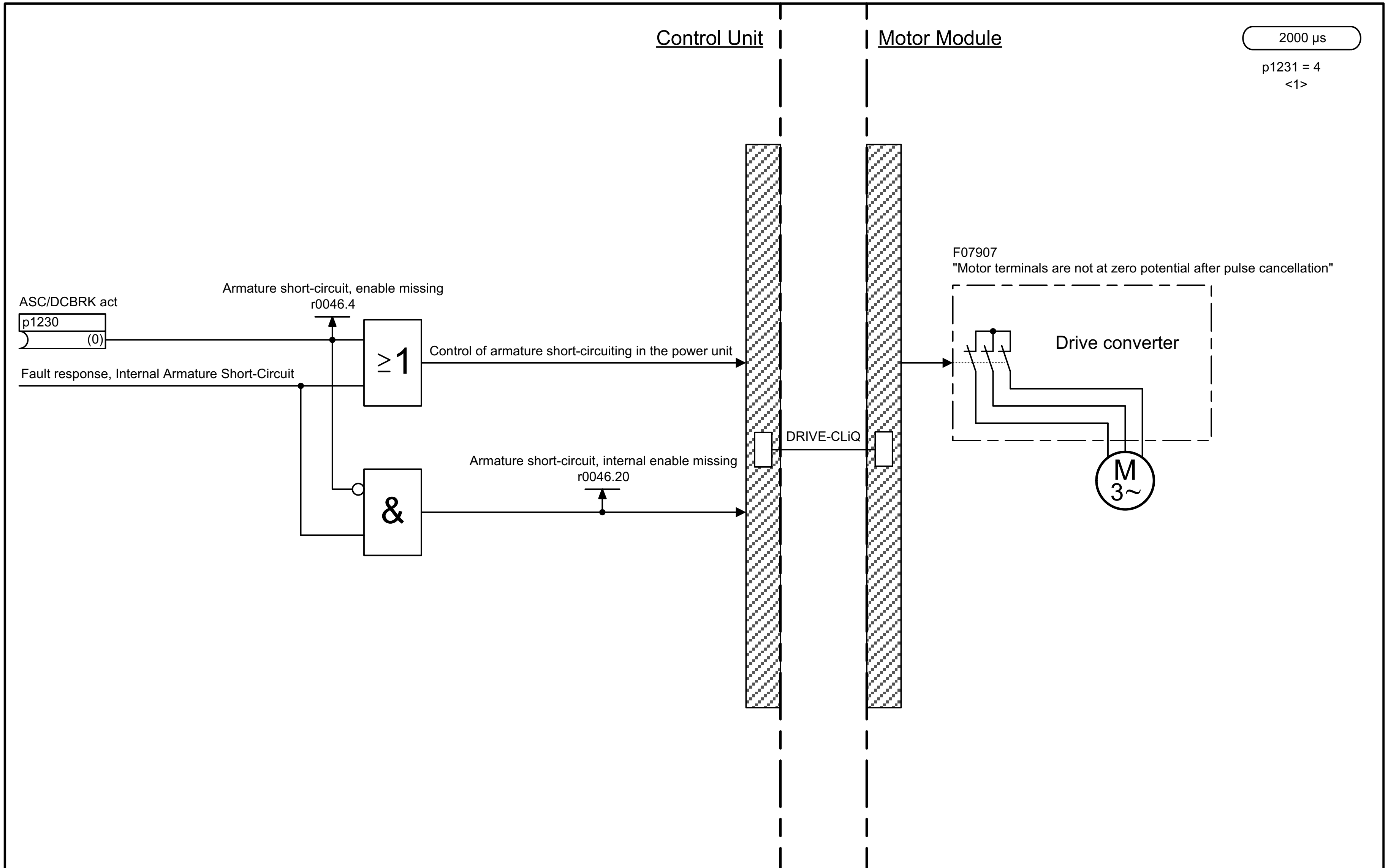
<2> Only for SINAMICS S120 and SERVO.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR (n/M), VECTORMV					fp_7010_51_eng.vsd	Funktionsplan	- 7010 -
Technology functions - Friction characteristic					16.07.13 V04.07.00	SINAMICS	

Fig. 3-143 7014 – External Armature Short-Circuit (EASC, p0300 = 2xx or 4xx)



1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_7014_54_eng.vsd	Function diagram	- 7014 -
Technology functions - External Armature Short-Circuit (EASC, p0300 = 2xx or 4xx)					20.12.13 V04.07.00	S120/S150/G130/G150	



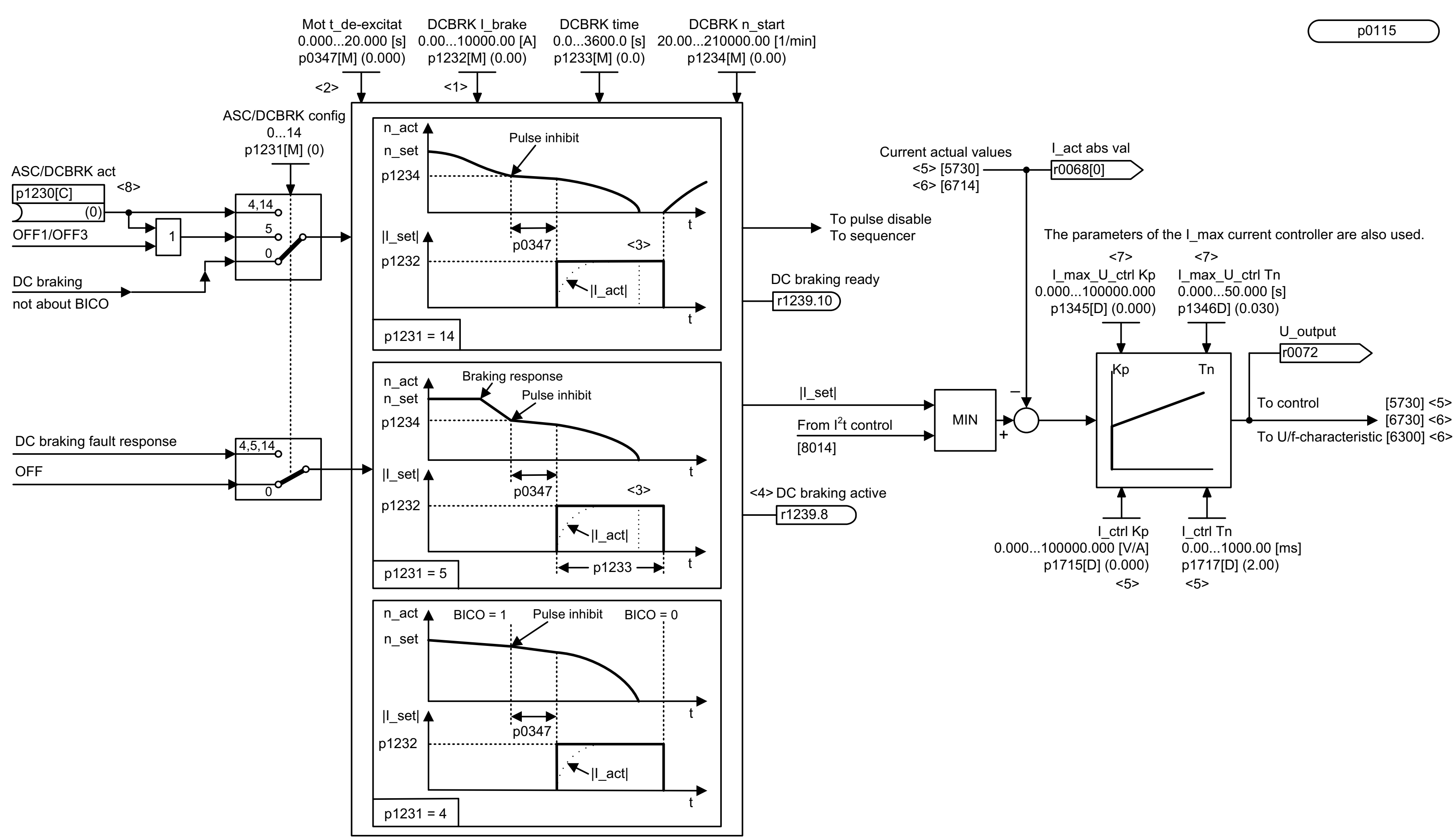
<1> p0300 = 4xx only with S120/S150.

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_7016_54_eng.vsd	Function diagram	- 7016 -
Technology functions - Internal Armature Short-Circuit (IASC, p0300 = 2xx or 4xx)	20.12.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-144 7016 – Internal Armature Short-Circuit (IASC, p0300 = 2xx or 4xx)

Fig. 3-145 7017 – DC brake (p0300 = 1xx)



<1> The DC brake current is determined during automatic calculation (p0340 = 1).
<2> The de-magnetization time is determined during automatic calculation (p0340 = 1, 3).
<3> As soon as the standstill threshold (p1226) has been reached, the DC current injection will be aborted prematurely.
<4> Signal r1239.8 is only set while the DC brake is active.
<5> Only for SINAMICS S120 and SERVO.
<6> Only for SINAMICS S120 and VECTOR.
<7> Only for VECTOR.
<8> DC brake upon falling below the starting speed for DC brake (p1234).

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_7017_54_eng.vsd	Function diagram	- 7017 -
Technology functions - DC brake (p0300 = 1xx)					01.04.11 V04.07.00	S120/S150/G130/G150	

Fig. 3-146 7020 – Synchronization

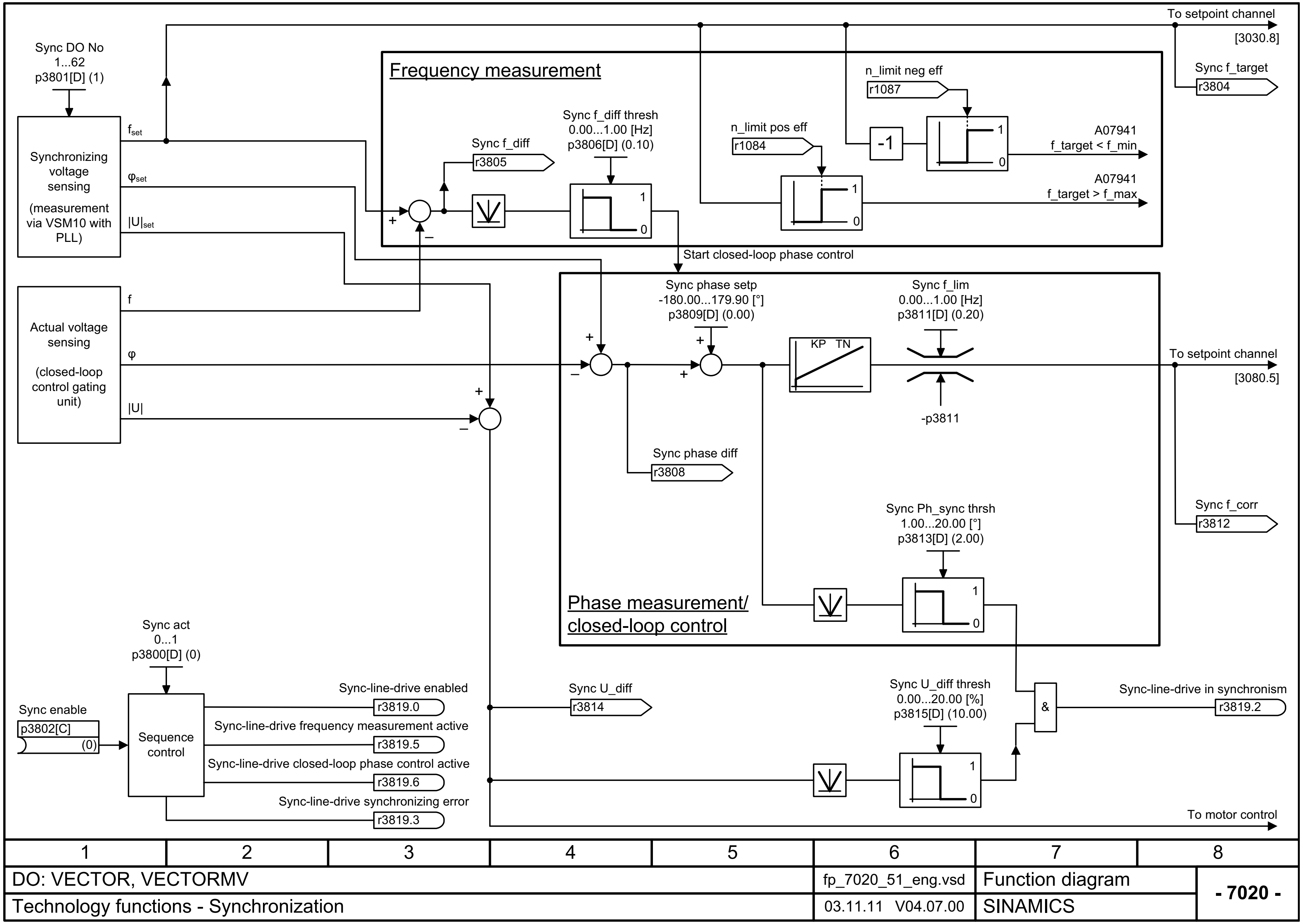
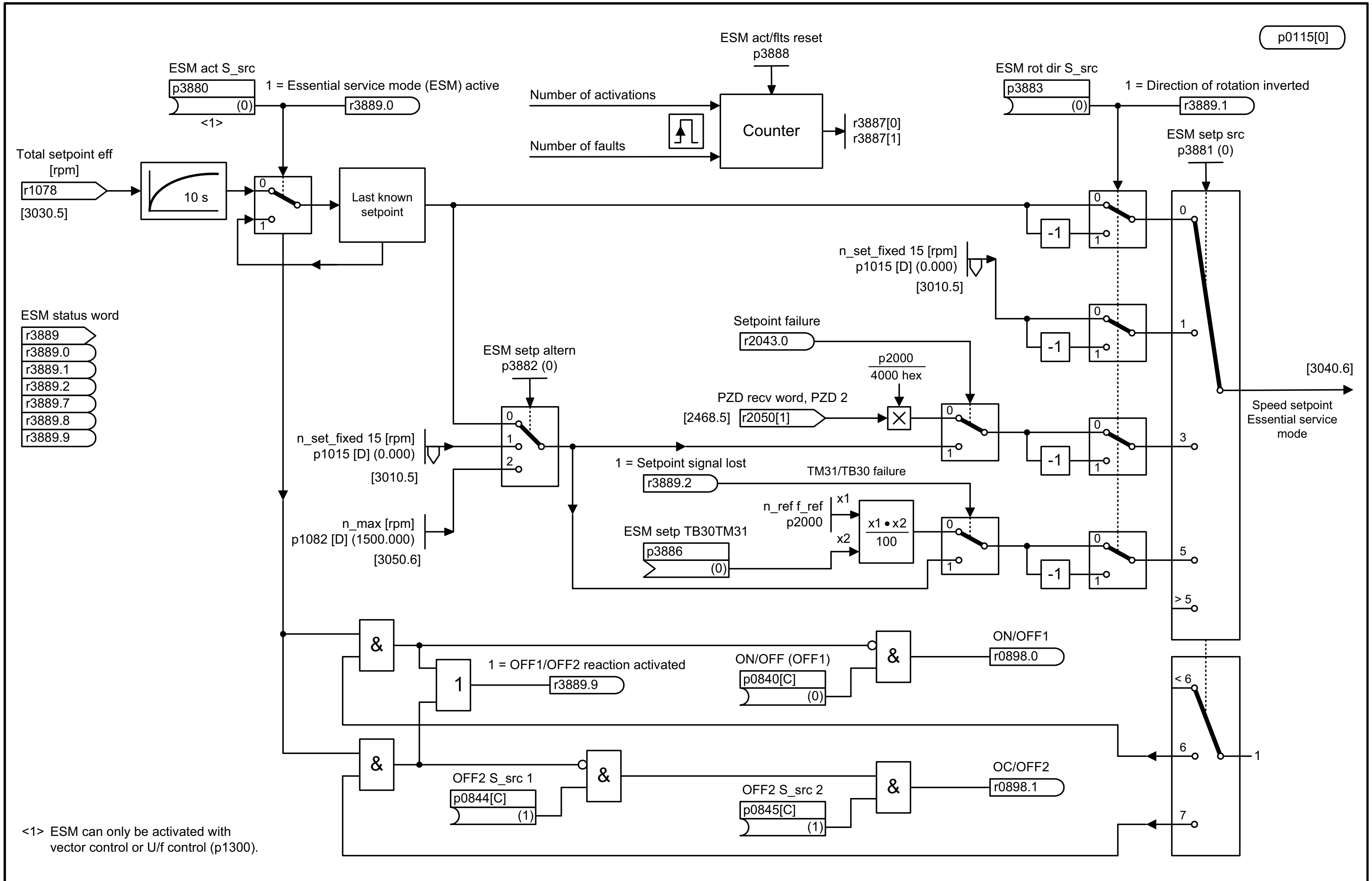


Fig. 3-147 7033 – Essential service mode (ESM)

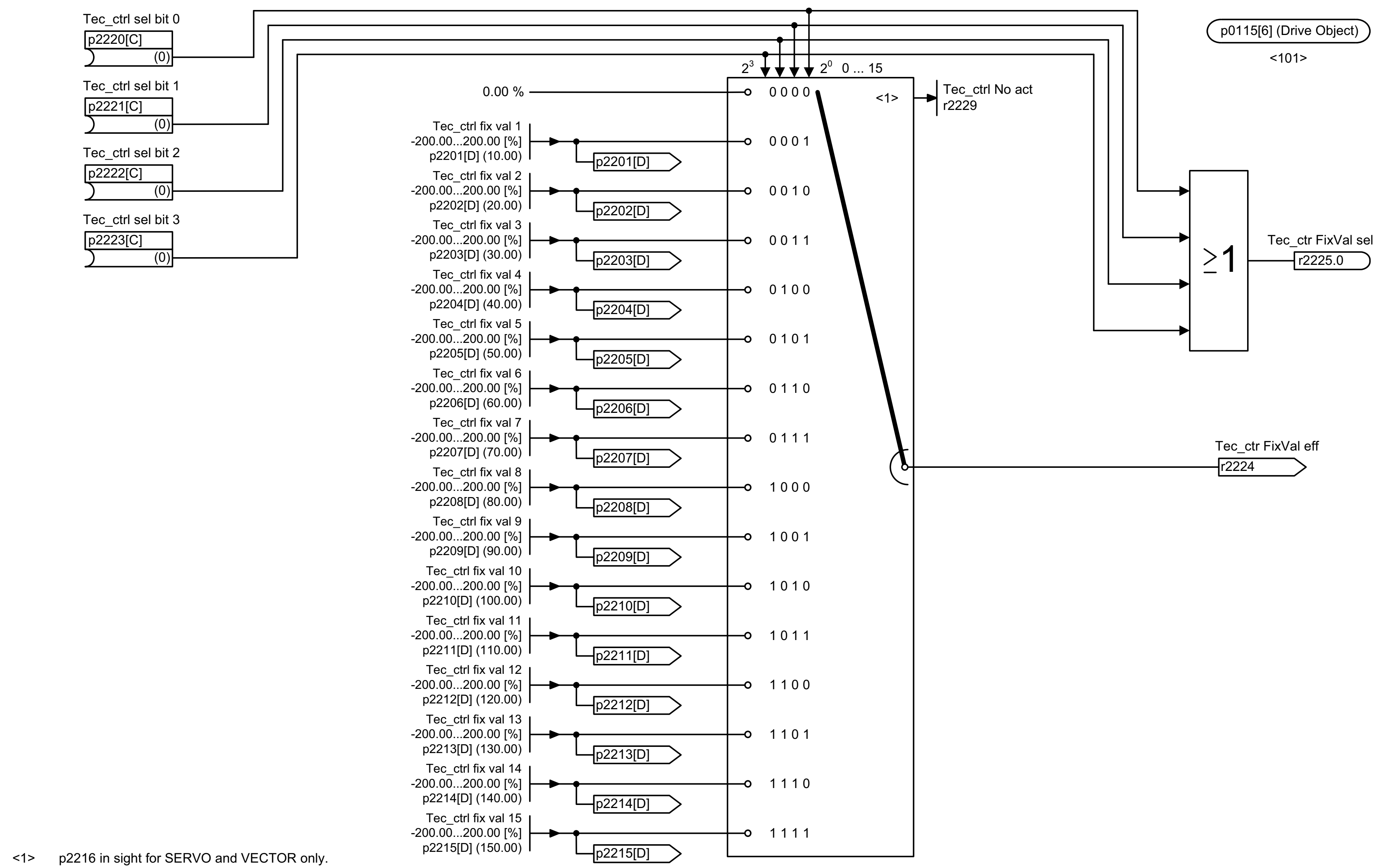


1	2	3	4	5	6	7	8
DO: VECTOR					fp_7033_56_eng.vsd	Function diagram	- 7033 -
Technology functions - Essential Service Mode (ESM)					17.07.13 V04.07.00	SINAMICS G130/G150	

3.16 Technology controller

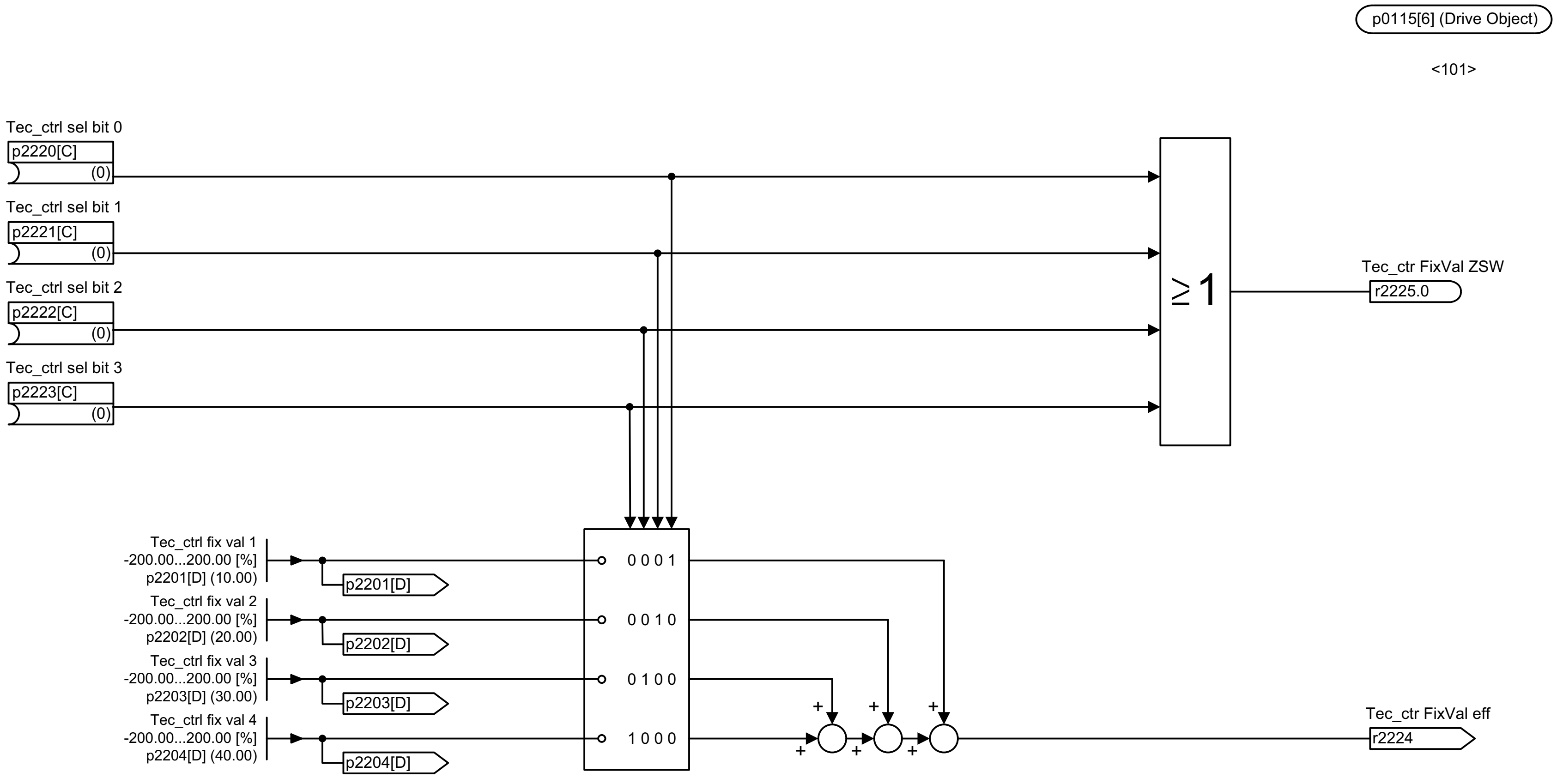
Function diagrams

Fig. 3-148 7950 – Fixed value selection binary (r0108.16 = 1 and p2216 = 2)



<1> p2216 in sight for SERVO and VECTOR only.
<101> The pre-assignment of the sampling time in p0115[6] is 4000.00 µs.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORMV					fp_7950_51_eng.vsd	Function diagram	- 7950 -
Technology controller - Fixed value selection binary (r0108.16 = 1 and p2216 = 2)					04.07.13 V04.07.00	SINAMICS	

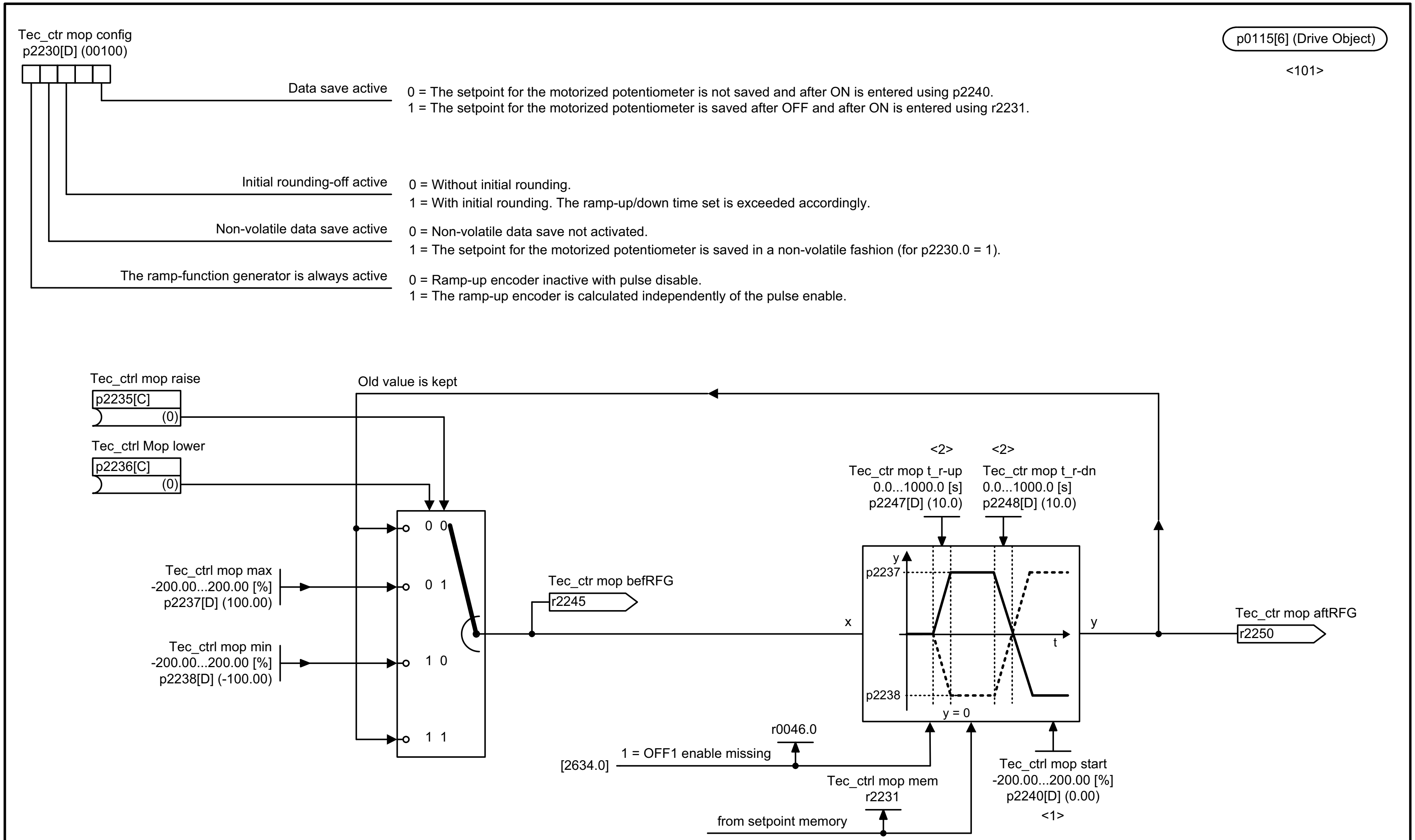


<101> The pre-assignment of the sampling time in p0115[6] is 4000.00 µs.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_7951_54_eng.vsd	Function diagram	- 7951 -
Technology controller - Fixed value selection direct (r0108.16 = 1 and p2216 = 1)					12.07.13 V04.07.00	S120/S150/G130/G150	

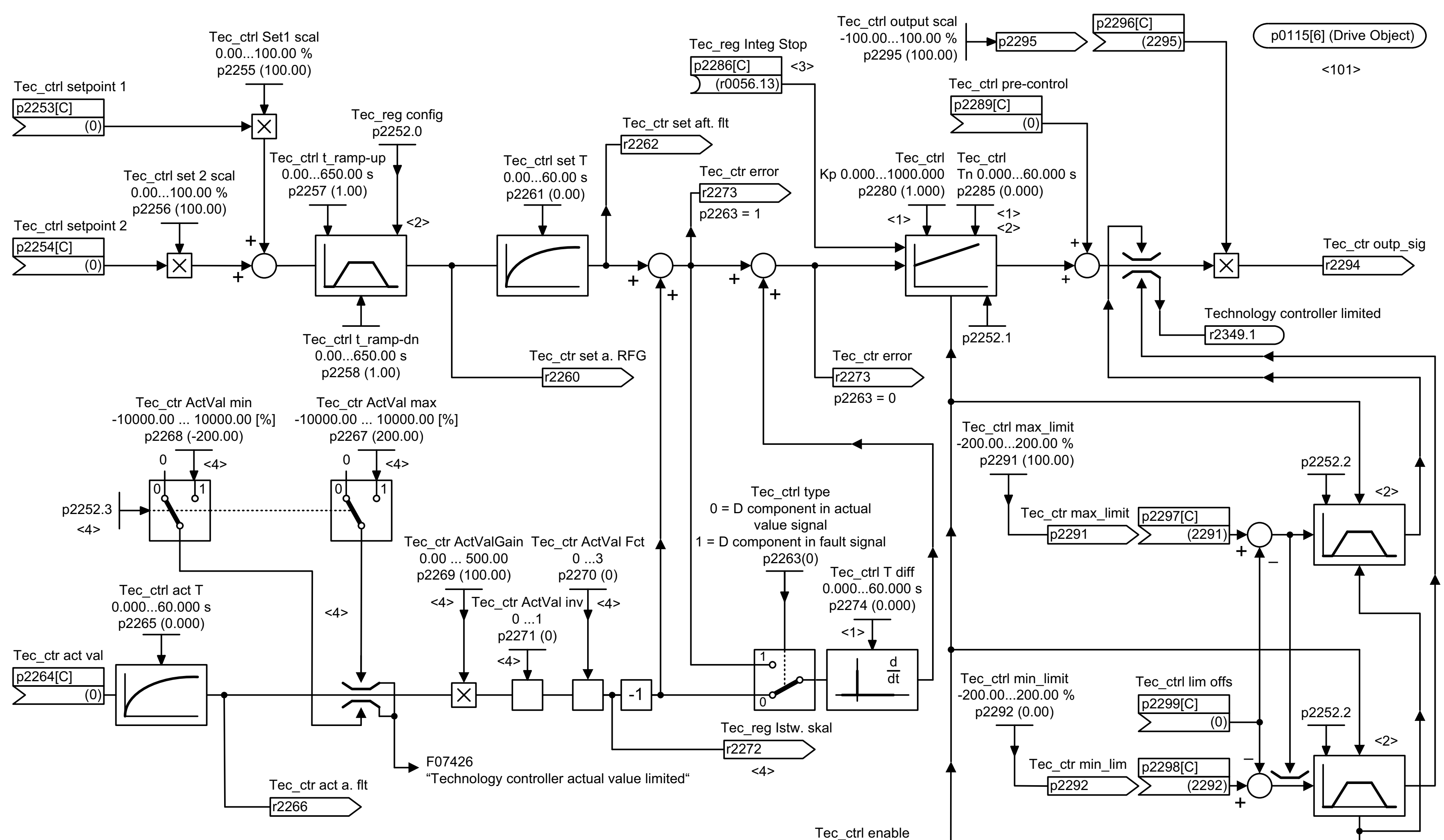
Fig. 3-149 7951 – Fixed value selection direct (r0108.16 = 1 and p2216 = 1)

Fig. 3-150 7954 – Motorized potentiometer (r0108.16 = 1)



<1> For p2230.0 = 0, this setpoint is entered after ON.
<2> If initial rounding-off is active (p2230.2 = 1), the selected ramp-up/down times are exceeded accordingly.
<101> The pre-assignment of the sampling time in p0115[6] is 4000.00 µs.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORMV					fp_7954_51_eng.vsd	Function diagram	- 7954 -
Technology controller - Motorized potentiometer (r0108.16 = 1)					04.07.13 V04.07.00	SINAMICS	

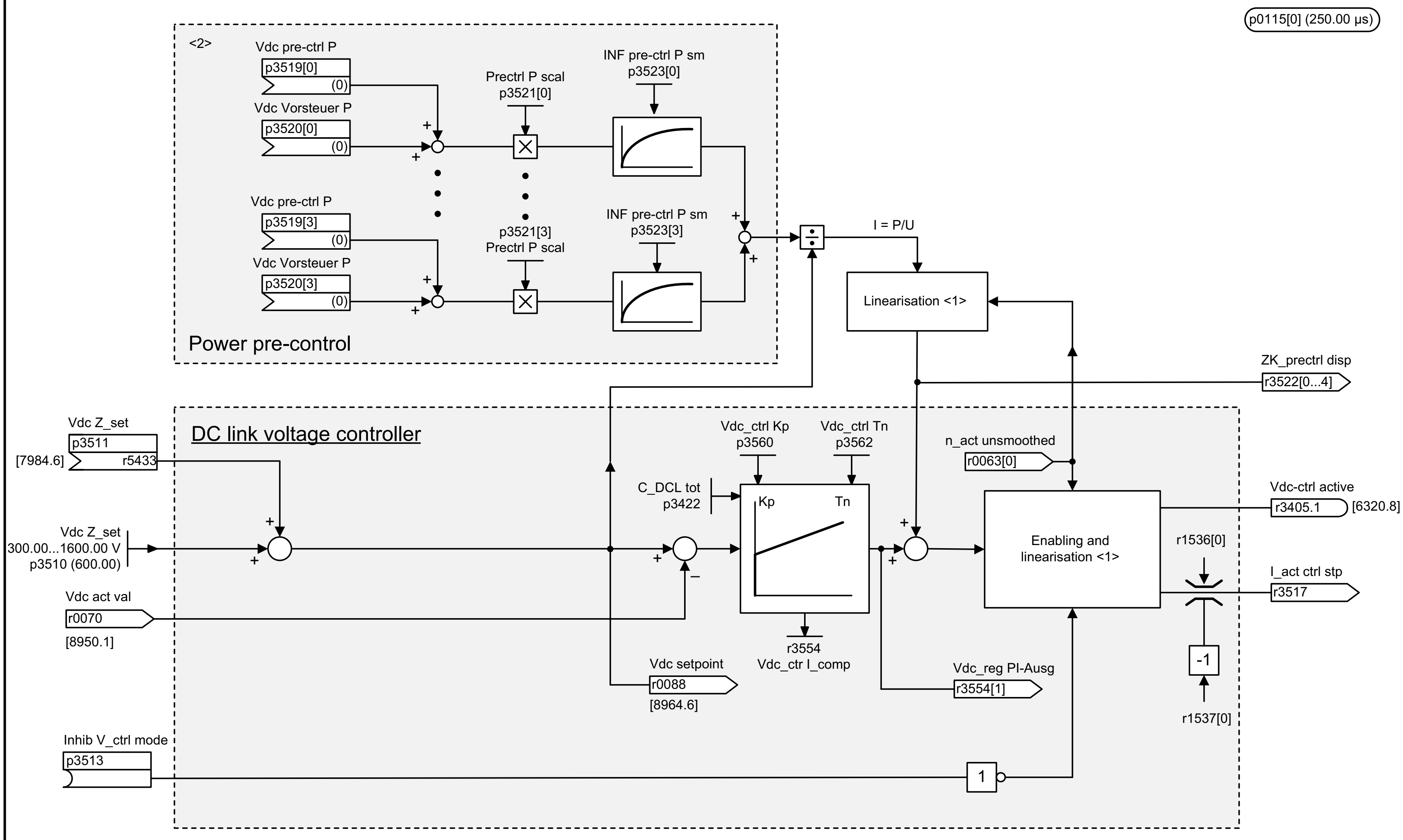


<1> P, I and D components can be disabled by entering a zero.
<2> Behavior can be changed via p2252.
<3> I component stop, only when r2273 and r2294 in same direction.
<4> Not for VECTOR3P and VECTORMV.
<101> The pre-assignment of the sampling time in p0115[6] is 4000.00 µs.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORMV					fp_7958_51_eng.vsd	Function diagram	- 7958 -
Technology controller - Closed-loop control (r0108.16 = 1)					04.07.13 V04.07.00	SINAMICS	

Fig. 3-151 7958 – Closed-loop control (r0108.16 = 1)

Fig. 3-152 7960 – DC link voltage controller (r0108.16 = 1)



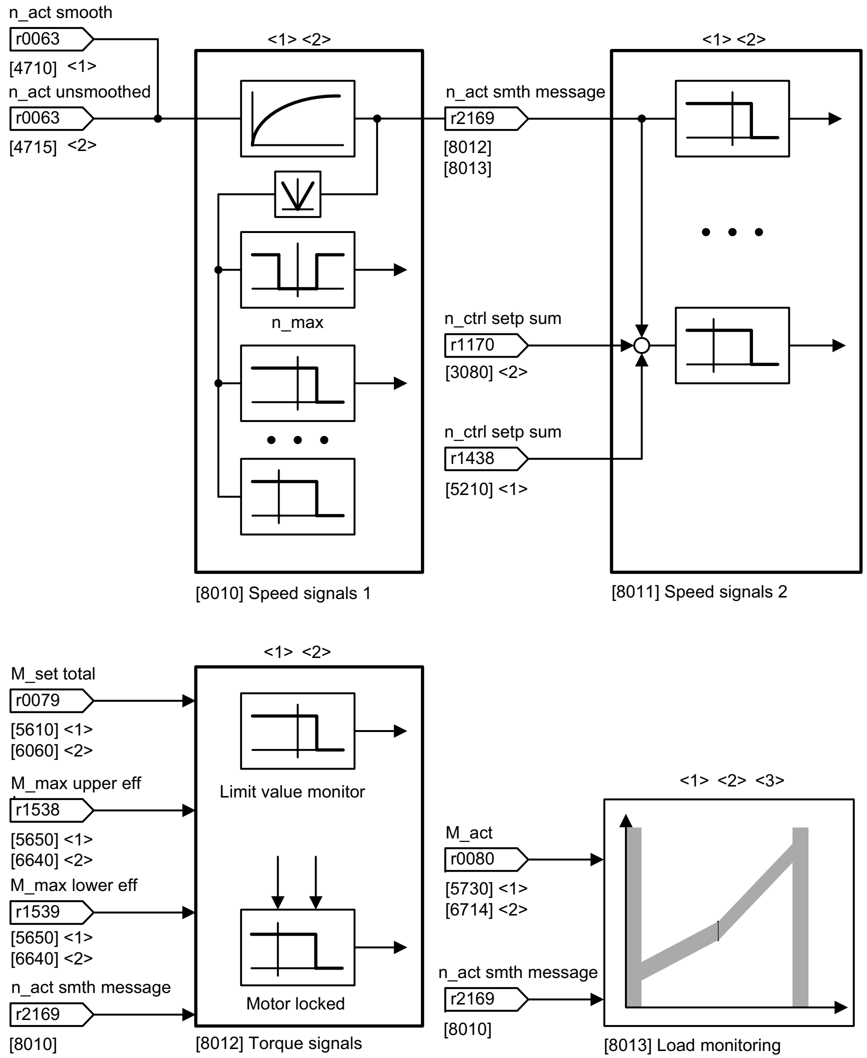
<1> The linearization calculates with p0311[MDS] and MDS = p0186[0].
<2> p3519[0]...p3519[3] are standardized via r2004rt.

1	2	3	4	5	6	7	8
DO: VECTOR					fp_7960_54_eng.vsd	Function diagram	- 7960 -
Technology controller - DC link voltage controller (r0108.16 = 1)					10.12.13 V04.07.00	S120/S150/G130/G150	

3.17 Signals and monitoring functions

Function diagrams

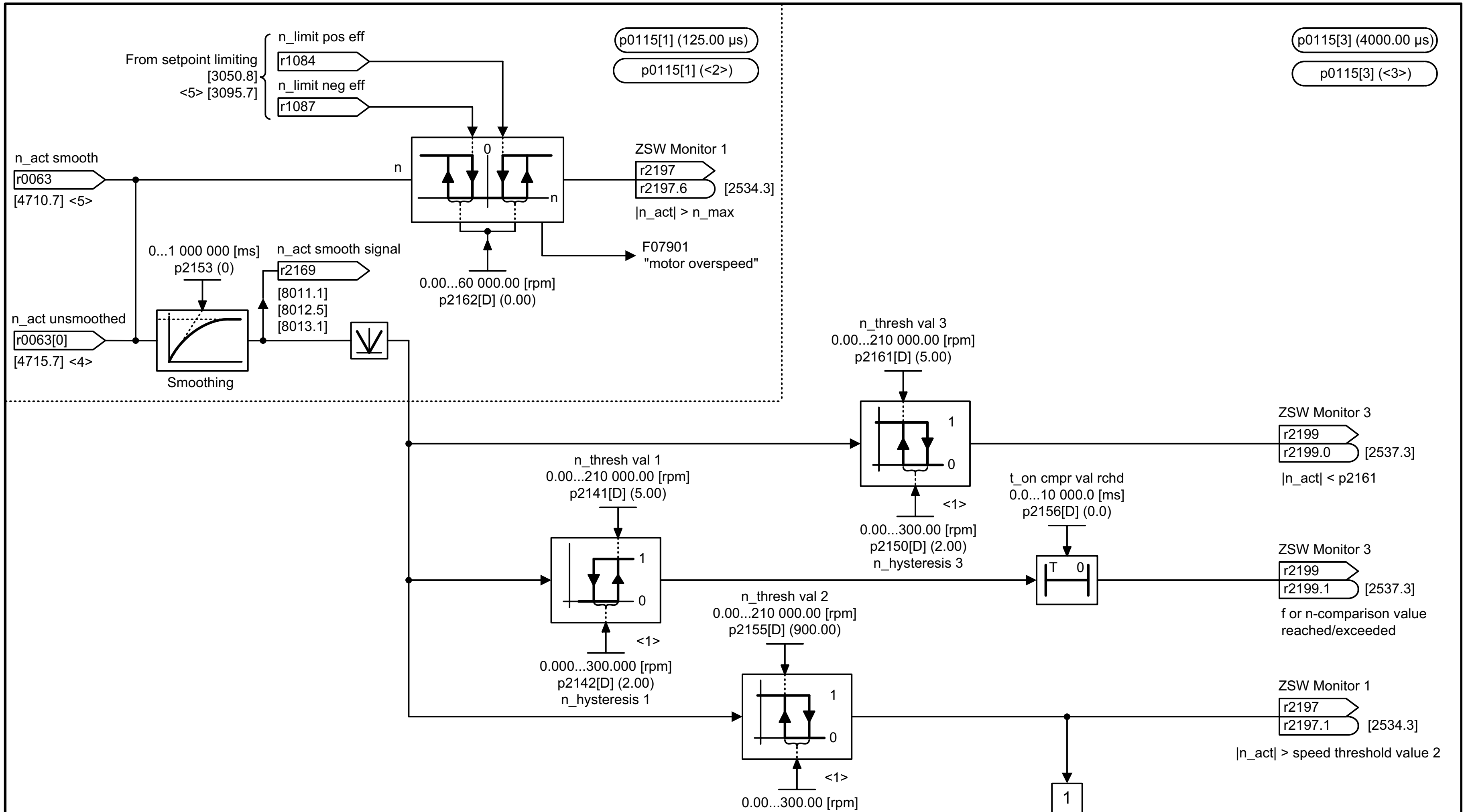
Fig. 3-153 8005 – Overview



<1> Only for SERVO.
<2> Only for VECTOR.
<3> Only for p0108.17 = 1.

1	2	3	4	5	6	7	8
DO: All objects					fp_8005_51_eng.vsd	Function diagram	- 8005 -
Monitoring functions, faults, alarms, overview					12.03.13 V04.07.00	SINAMICS	

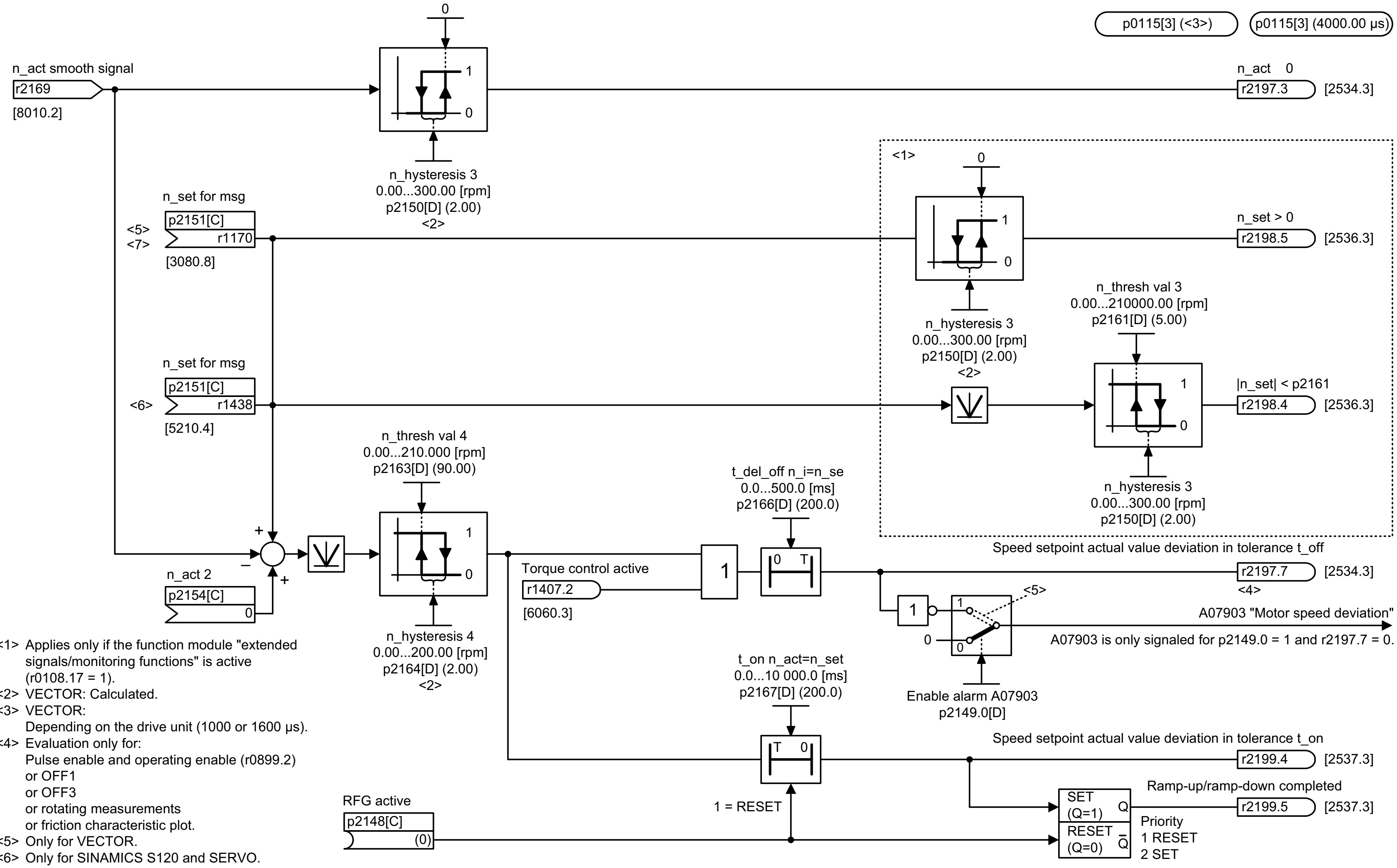
Fig. 3-154 8010 – Speed signals 1



<1> VECTOR: Calculated.
<2> VECTOR:
Depending on the drive unit (250 or 400 µs).
<3> VECTOR:
Depending on the drive unit (1000 or 1600 µs).
<4> Only for VECTOR.
<5> Only for SINAMICS S120 and SERVO.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8010_54_eng.vsd	Function diagram	- 8010 -
Signals and monitoring functions - Speed signals 1					20.08.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-155 8011 – Speed signals 2

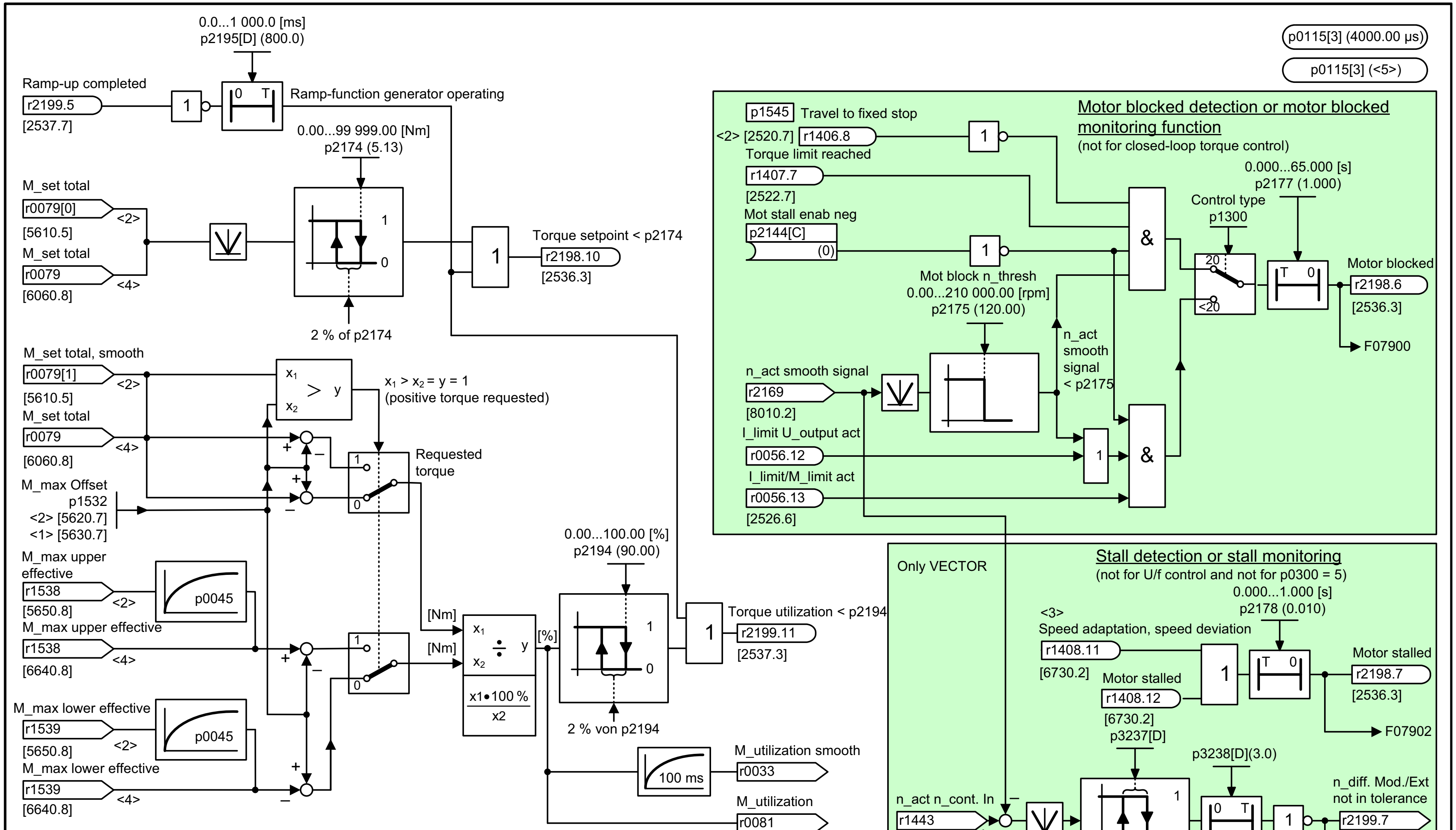


<1> Applies only if the function module "extended signals/monitoring functions" is active (r0108.17 = 1).
<2> VECTOR: Calculated.
<3> VECTOR: Depending on the drive unit (1000 or 1600 µs).
<4> Evaluation only for:
Pulse enable and operating enable (r0899.2)
or OFF1
or OFF3
or rotating measurements
or friction characteristic plot.
<5> Only for VECTOR.
<6> Only for SINAMICS S120 and SERVO.
<7> The value is displayed correctly only with r0899.2 = 1 (Operation enabled).

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_8011_54_eng.vsd	Function diagram	- 8011 -
Signals and monitoring functions - Speed signals 2	11.04.12 V04.07.00	S120/S150/G130/G150	

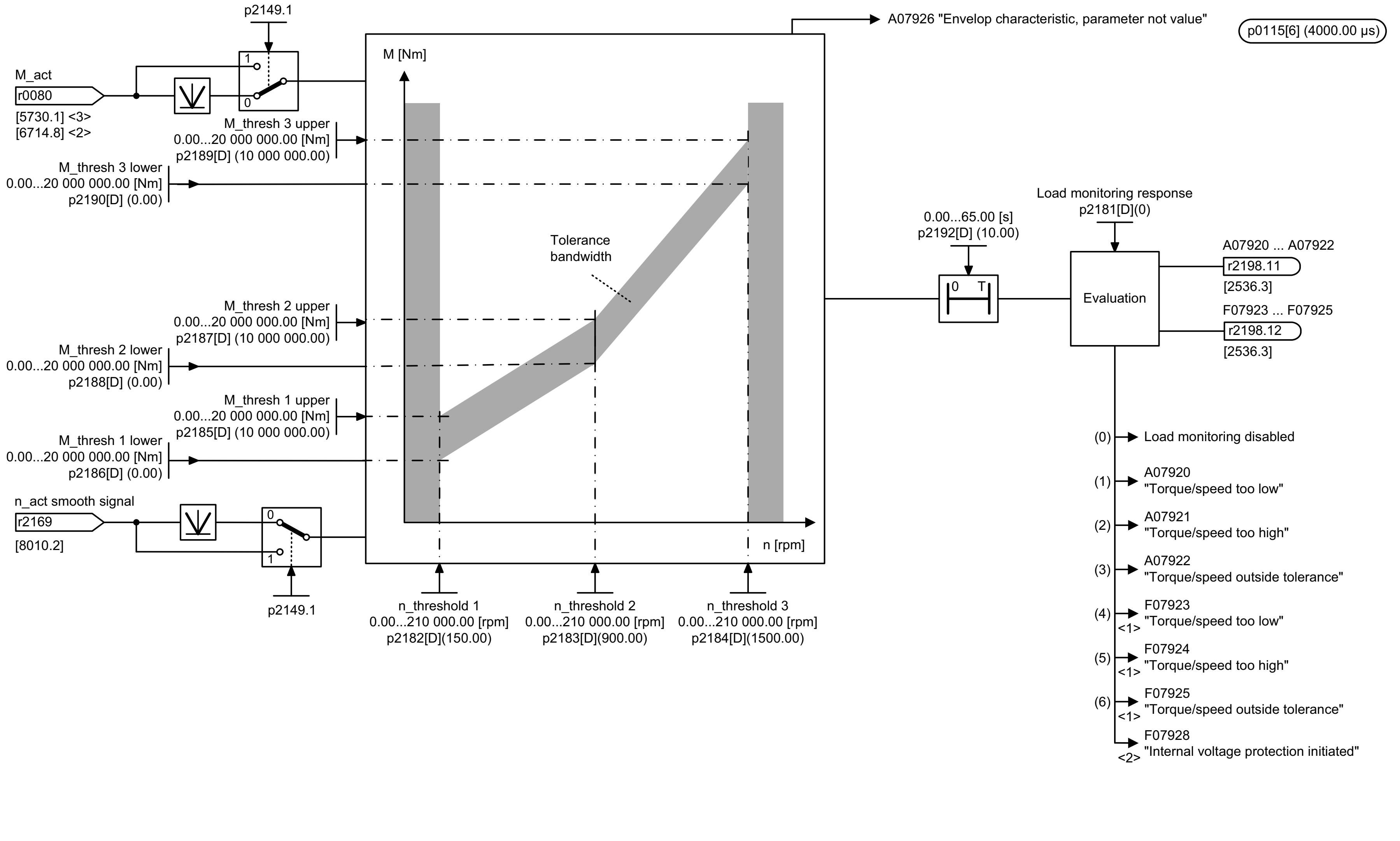
Fig. 3-156 8012 – Torque signals, motor blocked/stalled



<1> The torque setpoint and the torque limits are determined by p1532 (M_max offset). As a rule, M_max offset = 0.
<2> Only for SINAMICS S120 with SERVO (r0107 = 11).
<3> Only for vector control with encoder.
<4> Only for VECTOR (r0107 = 12).
<5> VECTOR: Depending on the drive unit (1000 or 1600 µs).

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8012_54_eng.vsd	Function diagram	- 8012 -
Signals and monitoring functions - Torque signals, motor blocked/stalled					08.02.13 V04.07.00	S120/S150/G130/G150	

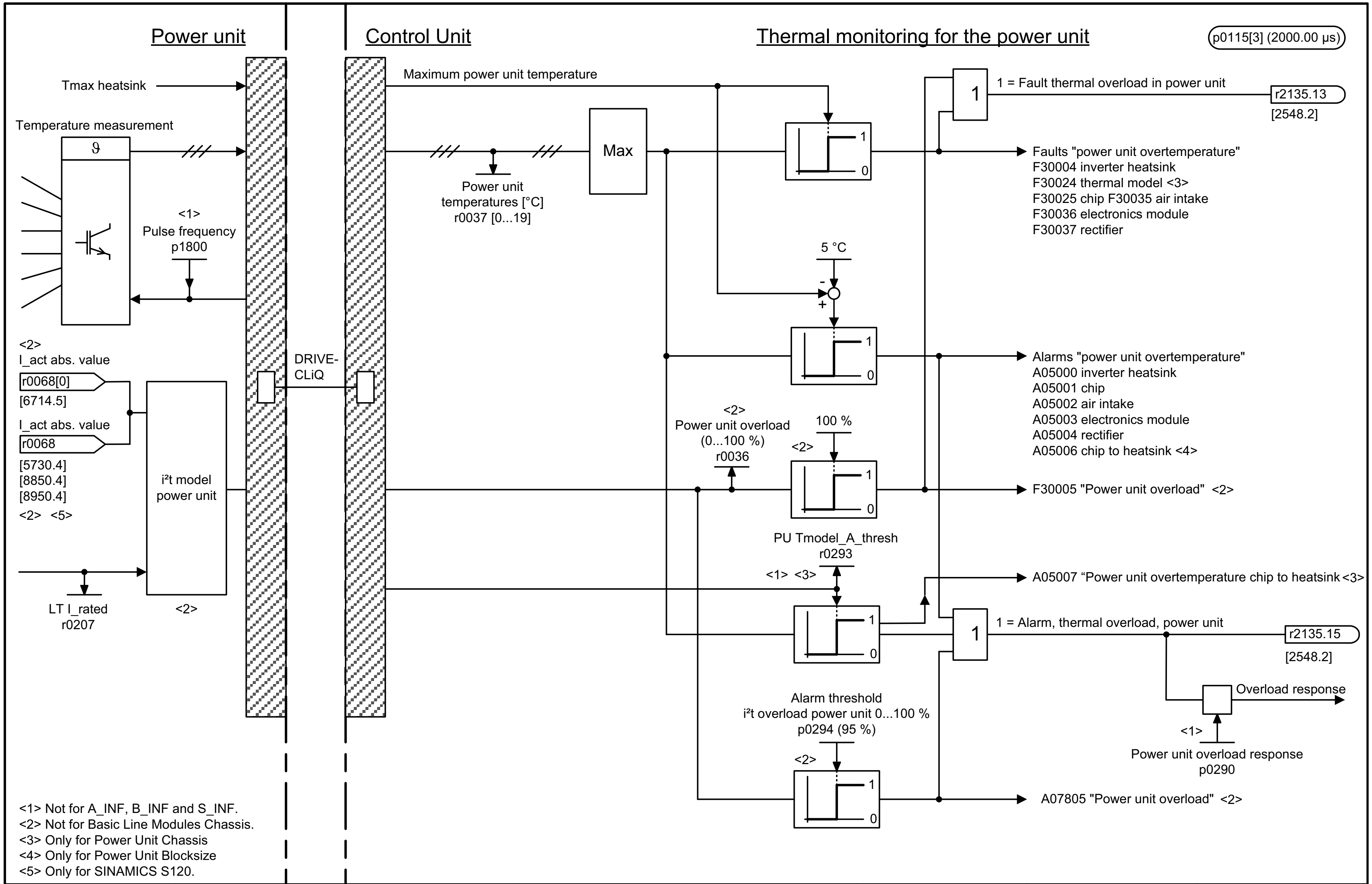
Fig. 3-157 8013 – Load monitoring (r0108.17 = 1)



<1> The response to these faults can be defined.
<2> Only for VECTOR.
<3> Only for SERVO.

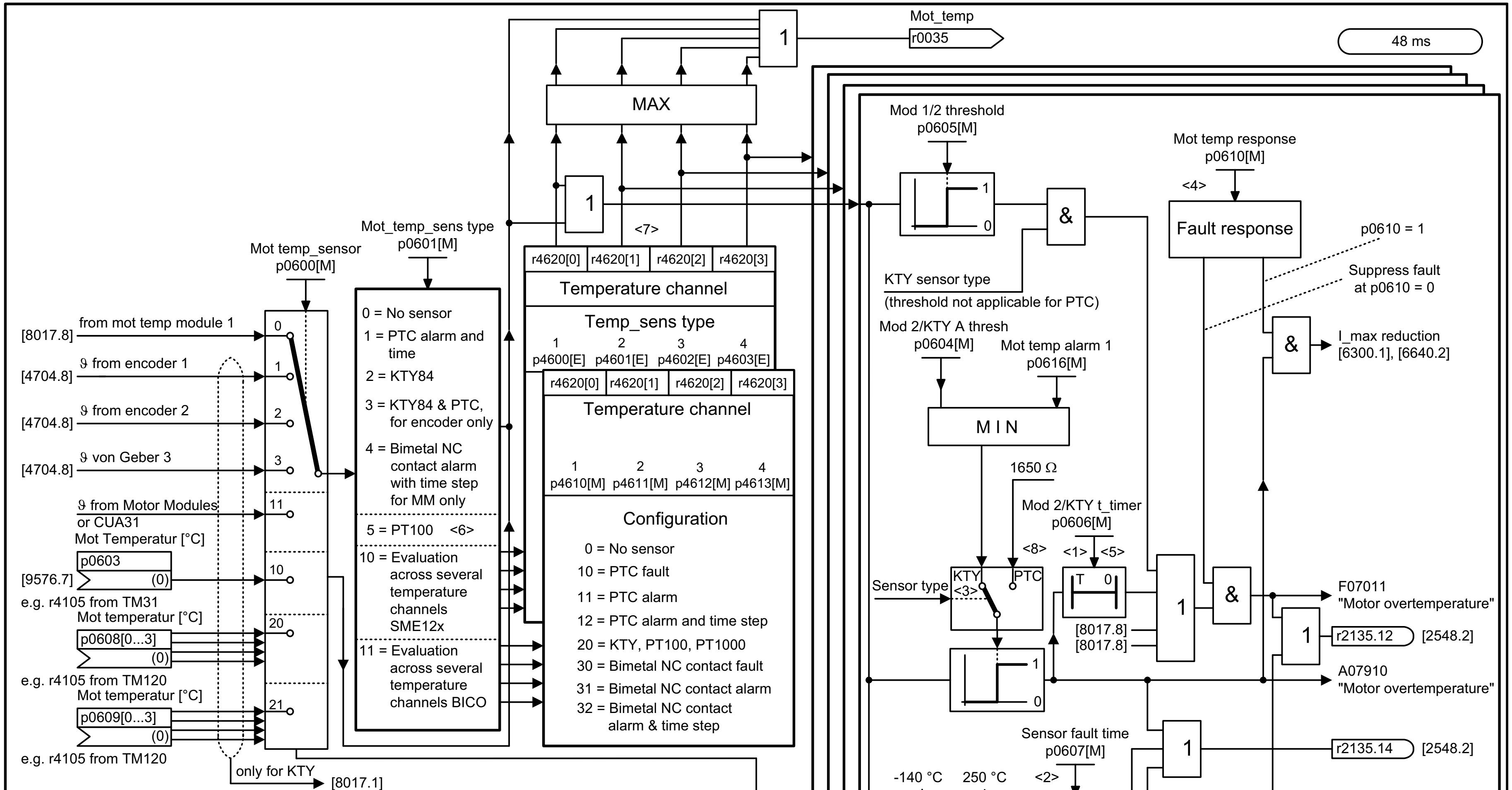
1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8013_54_eng.vsd	Function diagram	- 8013 -
Signals and monitoring functions - Load monitoring (r0108.17 = 1)					11.04.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-158 8014 – Thermal monitoring, power unit



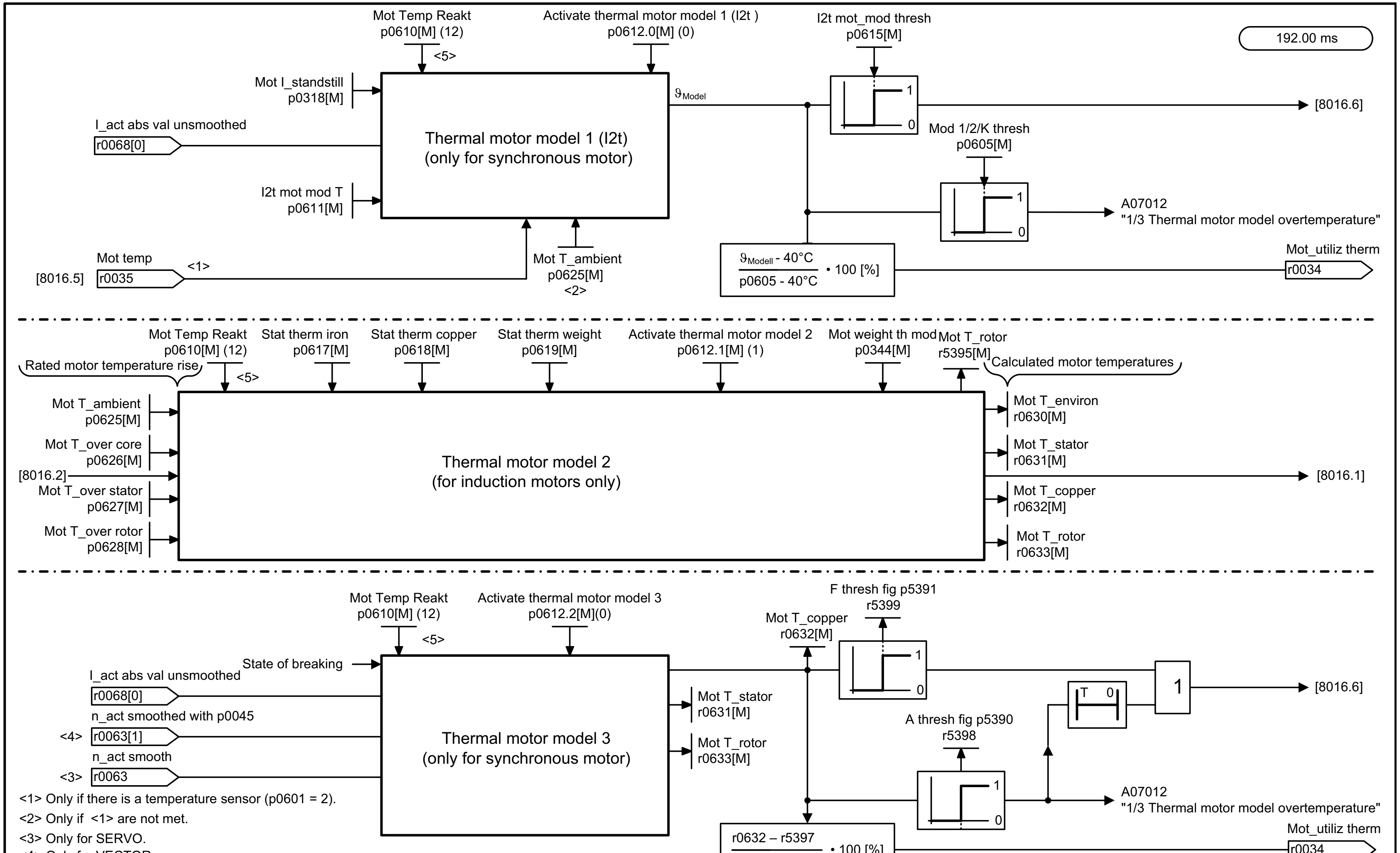
1	2	3	4	5	6	7	8
DO: A_INF, B_INF, S_INF, SERVO, VECTOR					fp_8014_54_eng.vsd	Function diagram	- 8014 -
Signals and monitoring functions - Thermal monitoring, power unit					27.02.08 V04.07.00	S120/S150/G130/G150	

Fig. 3-159 8016 – Thermal monitoring, motor



<1> For KTY, PT100, PT1000 and PTC, the value p0606 = 0 has a different meaning:
KTY, PT100, PT1000: 0 ≙ The output of the timer is always switched out (logical 0)
PTC: 0 ≙ Delay time = 0 s
<2> The switch-in delay p0607 = 0 suppresses fault F07016.
<3> For KTY, PT100, PT1000 and "No sensor", temperature as defined in the model.
<4> Applies only for VECTOR.
<5> p0606 does not work for alarms via p0616.
<6> p0601 = 5 can only be evaluated if r0192.15 = 1 and p0600 = 11; PT100 is calibrated via p0624.
<7> The assignment of temperature channels 1 … 4 depends on the hardware used.
<8> The relevant rated response temperature (°C) depends on the temperature sensor chosen by the motor manufacturer.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8016_54_eng.vsd	Function diagram	- 8016 -
Signals and monitoring functions - Thermal monitoring, motor					28.01.14 V04.07.00	S120/S150/G130/G150	



<1> Only if there is a temperature sensor (p0601 = 2).
<2> Only if <1> are not met.
<3> Only for SERVO.
<4> Only for VECTOR.
<5> Only if p0610.12 = 1.
<6> p0605 also determines the target temperature at r0034 = 100%. Thus, p0605 does not influence the time up to warning A07012.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8017_54_eng.vsd	Function diagram	- 8017 -
Signals and monitoring functions - Thermal motor models					29.01.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-160 8017 – Thermal motor models

3.18 Diagnostics

Function diagrams

Fig. 3-161 8050 – Overview

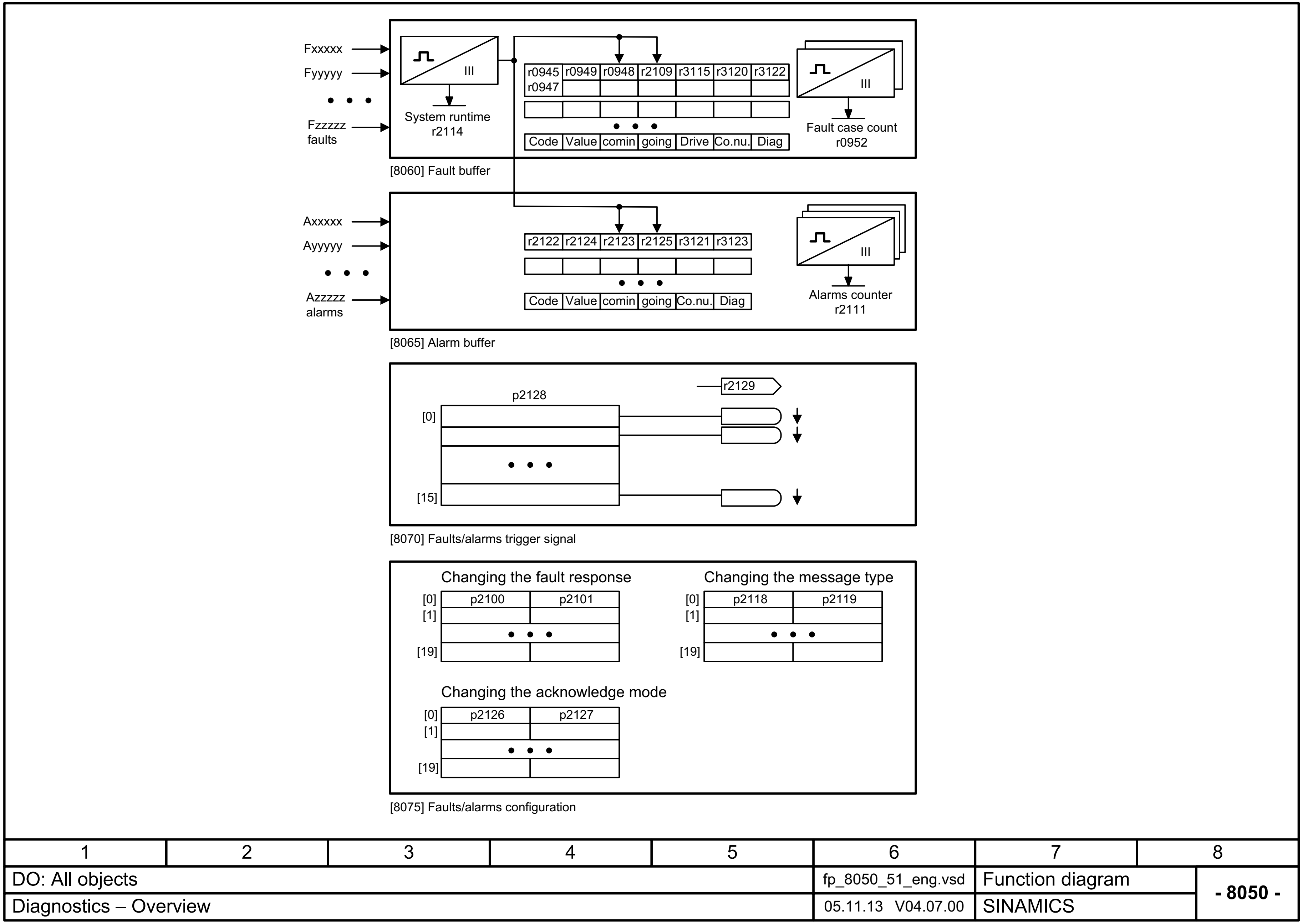
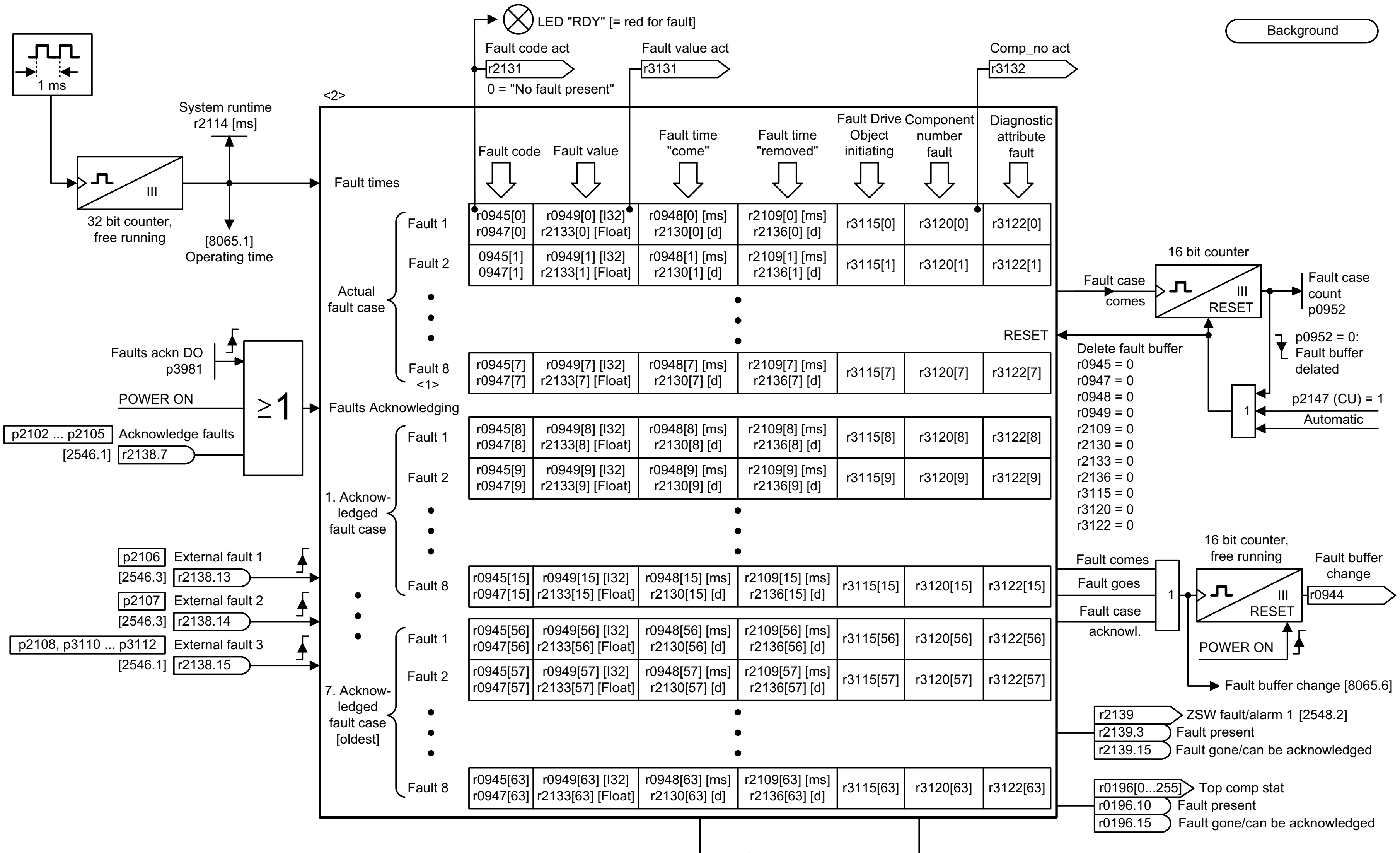


Fig. 3-162 8060 – Fault buffer



<1> This fault is overwritten when "more recent" faults occur (with the exception of "safety faults").
<2> The buffer parameters are cyclically updated in the background (refer to the status signal in r2139).

1	2	3	4	5	6	7	8
DO: All objects					fp_8060_51_eng.vsd	Function diagram	- 8060 -
Diagnostics - Fault buffer					19.02.14 V04.07.00	SINAMICS	

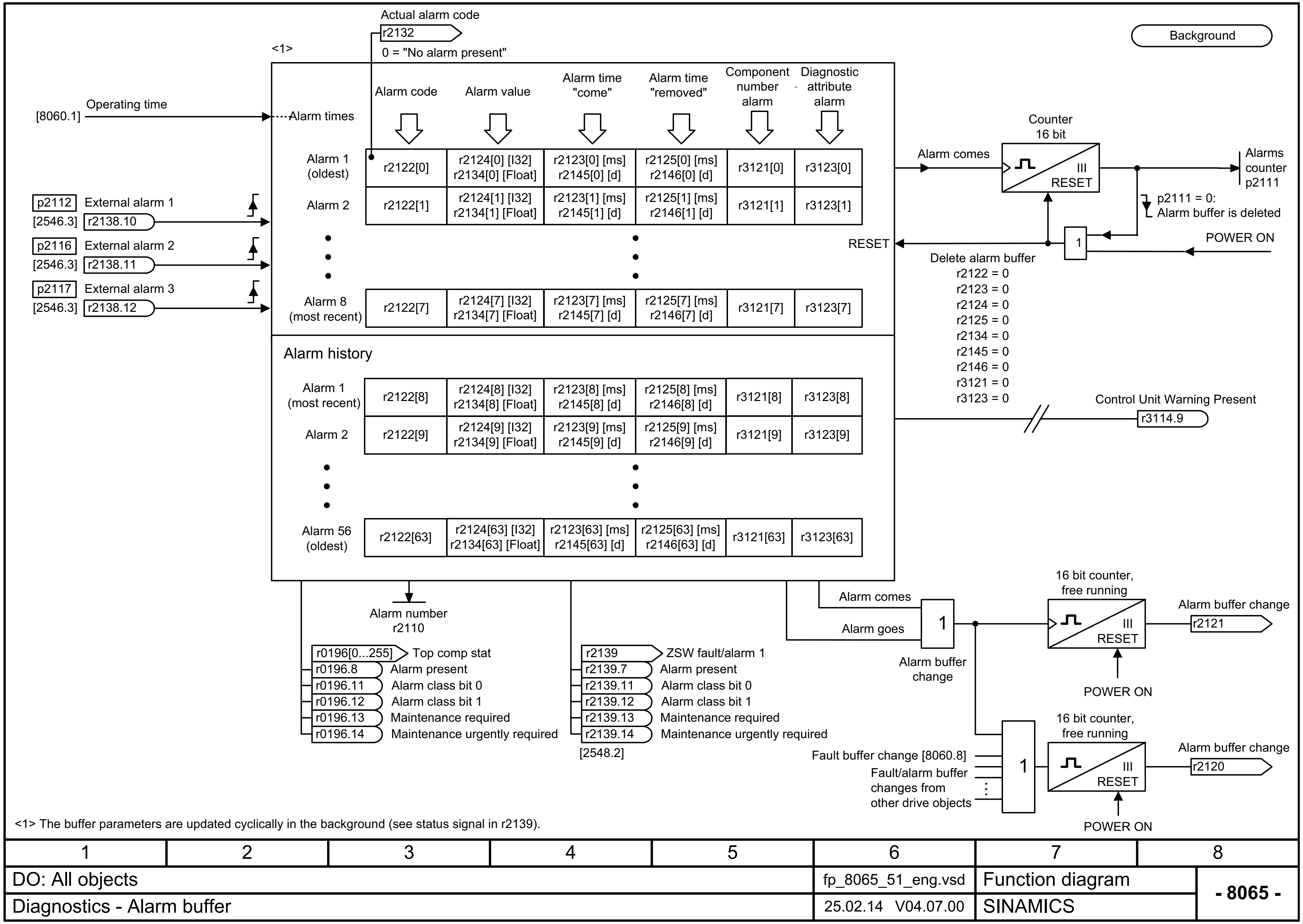
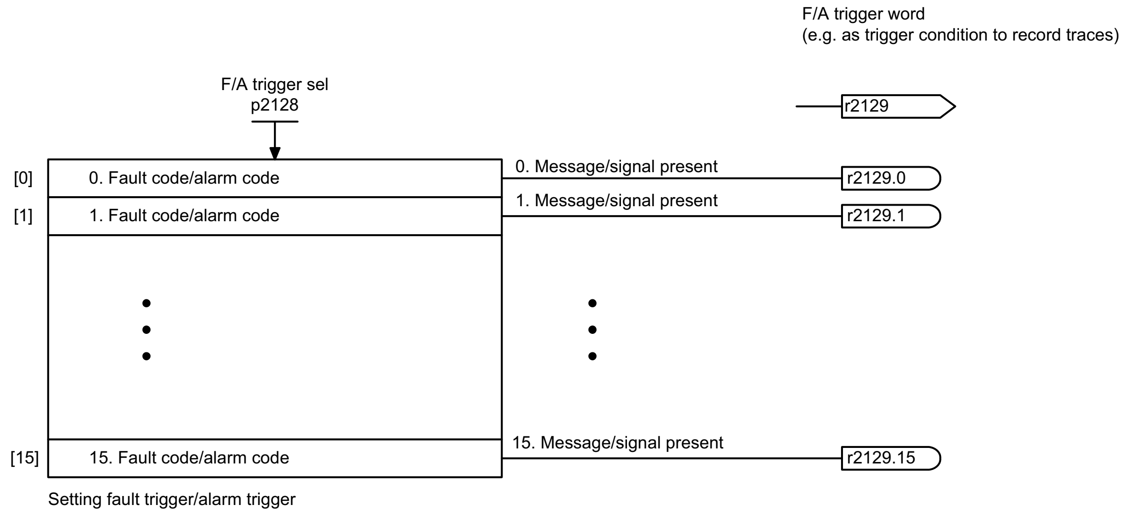


Fig. 3-163 8065 – Alarm buffer

Fig. 3-164 8070 – Faults/alarms trigger word (r2129)

Background



1	2	3	4	5	6	7	8
DO: All objects					fp_8070_51_eng.vsd	Function diagram	- 8070 -
Diagnostics - Faults/alarms trigger word (r2129)					05.11.13 V04.07.00	SINAMICS	

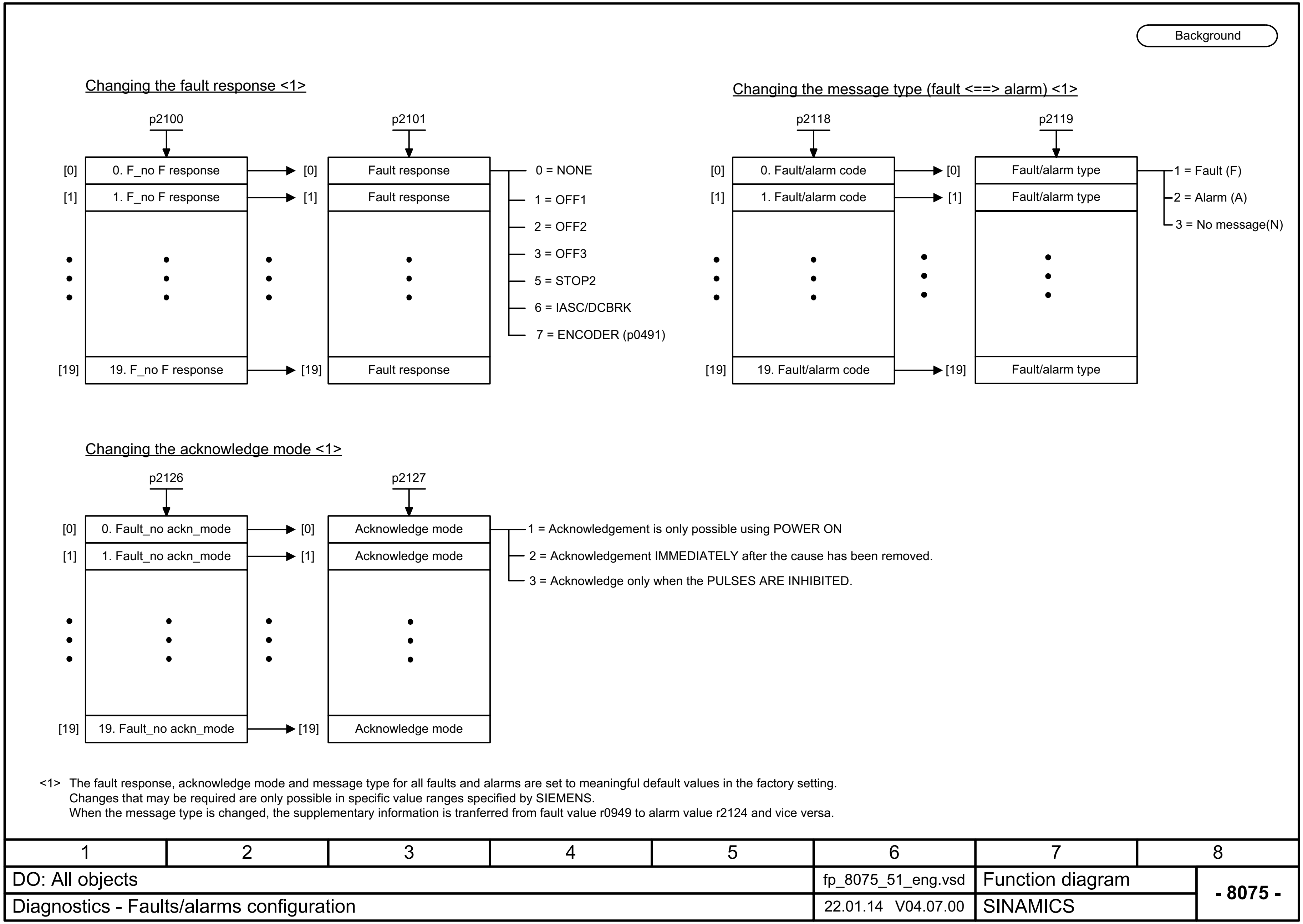
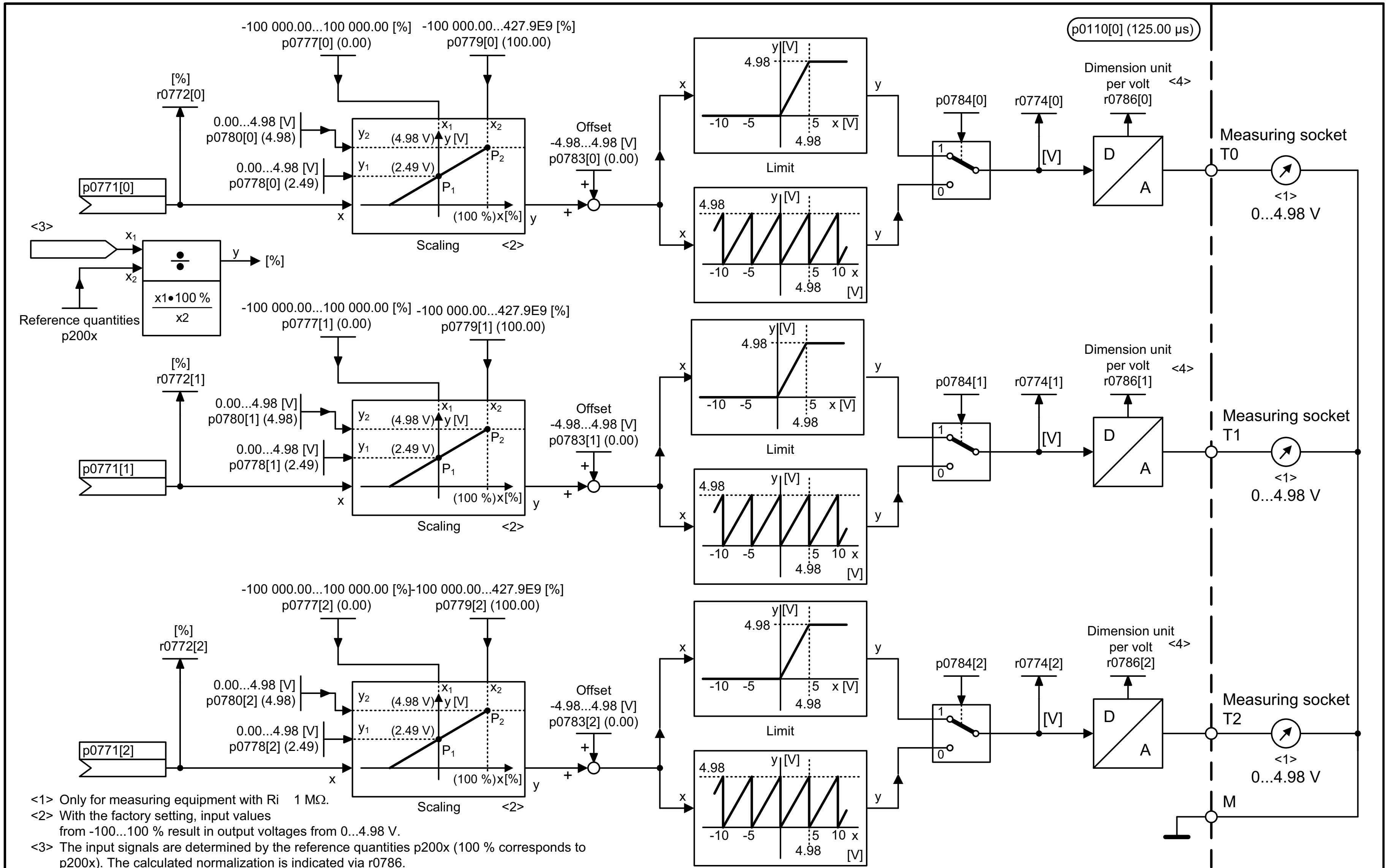


Fig. 3-165 8075 – Faults/alarms configuration

Fig. 3-166 8134 – Measuring sockets (T0, T1, T2)



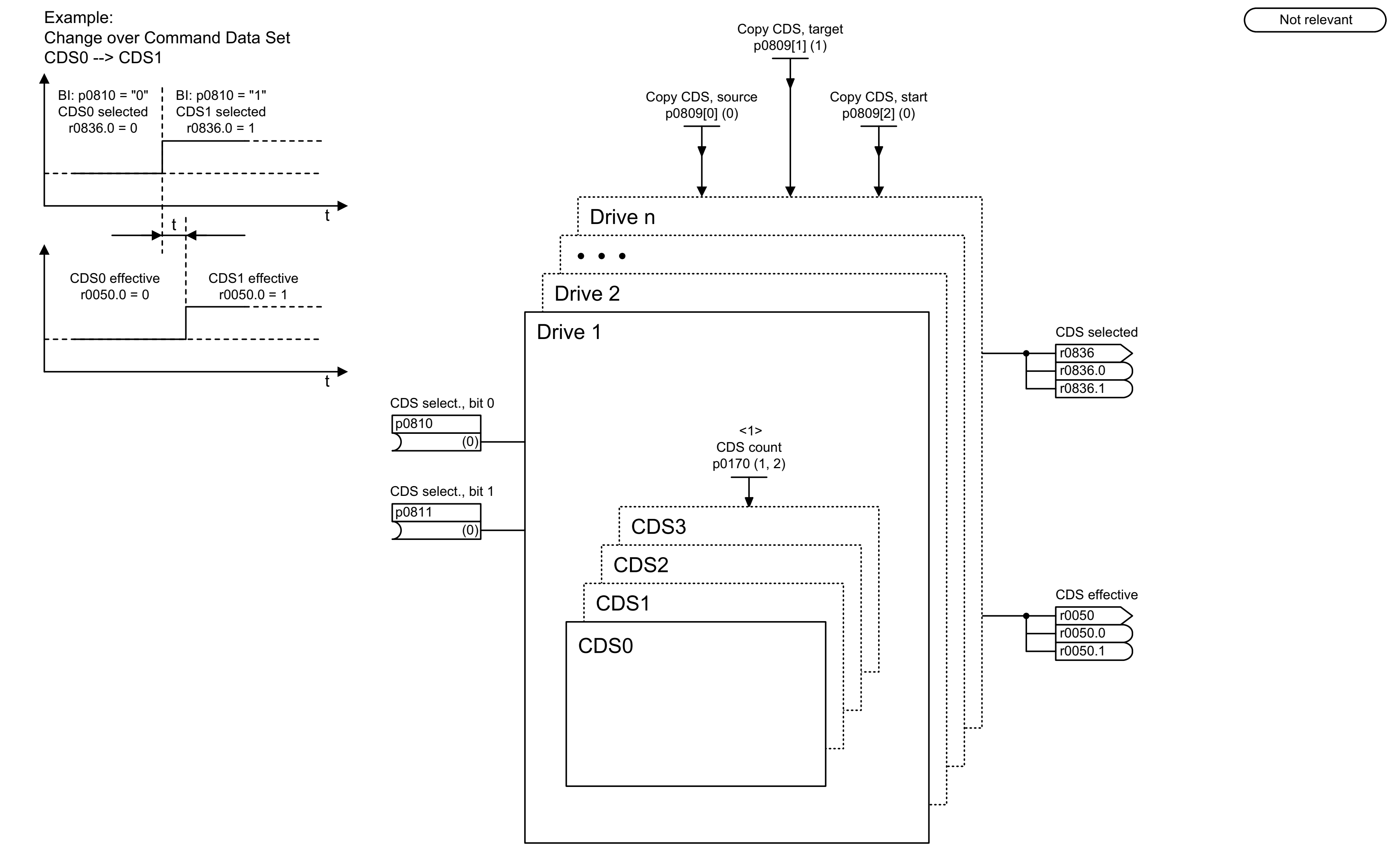
<1> Only for measuring equipment with Ri 1 MΩ.
<2> With the factory setting, input values from -100...100 % result in output voltages from 0...4.98 V.
<3> The input signals are determined by the reference quantities p200x (100 % corresponds to p200x). The calculated normalization is indicated via r0786.
<4> Example: If a speed signal is entered via p0071 and r0786 indicates 100.0, a speed change of 100 rpm results in an output voltage change of 1.0 V.

1	2	3	4	5	6	7	8
DO: CU_CX32, CU_G, CU_I, CU_MV, CU_S					fp_8134_51_eng.vsd	Function diagram	- 8134 -
Diagnostics - Measuring sockets (T0, T1, T2)					12.07.12 V04.07.00	SINAMICS	

3.19 Data sets

Function diagrams

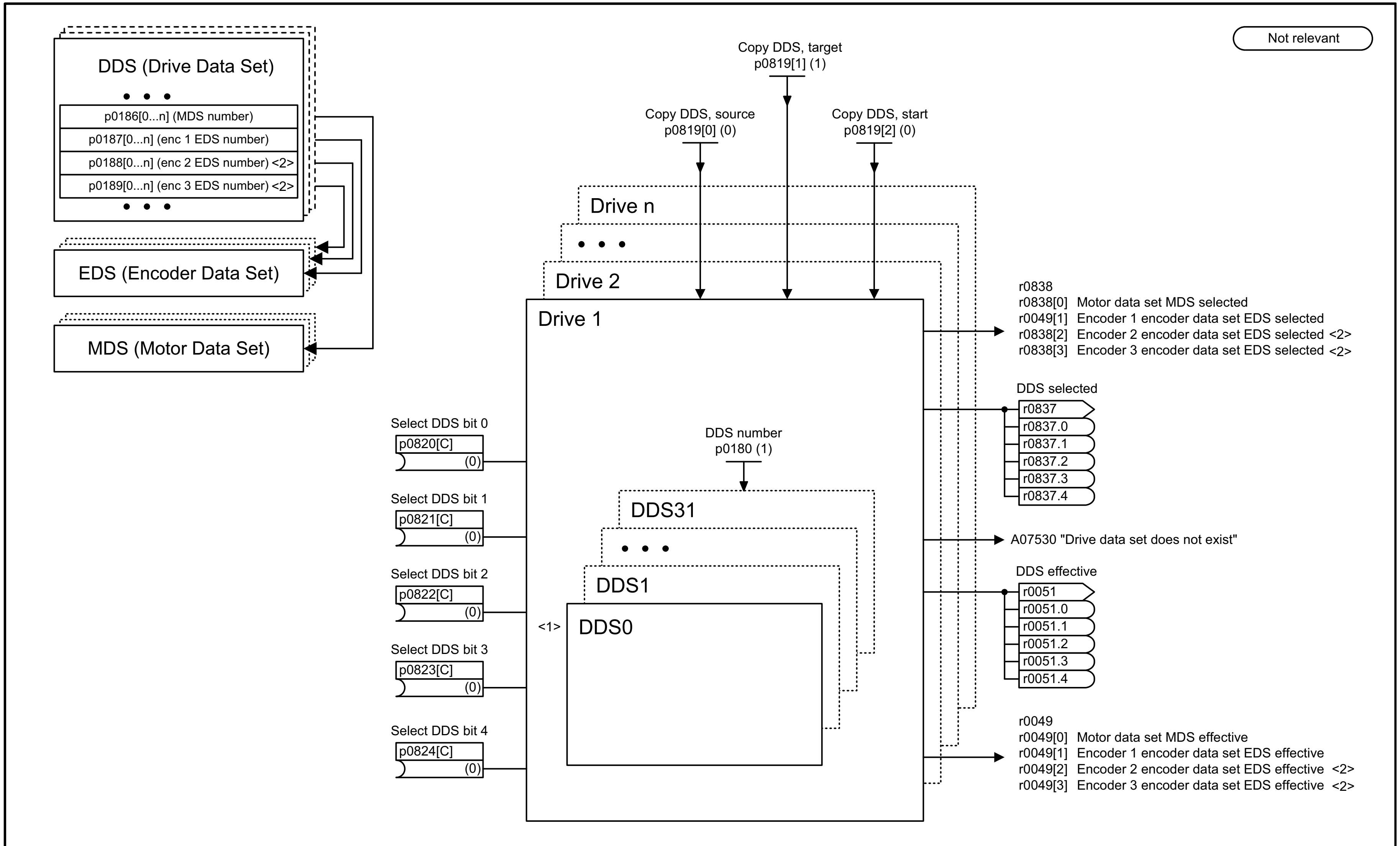
Fig. 3-167 8560 – Command Data Sets (CDS)



<1> For SERVO, the following applies: Min / Max / Factory setting: 1 / 2 / 2
For VECTOR, the following applies: Min / Max / Factory setting: 2 / 4 / 2

1	2	3	4	5	6	7	8

DO: SERVO, VECTOR	fp_8560_54_eng.vsd	Function diagram	- 8560 -
Data sets - Command Data Sets (CDS)	03.07.13 V04.07.00	S120/S150/G130/G150	



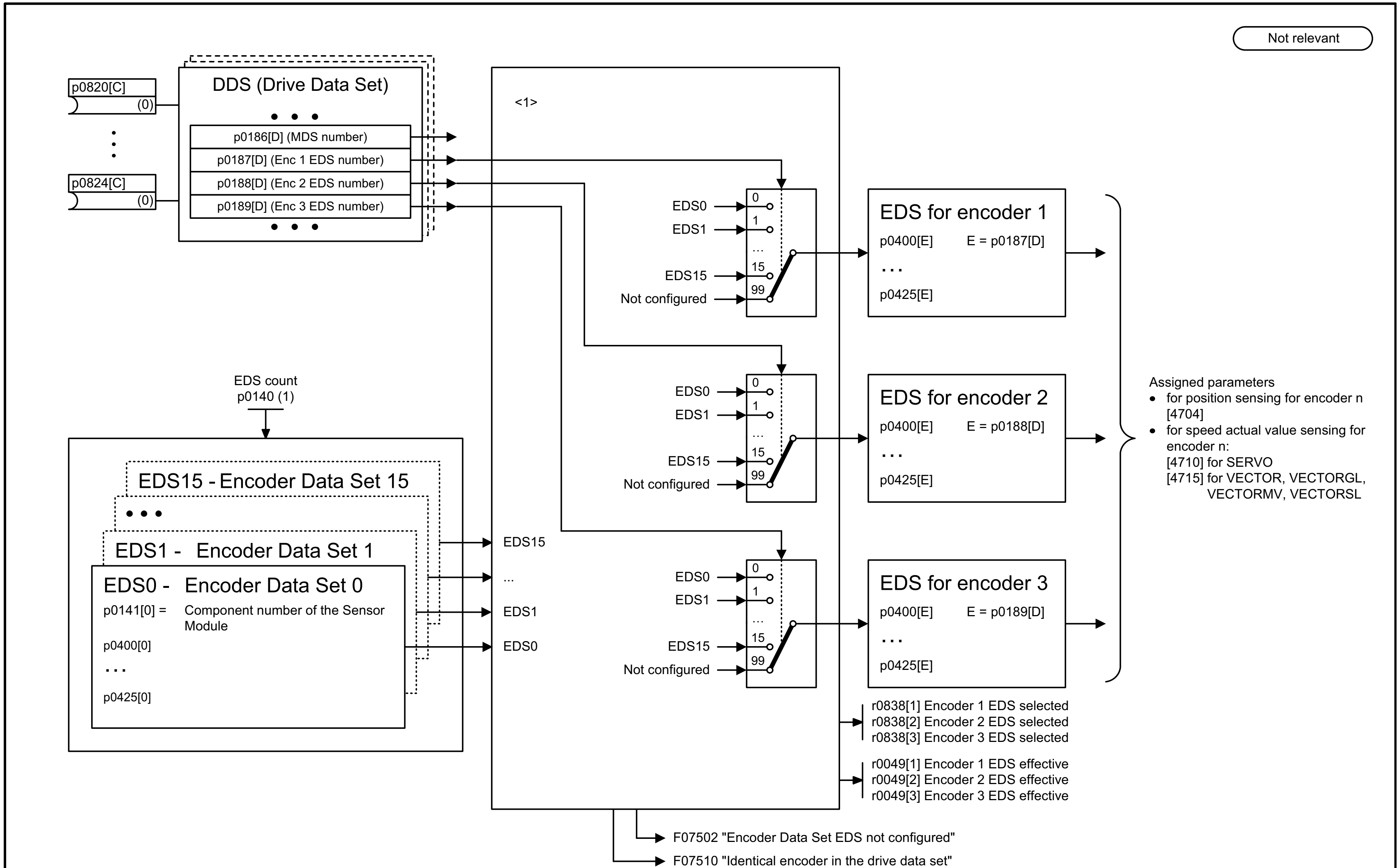
<1> A BICO interconnection to a parameter which is part of a drive data set always influences the currently effective data set.

<2> Only for SINAMICS S120/S150.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, TM41					fp_8565_54_eng.vsd	Function diagram	- 8565 -
Data sets - Drive Data Sets (DDS)					03.07.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-168 8565 – Drive Data Sets (DDS)

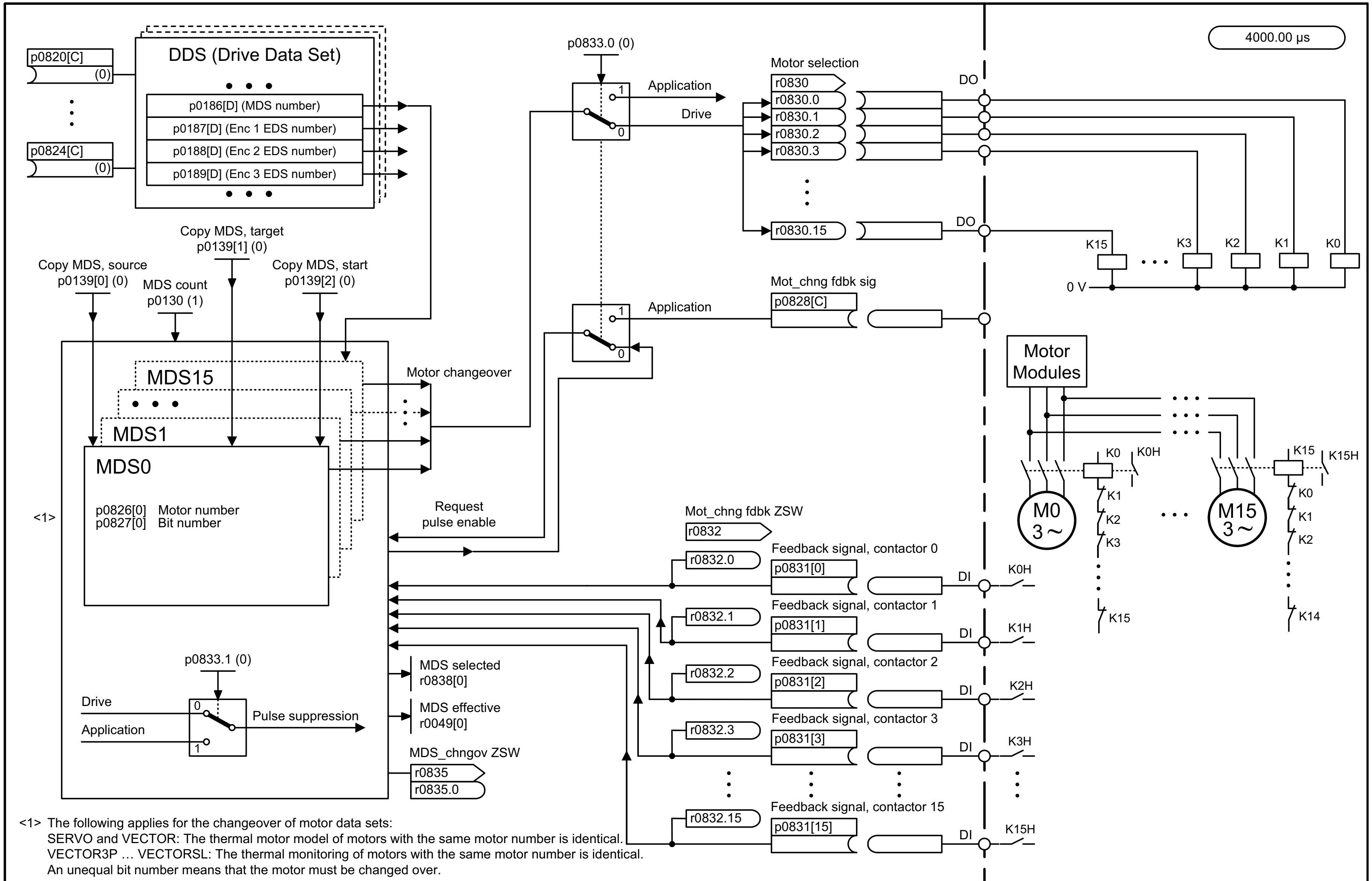
Fig. 3-169 8570 – Encoder Data Sets (EDS)



<1> Encoder errors always refer to the currently active Encoder Data Set.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_8570_51_eng.vsd	Function diagram	- 8570 -
Data sets - Encoder Data Sets (EDS)					04.07.13 V04.07.00	SINAMICS	

Fig. 3-170 8575 – Motor Data Sets (MDS)

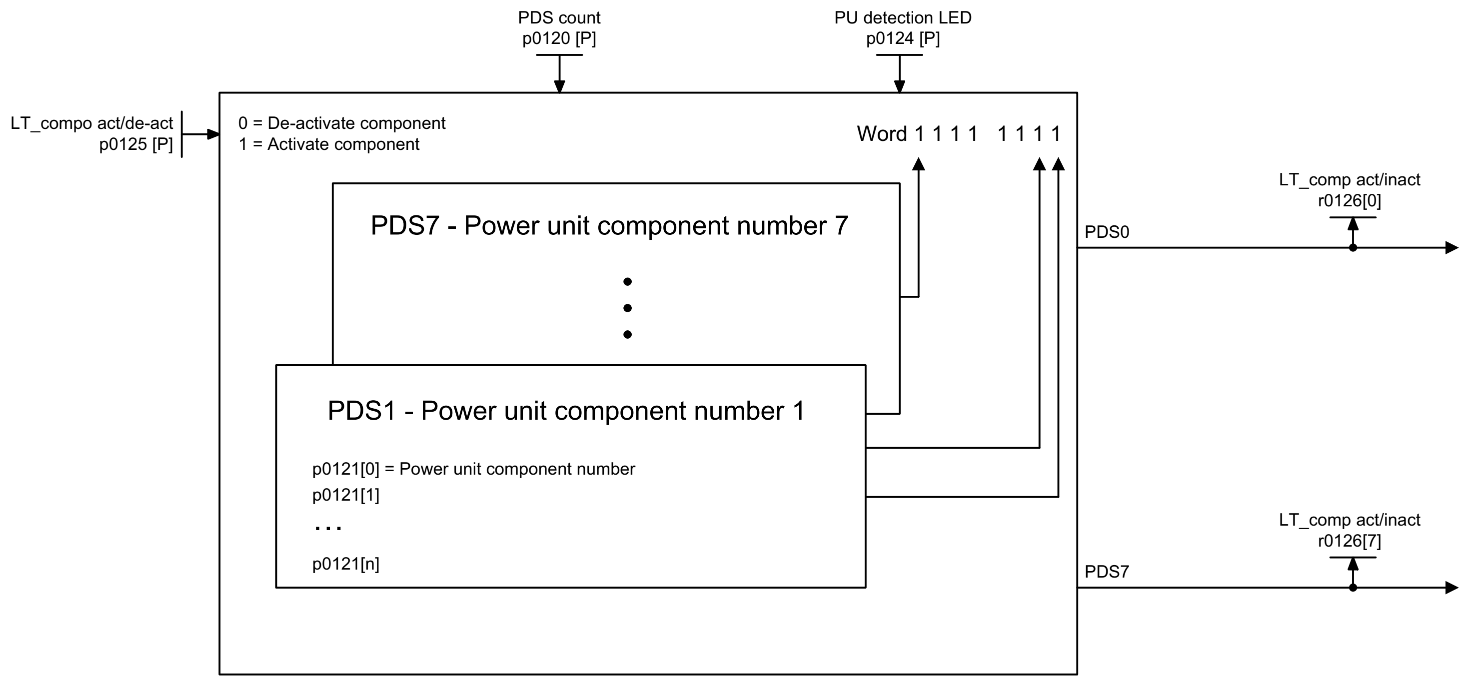


<1> The following applies for the changeover of motor data sets:
SERVO and VECTOR: The thermal motor model of motors with the same motor number is identical.
VECTOR3P … VECTORSL: The thermal monitoring of motors with the same motor number is identical.
An unequal bit number means that the motor must be changed over.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR, VECTOR3P, VECTORM2C, VECTORMV, VECTORSL					fp_8575_51_eng.vsd	Function diagram	- 8575 -
Data sets - Motor Data Sets (MDS)					22.08.13 V04.07.00	SINAMICS	

Fig. 3-171 8580 – Power unit Data Sets (PDS)

Not relevant



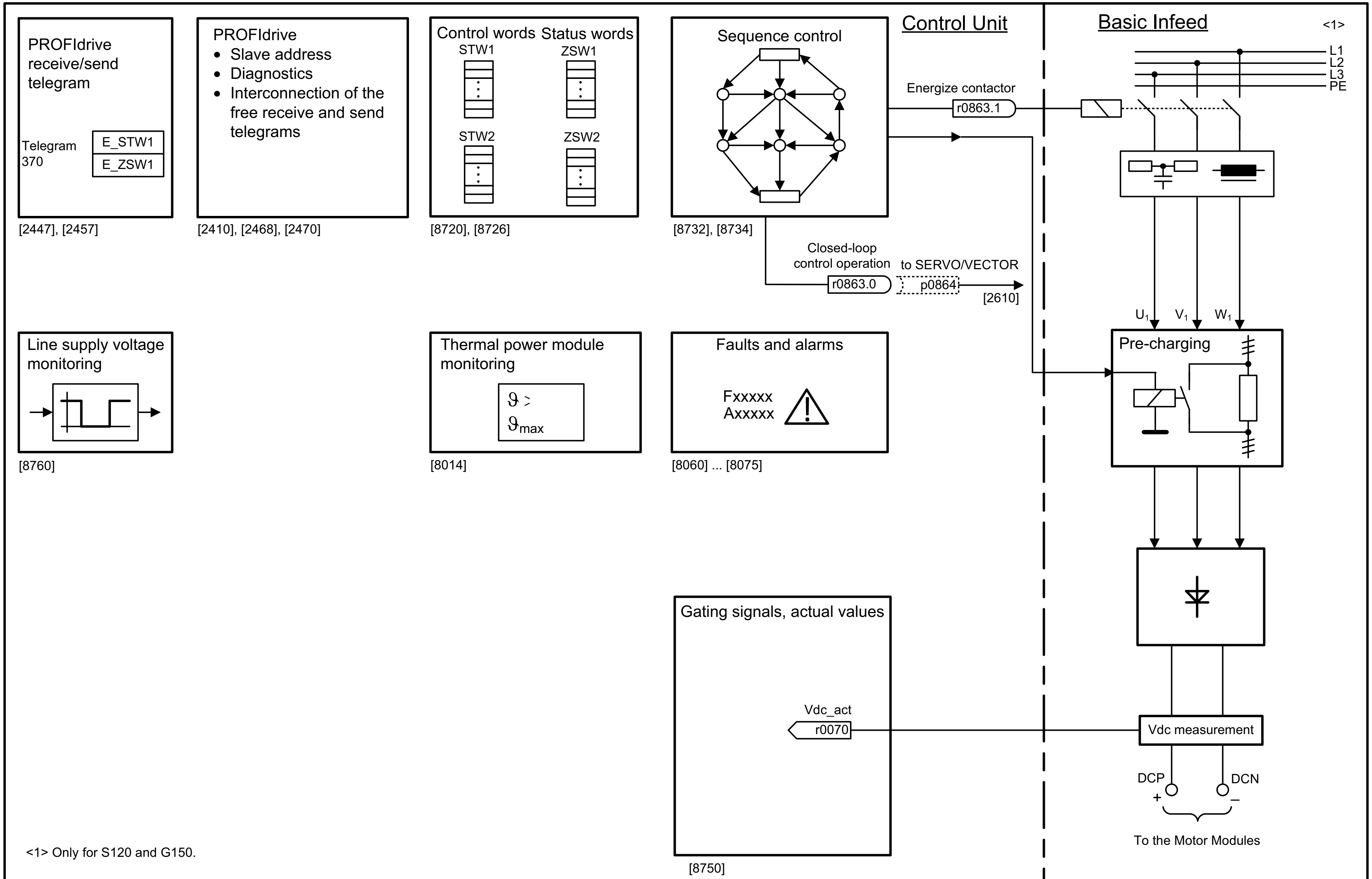
<1> p0120 > 1 only for parallel connected Power unit components.

1	2	3	4	5	6	7	8
DO: SERVO, VECTOR					fp_8580_54_eng.vsd	Function diagram	- 8580 -
Data sets - Power unit Data Sets (PDS)					14.03.14 V04.07.00	S120/S150/G130/G150	

3.20 Basic Infeed

Function diagrams

Fig. 3-172 8710 – Overview



1	2	3	4	5	6	7	8

DO: B_INF	fp_8710_54_eng.vsd	Function diagram	- 8710 -
Basic Infeed - Overview	12.03.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-173 8720 – Control word, sequence control infeed

p0115[3] (2000.00 µs)

<4>

STW seq ctrl

r0898

<2> <3>

1. OFF2 (electrical)

p0844[C] (1)

p0845[C] (1)

2. OFF2 (electrical)

&

<3> p0840[C] (0)

<3> p0854[C] (0)

Bit No.	Control word sequence control infeed	Output
0	**= CLOSE** (close pre-charging/line contactor) 0 = OFF1 (open pre-charging/line contactor)	r0898.0 To the control unit [8732]
1	**1 = Operating condition no OFF2** (enable is possible) 0 = OFF2 (open pre-charging/line contactor and power-on inhibit)	r0898.1 To the control unit [8732]
2	**Reserved**	
3	**Reserved**	
4	**Reserved**	
5	**Reserved**	
6	**Reserved**	
7	**Reserved**	
8	**Reserved**	
9	**Reserved**	
10	**1 = Control via PLC** <1>	r0898.10
11	**Reserved**	
12	**Reserved**	
13	**Reserved**	
14	**Reserved**	
15	**Reserved**	

<1> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).

<2> PROFIBUS interconnection:
For the manufacturer-specific PROFIBUS telegram, the upper input is connected to PROFIBUS signal E_STW1 [2447].
Only applies for CDS0.

<3> Is pre-defined via the PC if the master control is retrieved.
<4> Only for S120 and G150.

1	2	3	4	5	6	7	8

DO: B_INF	fp_8720_54_eng.vsd	Function diagram	- 8720 -
Basic Infeed - Control word, sequence control infeed	25.10.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-174 8726 – Status word, sequence control infeed

p0115[3] (2000.00 µs)

<2>
ZSW sequence ctrl

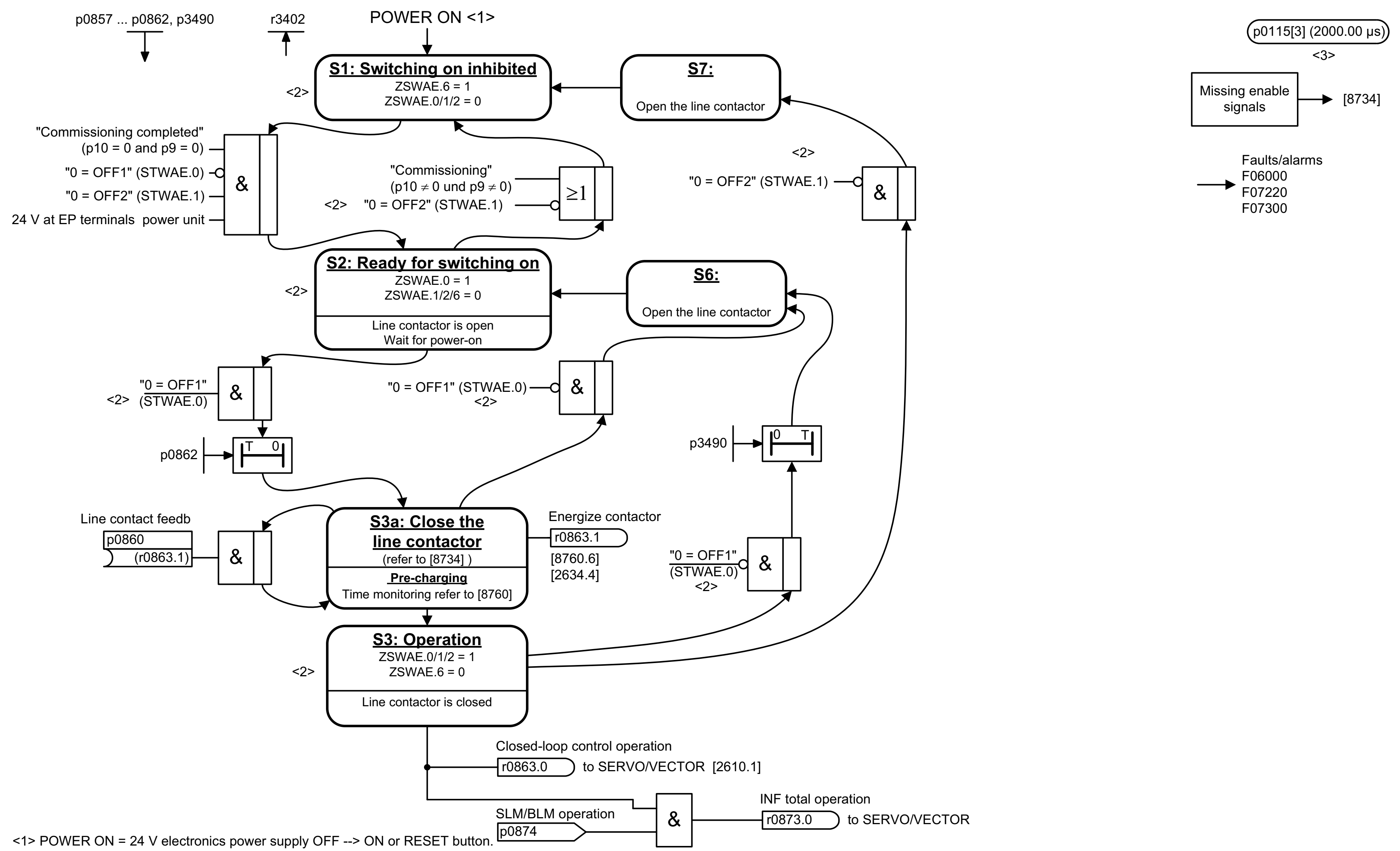
Input	Bit No.	Status word sequence control infeed	Output
			r0899
[8732] From sequence control	0	**1 = Ready for switching on**	r0899.0
[8732] From sequence control	1	**1 = Ready for operation**	r0899.1
[8732] From sequence control	2	**1 = Operation enabled**	r0899.2
	3	**Reserved**	
[8732] From sequence control	4	**1 = No OFF2 active**	r0899.4
	5	**Reserved**	
[8732] From sequence control	6	**1 = Switching on inhibited**	r0899.6
	7	**Reserved**	
	8	**Reserved**	
Bit 9 = 1 --> Ready to exchange process data	9	**1 = Control requested** <1>	r0899.9
	10	**Reserved**	
[8750] From power unit	11	**1 = Pre-charging completed**	r0899.11 [8760.5]
[8734.4] From line contactor control	12	**1 = Line contactor closed**	r0899.12
	13	**Reserved**	
	14	**Reserved**	
	15	**Reserved**	

<1> The drive object is ready to accept data.
<2> Only for S120 and G150.

1	2	3	4	5	6	7	8

DO: B_INF	fp_8726_54_eng.vsd	Function diagram	- 8726 -
Basic Infeed - Status word, sequence control infeed	21.10.10 V04.07.00	S120/S150/G130/G150	

Fig. 3-175 8732 – Sequencer



<1> POWER ON = 24 V electronics power supply OFF --> ON or RESET button.
<2> STWAE.xx = Control word, sequence control infeed bit xx
ZSWAE.xx = Status word, sequence control, infeed bit xx
<3> Only for S120 and G150.

1	2	3	4	5	6	7	8

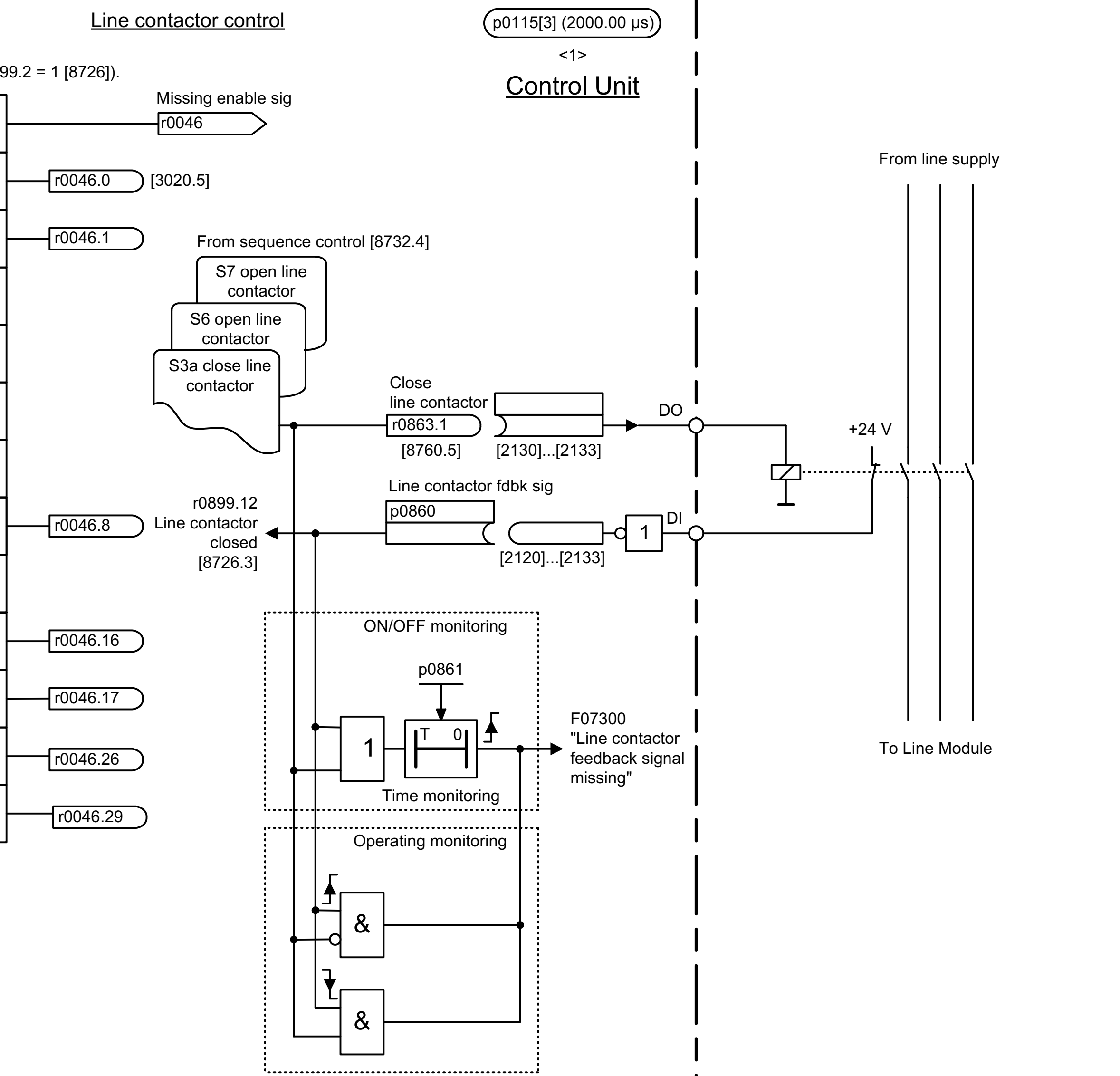
DO: B_INF	fp_8732_54_eng.vsd	Function diagram	- 8732 -
Basic Infeed - Sequencer	26.11.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-176 8734 – Missing enable signals, line contactor control

Missing enable signals

Missing enable signals that prevent the drive going into operation
(this situation can be detected at the ZSW sequence control, infeed r0899.2 = 1 [8726]).

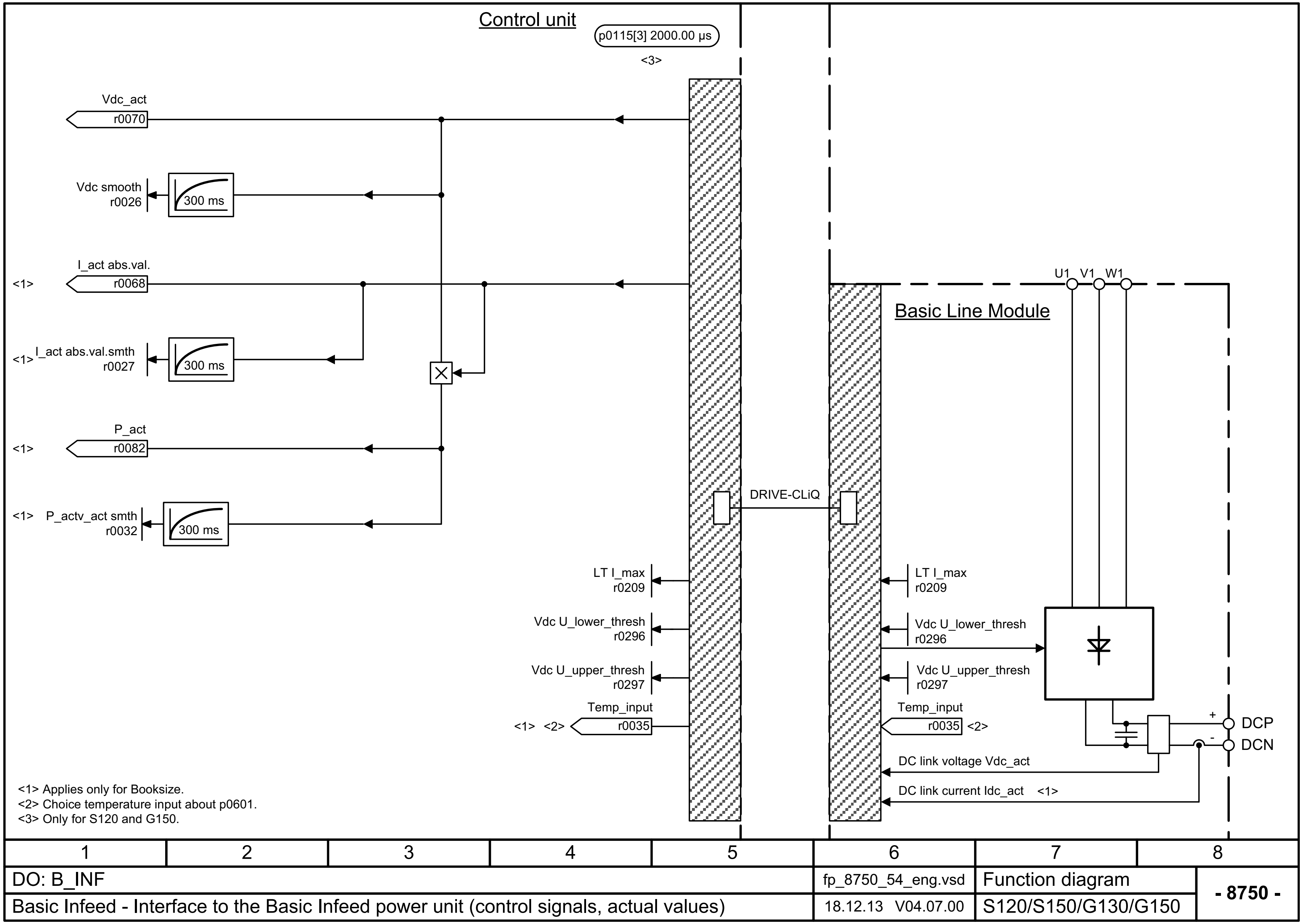
Bit No.	Meaning
0	**1 = OFF1, enable missing** (p0840 = 0 or switching on inhibited is present)
1	**1 = OFF2, enable missing** (p0844 = 0 or p0845 = 0)
2	
3	
5	
6	
8	**1 = EP terminals, enable missing** (pulse enable EP terminals missing)
9	
16	**1 = OFF1 internal enable missing** (OFF1 fault response is present)
17	**1 = OFF2 enable internal missing** (commissioning selected p0009 > 0 or p0010 > 0 or OFF2 fault response present)
26	**1 = Infeed inactive or not operational**
29	**1 = Cooling unit ready signal missing**

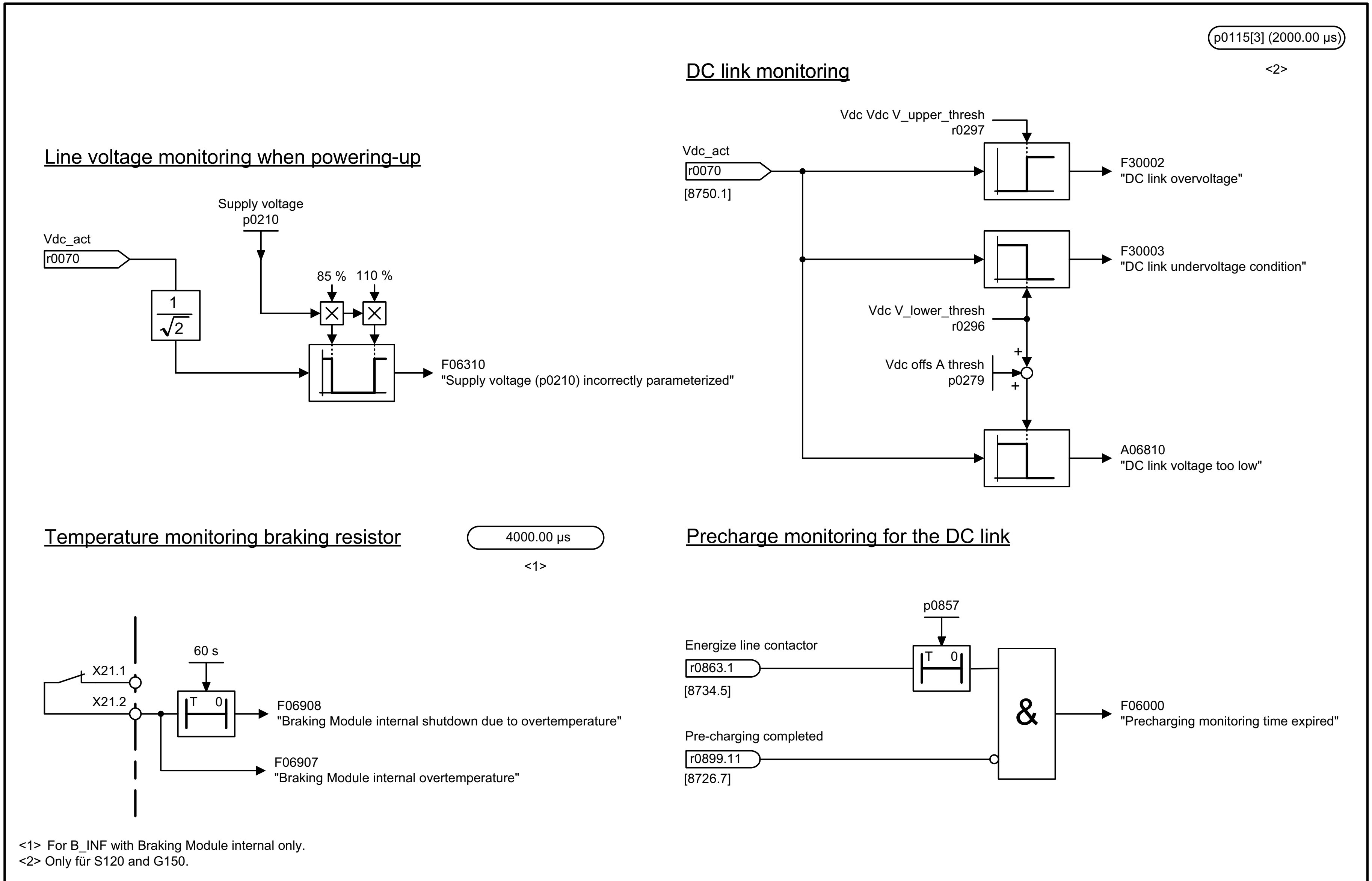


<1> Only for S120 and G150.

1	2	3	4	5	6	7	8
DO: B_INF					fp_8734_54_eng.vsd	Function diagram	- 8734 -
Basic Infeed - Missing enable signals, line contactor control					24.03.14 V04.07.00	S120/S150/G130/G150	

Fig. 3-177 8750 – Interface to the Basic Infeed power unit (control signals, actual values)



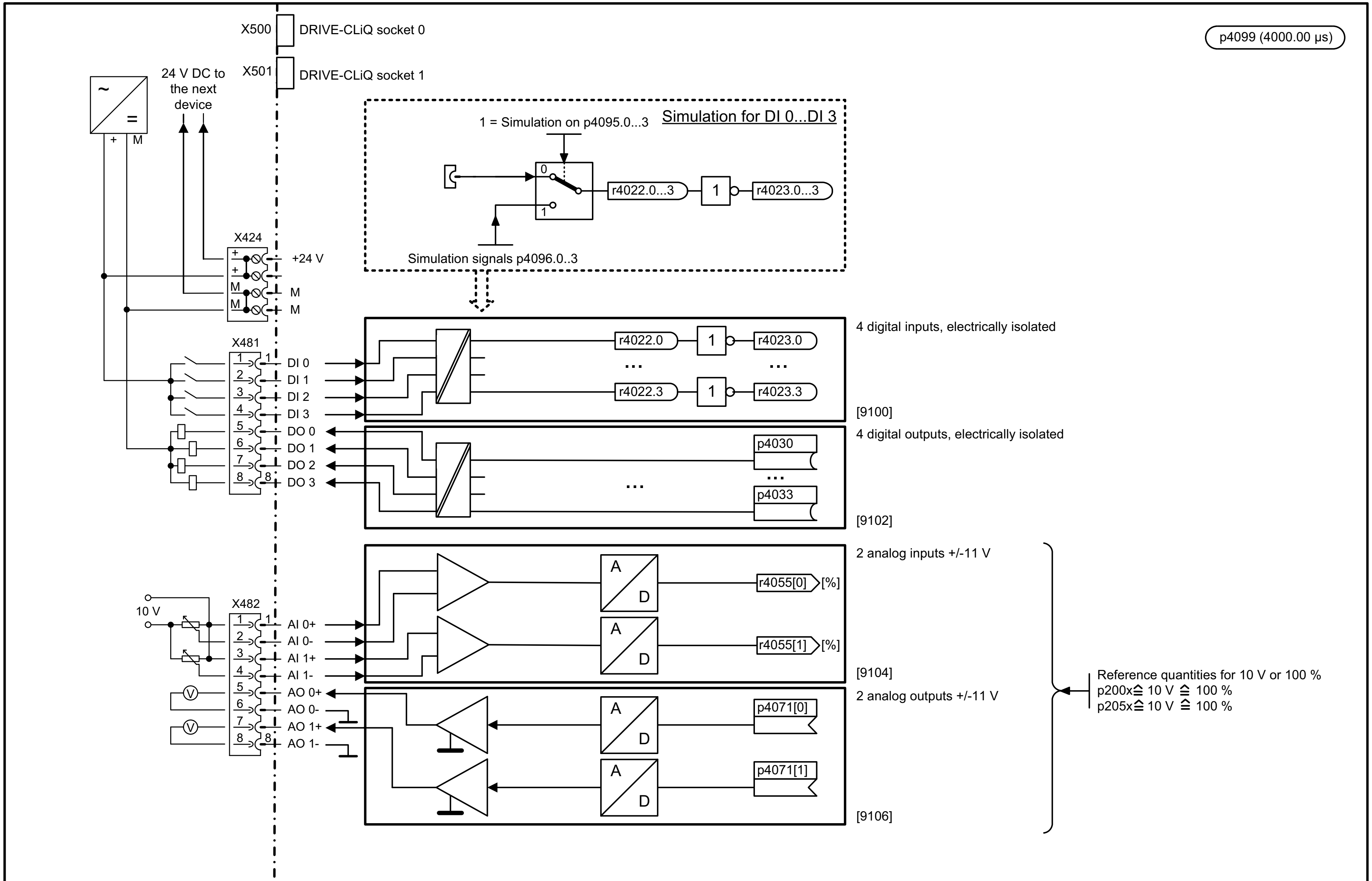


1	2	3	4	5	6	7	8
DO: B_INF					fp_8760_54_eng.vsd	Function diagram	- 8760 -
Basic Infeed - Signals and monitoring functions (p3400.0 = 0)					11.10.12 V04.07.00	S120/S150/G130/G150	

Fig. 3-178 8760 – Signals and monitoring functions (p3400.0 = 0)

3.21 Terminal Board 30 (TB30)

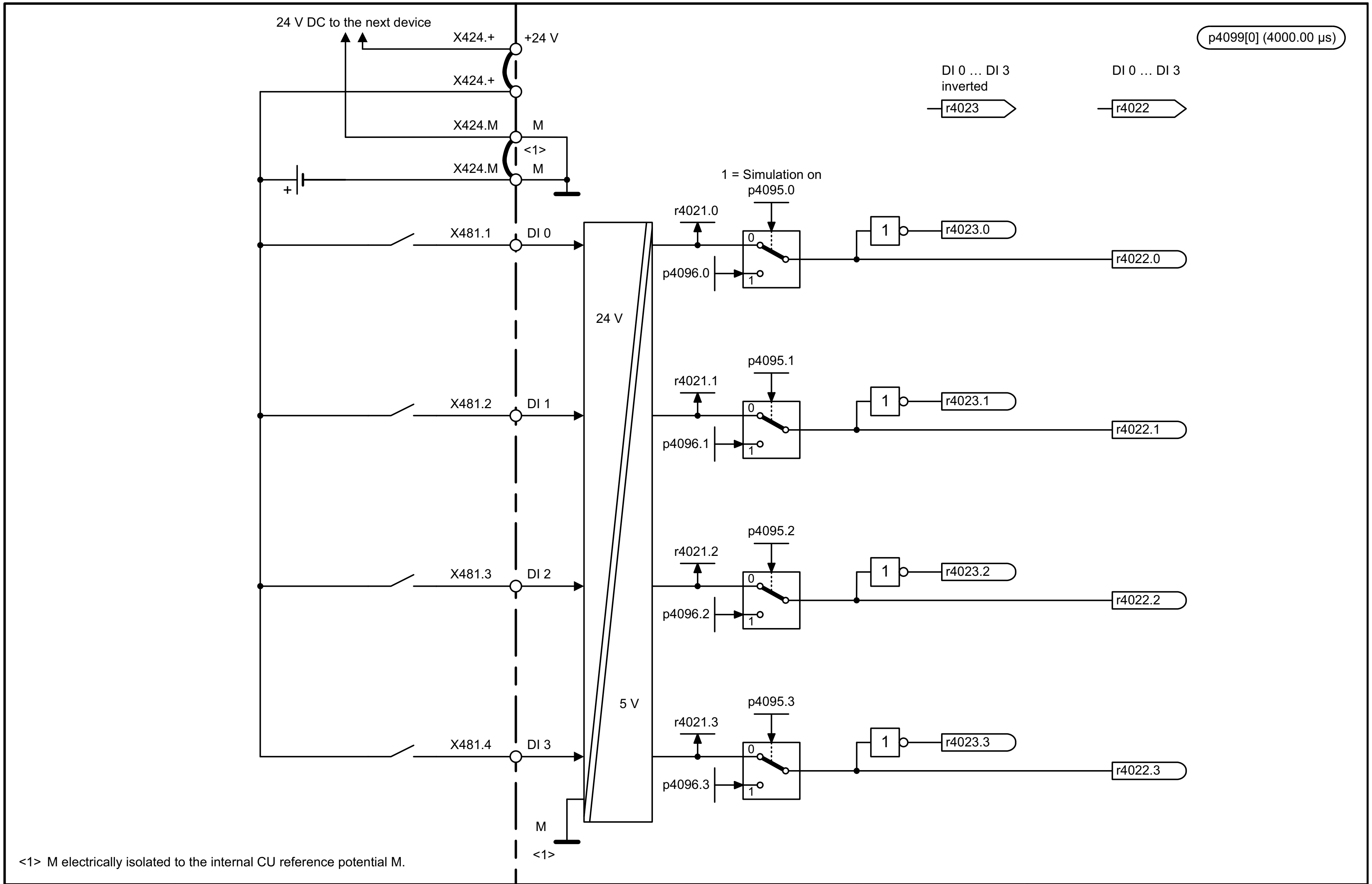
Function diagrams



1	2	3	4	5	6	7	8

DO: TB30	fp_9099_51_eng.vsd	Function diagram	- 9099 -
Terminal Board 30 (TB30) - Overview	12.03.13 V04.07.00	SINAMICS	

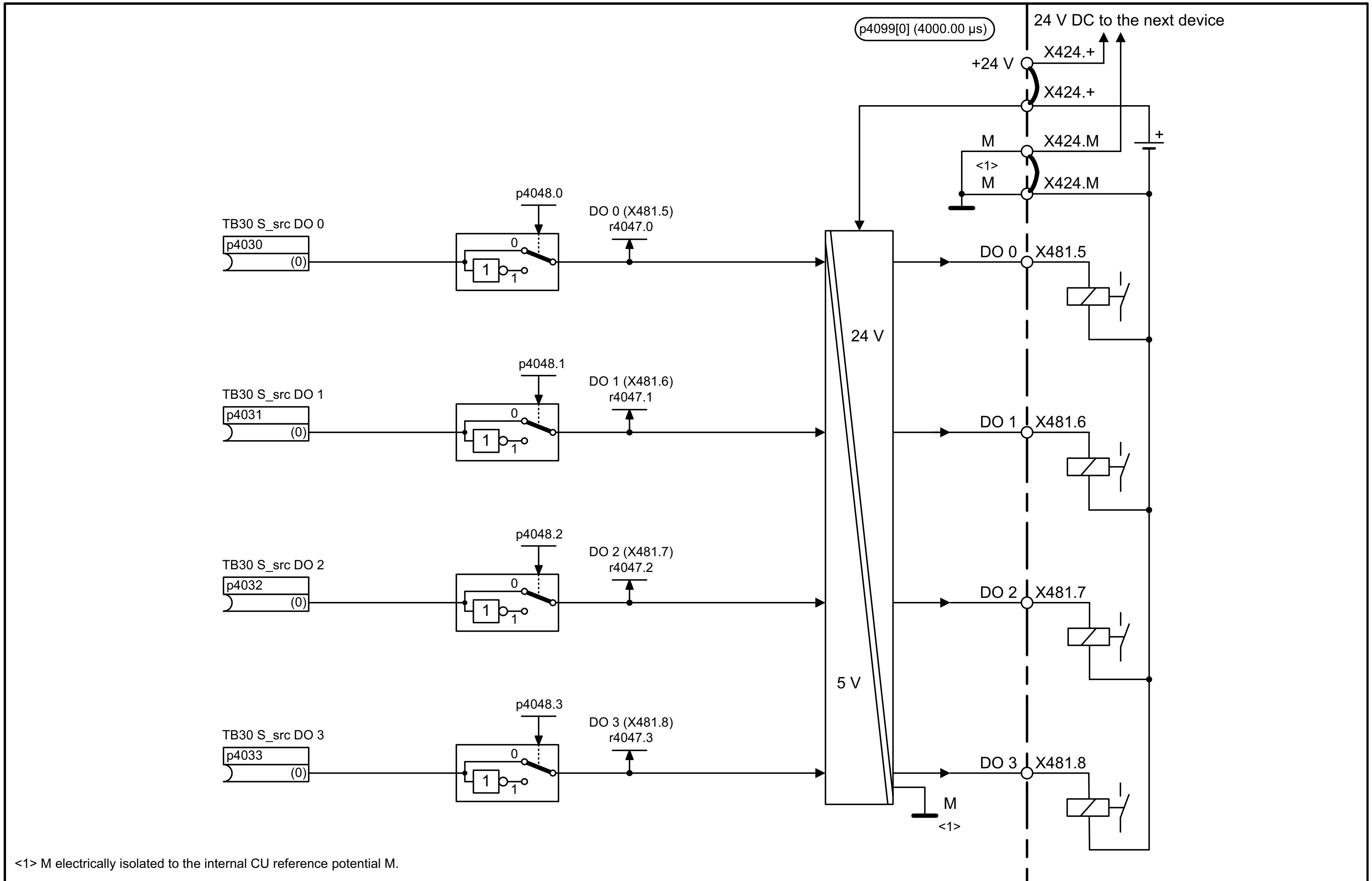
Fig. 3-179 9099 – Overview



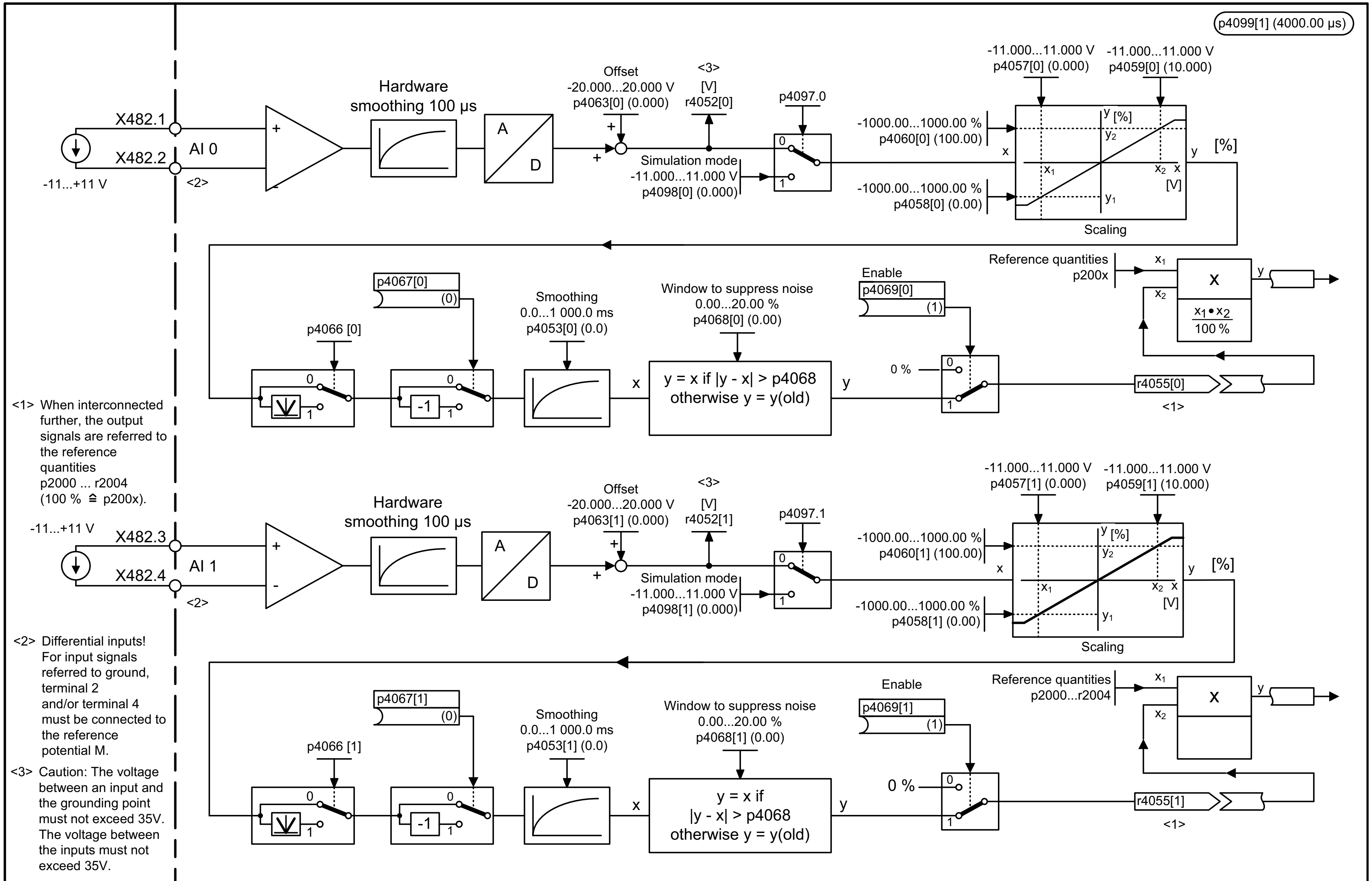
1	2	3	4	5	6	7	8
DO: TB30					fp_9100_51_eng.vsd	Function diagram	- 9100 -
Terminal Board 30 (TB30) - Digital inputs, electrically isolated (DI 0 ... DI 3)					24.11.09 V04.07.00	SINAMICS	

Fig. 3-180 9100 – Digital inputs, electrically isolated (DI 0 ... DI 3)

Fig. 3-181 9102 – Digital outputs, electrically isolated (DO 0 ... DO 3)



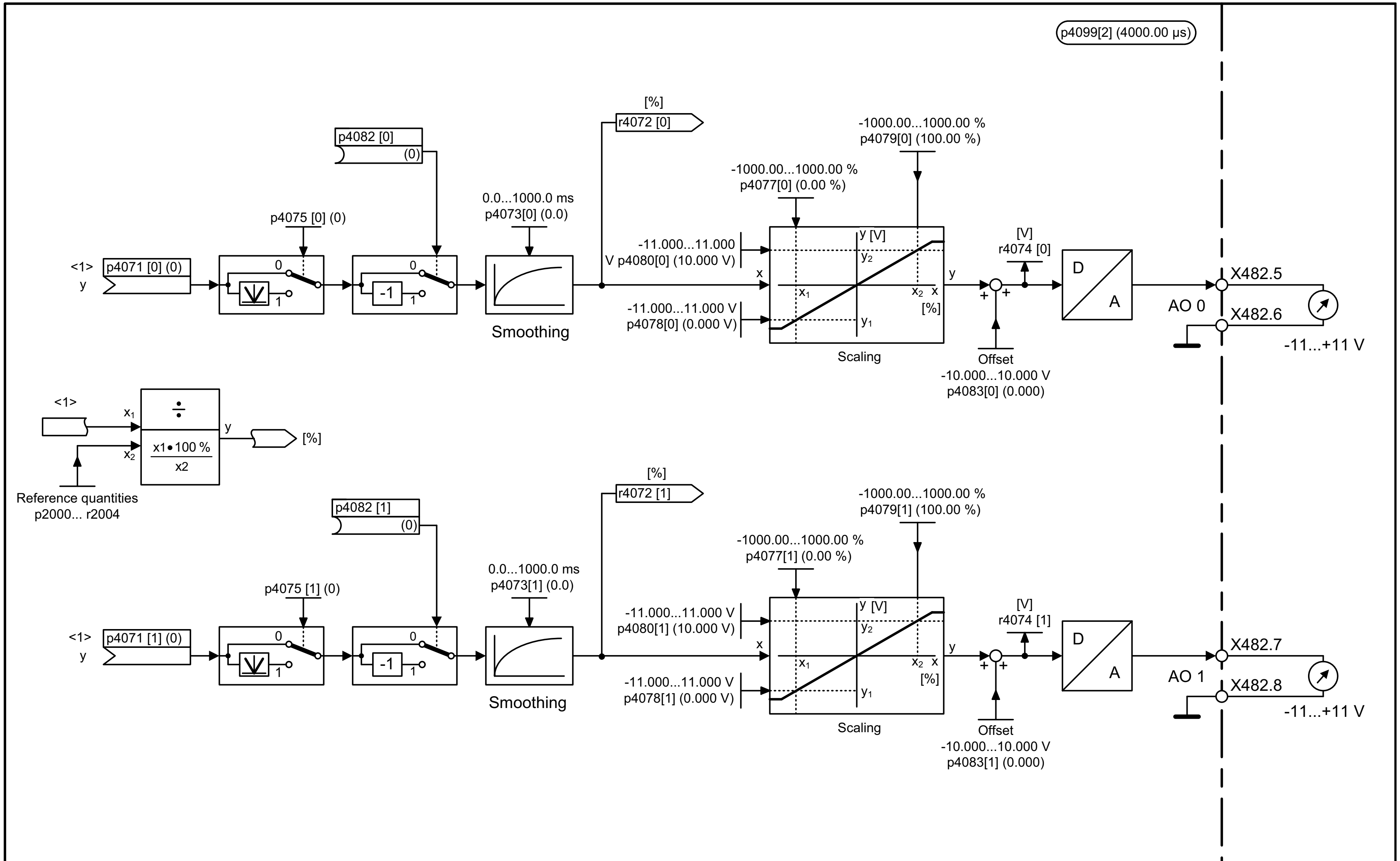
1	2	3	4	5	6	7	8
DO: TB30					fp_9102_51_eng.vsd	Function diagram	- 9102 -
Terminal Board 30 (TB30) - Digital outputs, electrically isolated (DO 0 ... DO 3)					24.11.09 V04.07.00	SINAMICS	



1	2	3	4	5	6	7	8
DO: TB30					fp_9104_51_eng.vsd	Function diagram	- 9104 -
Terminal Board 30 (TB30) - Analog inputs (AI 0 ... AI 1)					21.06.05 V04.07.00	SINAMICS	

Fig. 3-182 9104 – Analog inputs (AI 0 ... AI 1)

Fig. 3-183 9106 – Analog outputs (AO 0 ... AO 1)



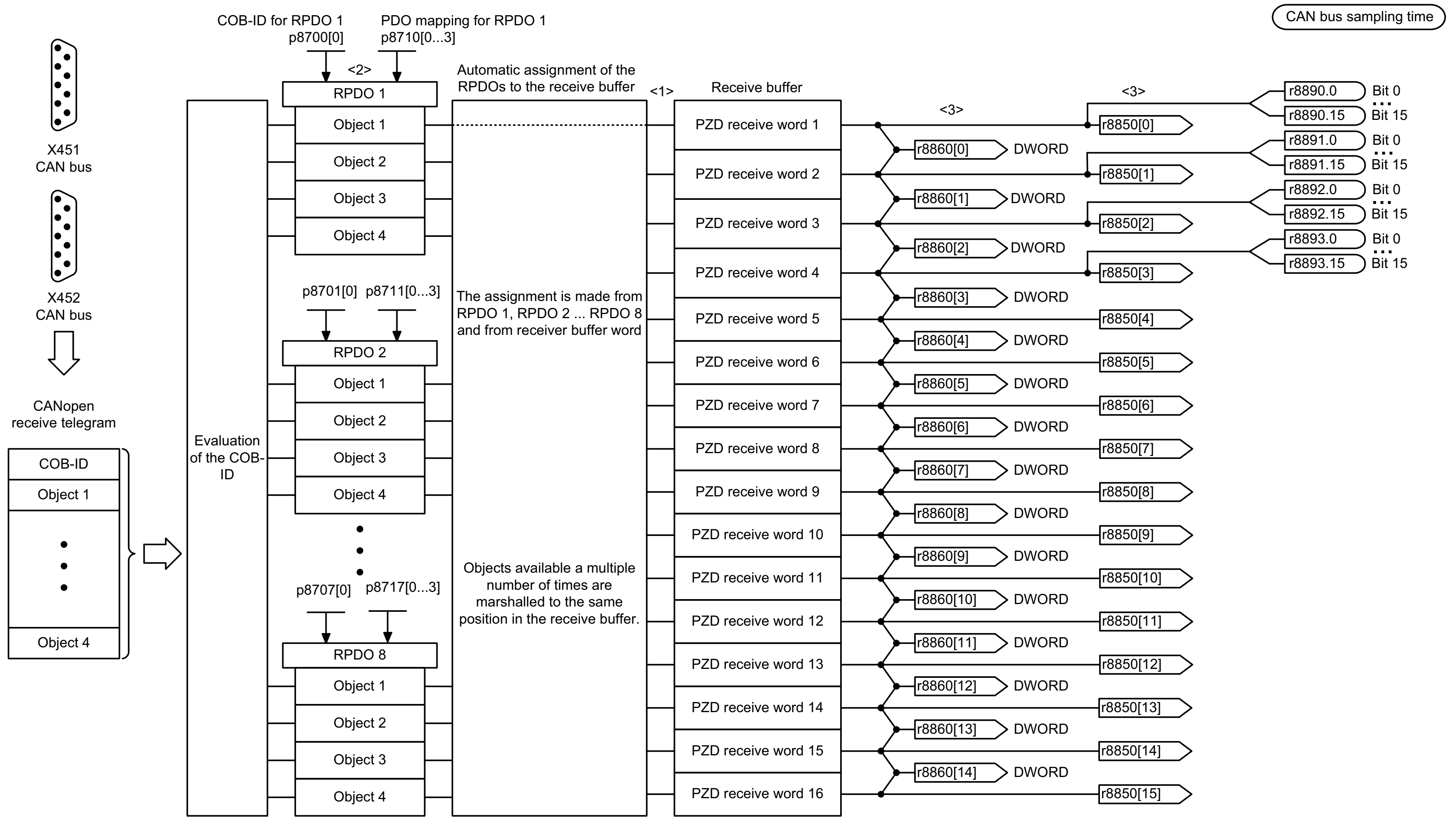
<1> The input signals are referred to the reference quantities p2004 ... r2004 (100 % ≙ p200x).

1	2	3	4	5	6	7	8
DO: TB30					fp_9106_51_eng.vsd	Function diagram	- 9106 -
Terminal Board 30 (TB30) - Analog outputs (AO 0 ... AO 1)					25.10.05 V04.07.00	SINAMICS	

3.22 Communication Board CAN10 (CBC10)

Function diagrams

Fig. 3-184 9204 – Receive telegram, free PDO mapping (p8744 = 2)

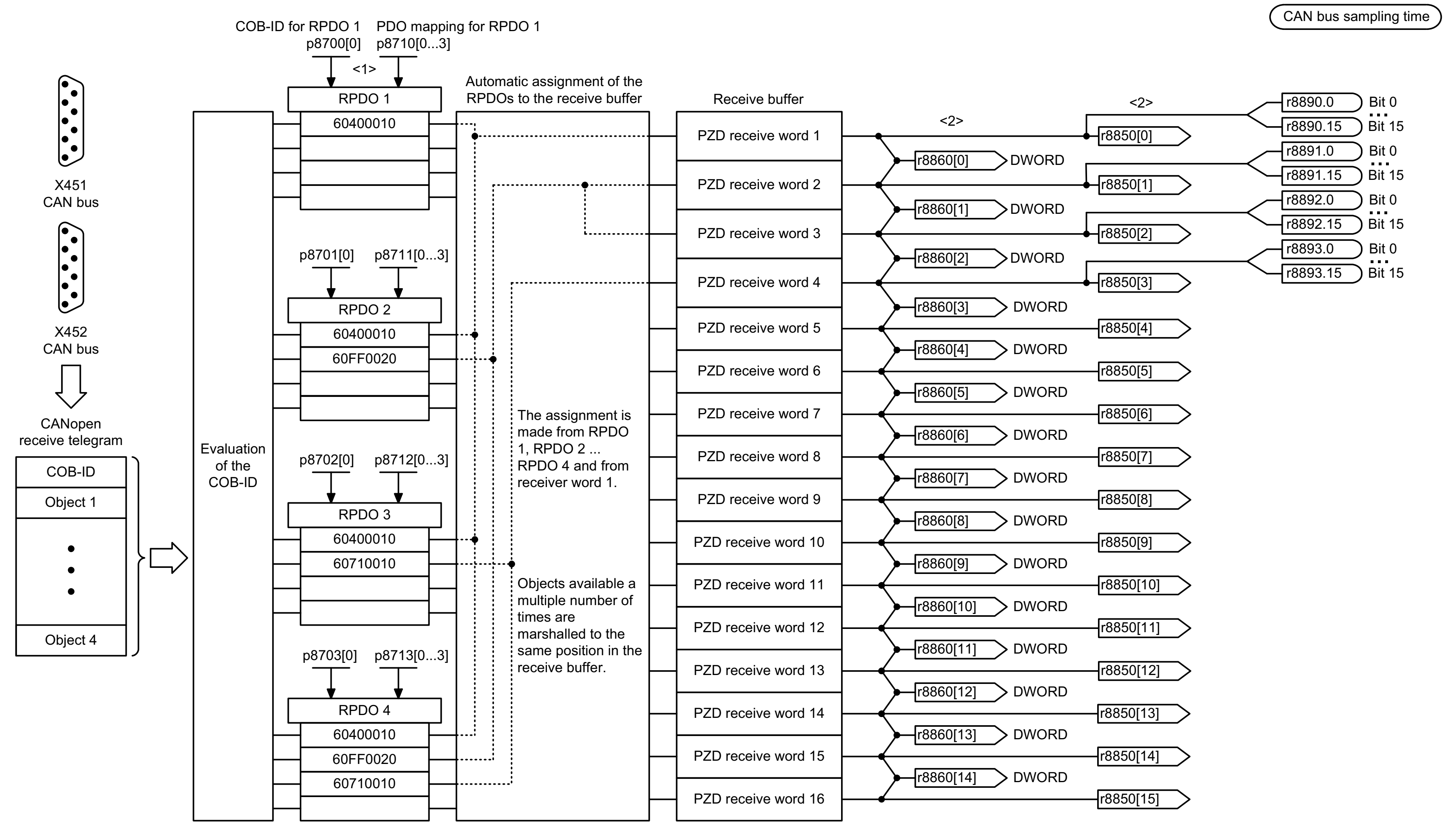


<1> To use automatic BICO interconnection (p8790 = 1), one of the receive words 1-4 must be used as control word 1 (STW1).
<2> Telegram: up to 4 words or 64 bits.
The sum of the various objects must not exceed 16 words.
<3> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.

RPDO: Receive Process Data Object
COB-ID: CAN Communication Object Identifier

1	2	3	4	5	6	7	8
DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_9204_51_eng.vsd	Function diagram	- 9204 -
Communication Board CAN10 (CBC10) - Receive telegram, free PDO mapping (p8744 = 2)					05.07.13 V04.07.00	SINAMICS	

Fig. 3-185 9206 – Receive telegram, Predefined Connection Set (p8744 = 1)

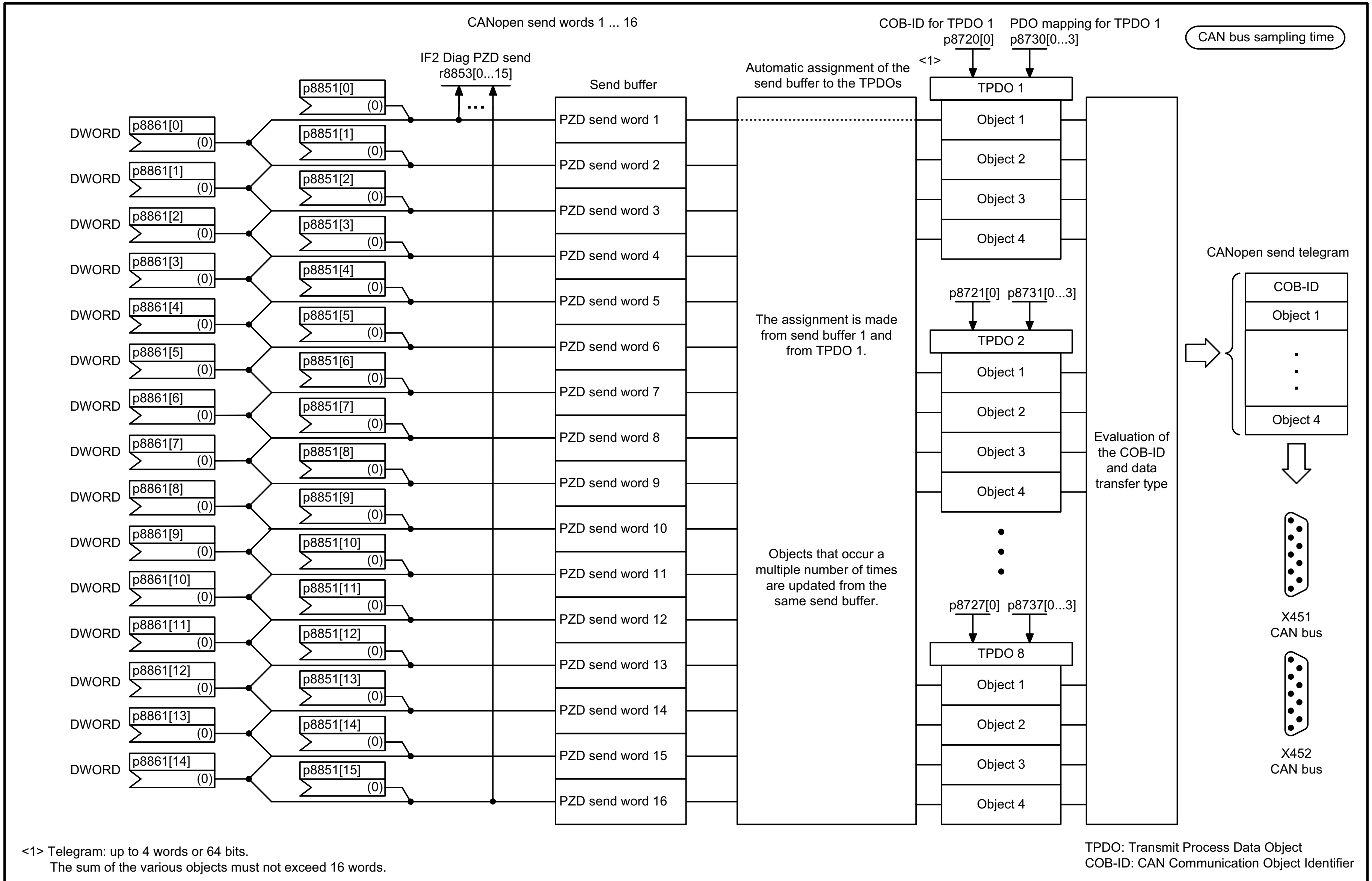


<1> Telegram: up to 4 words or 64 bits.
The sum of the various objects must not exceed 16 words.
<2> When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.

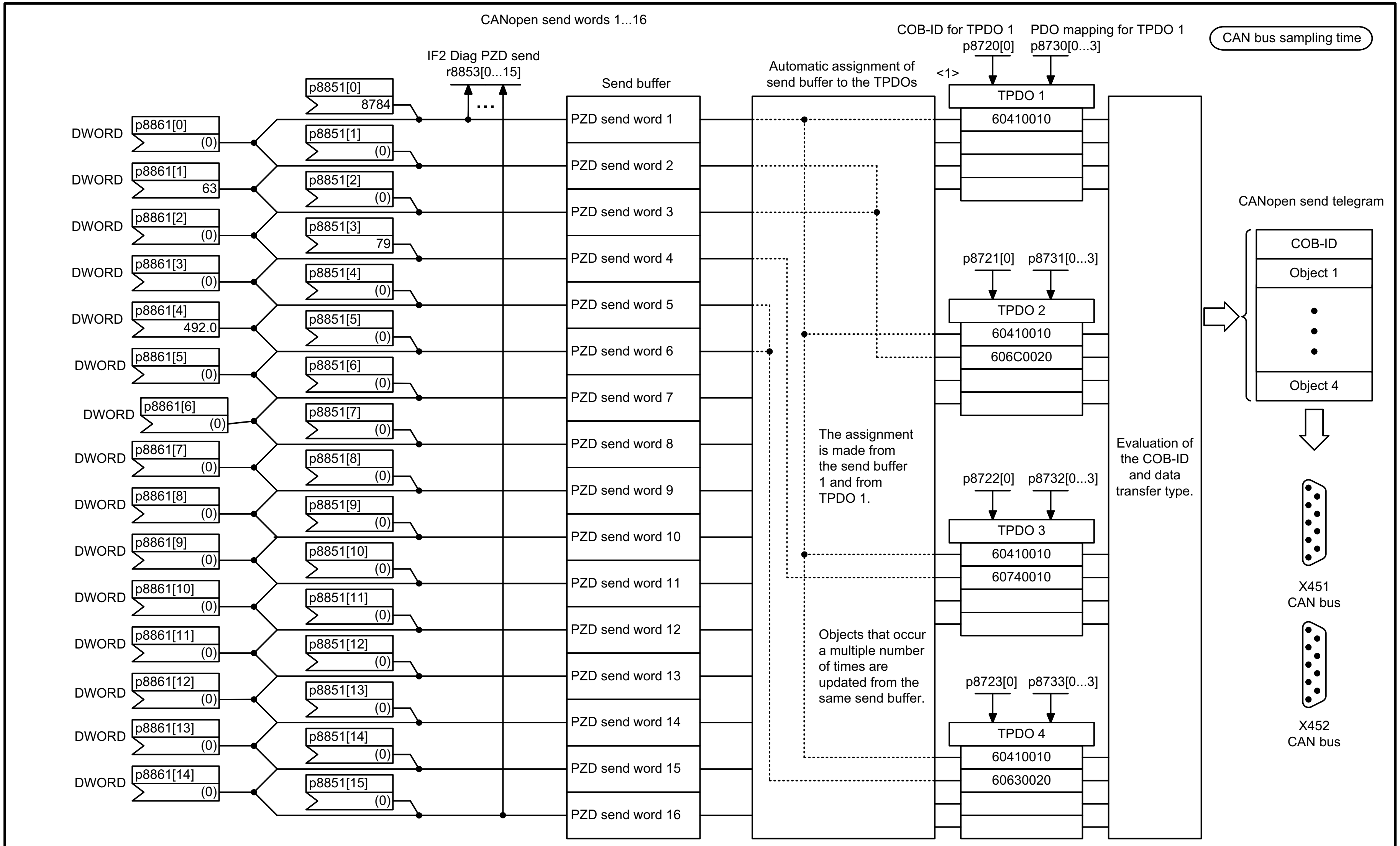
RPDO: Receive Process Data Object
COB-ID: CAN Communication Object Identifier

1	2	3	4	5	6	7	8
DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_9206_51_eng.vsd	Function diagram	- 9206 -
Communication Board CAN10 (CBC10) - Receive telegram, Predef. Conn. Set (p8744 = 1)					05.07.13 V04.07.00	SINAMICS	

Fig. 3-186 9208 – Send telegram, free PDO mapping (p8744 = 2)



1	2	3	4	5	6	7	8
DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_9208_51_eng.vsd	Function diagram	- 9208 -
Communication Board CAN10 (CBC10) - Send telegram, free PDO mapping (p8744 = 2)					05.07.13 V04.07.00	SINAMICS	



<1> Telegram: up to 4 words or 64 bits.
The sum of the various objects must not exceed 16 words.

TPDO: Transmit Process Data Object
COB-ID: CAN Communication Object Identifier

1	2	3	4	5	6	7	8
DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL					fp_9210_51_eng.vsd	Function diagram	- 9210 -
Communication Board CAN10 (CBC10) - Send telegram, Predef. Connection Set (p8744 = 1)					05.07.13 V04.07.00	SINAMICS	

Fig. 3-187 9210 – Send telegram, Predefined Connection Set (p8744 = 1)

Fig. 3-188 9220 – Control word, CANopen

CAN bus sampling time

Signal targets for control word CANopen

Signal	Meaning	Interconnection parameters <1>	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW1.0	↑ = ON (pulses can be enabled) **0 = OFF1** (braking with ramp-function generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r8890.0	[2501.3]	[2610]	-
STW1.1	**1 = No coast-down activated** (enable possible) 0 = Activate coast-down (immediate pulse cancellation and power-on inhibit)	p0844[0] = r8890.1	[2501.3]	[2610]	-
STW1.2	**1 = No fast stop activated** (enable possible) 0 = Activate fast stop (braking along an OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r8890.2	[2501.3]	[2610]	-
STW1.3	**1 = Enable operation** (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r8890.3	[2501.3]	[2610]	-
STW1.4	**1 = Enable ramp-function generator** 0 = Inhibit ramp-function generator	<2> p1140[0] = r8890.4	[2501.3]	[3060]	-
STW1.5	**1 = Continue ramp-function generator** 0 = Freeze ramp-function generator	<2> p1141[0] = r8890.5	[2501.3]	[3060]	-
STW1.6	**1 = Enable speed setpoint ramp-function generator input** 0 = Inhibit setpoint (the ramp-function generator input is set to zero)	<2> p1142[0] = r8890.6	[2501.1]	[3060]	-
STW1.7	↑ **= Acknowledge fault**	p2103[0] = r8890.7	[2546.1]	[8060]	-
STW1.8	**1 = Stop**	<2> - <3>	-	[3060]	-
STW1.9	**Reserved**	-	-	-	-
STW1.10	**Reserved**	-			-
STW1.11	**Can be freely connected**	pxxxx[y] = r8890.11			-
STW1.12	**Can be freely connected**	pxxxx[y] = r8890.12	-	-	-
STW1.13	**Can be freely connected**	pxxxx[y] = r8890.13	-	-	-
STW1.14	**Can be freely connected**	pxxxx[y] = r8890.14	-	-	-
STW1.15	**Can be freely connected**	pxxxx[y] = r8890.15	-	-	-

<1> Depending on the position of the CANopen control word in p8750, the number of the binector to be connected changes.
<2> Ignored by automatic control word interconnection (p8790).
<3> Interconnection via p8791.

1	2	3	4	5	6	7	8

DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL	fp_9220_51_eng.vsd	Function diagram	- 9220 -
Communication Board CAN10 (CBC10) - Control word, CANopen	04.07.13 V04.07.00	SINAMICS	

CAN bus sampling time

Status word CANopen
r8784

Source	Bit No.	Status word CANopen
From sequence control [2610]	0	**1 = Rdy for switch on**
From sequence control [2610]	1	**1 = Ready** (DC link loaded, pulses blocked)
From sequence control [2610]	2	**1 = Operation enabled** (drive follows n_set)
From fault buffer [8060]	3	**1 = Fault present**
From sequence control [2610]	4	**1 = No coasting active**
From sequence control [2610]	5	**1 = No Quick Stop active**
From sequence control [2610]	6	**1 = Switching on inhibited active**
From alarm buffer [8065]	7	**1 = Alarm present**
p8785 (0)	8	**Can be freely interconnected (BI: p8785)**
Bit 9 = 1 --> Ready to exchange process data	9	**1 = Control request**
Status word CANopen Bit 8 = 0: from speed signals 2 [8011.8] (r2197.7) Status word CANopen Bit 8 = 1: From status word monitoring 3 [8010.8] (r2199.0)	10	**1 = Target reached <1>**
From status word speed controller [2522]	11	**1 = Torque limit reached**
From status word monitoring 3 [8010.8] (r2199.0)	12	**1 = Velocity equal to zero**
	13	**Reserved**
p8786 (0)	14	**Can be freely interconnected (BI: p8786)**
p8787 (0)	15	**Can be freely interconnected (BI: p8787)**

<1> With setpoint channel: connect p2151 with r1119 [8010.5].
<2> Only if p8791 = 1 or 3.

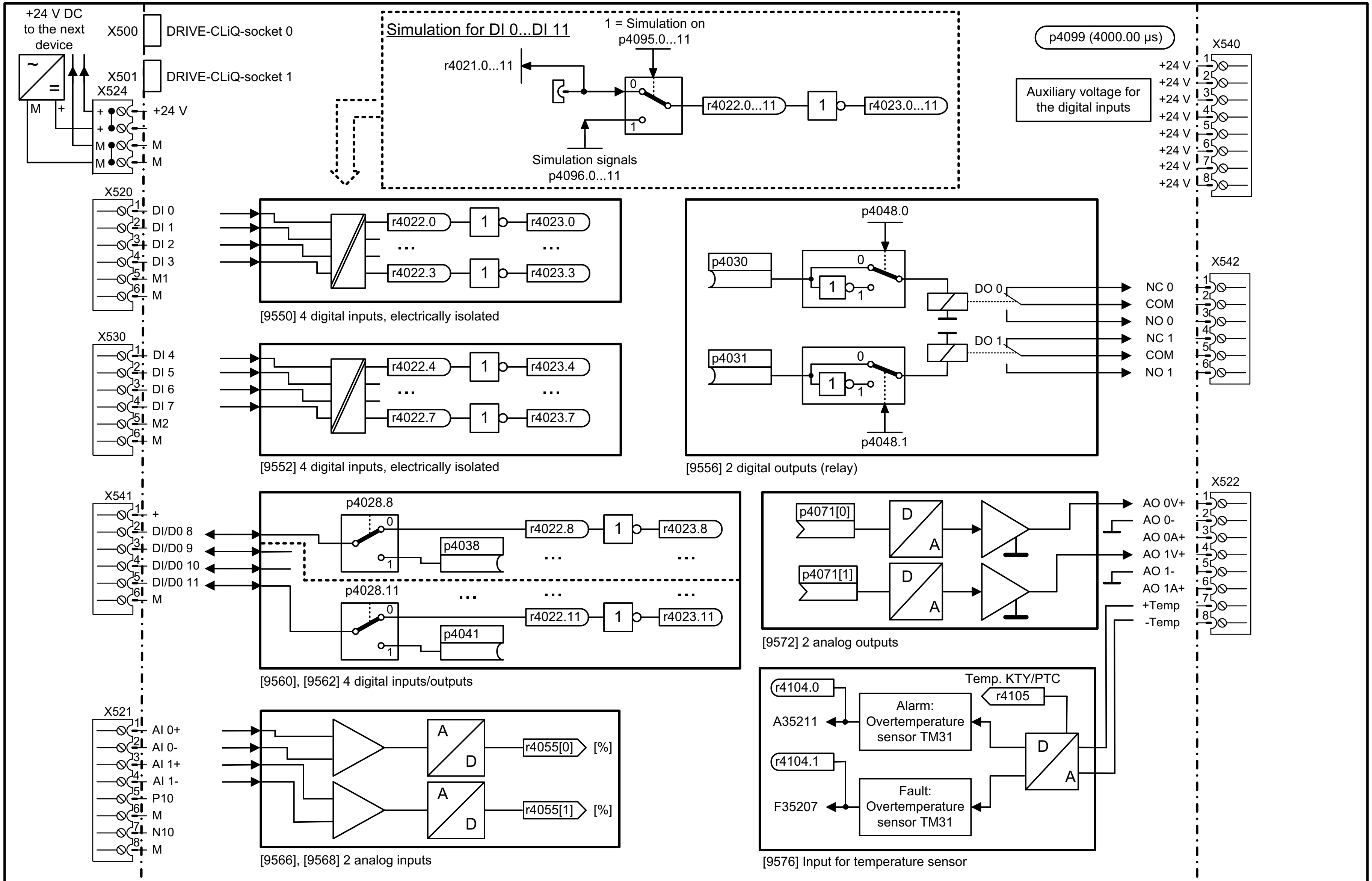
1	2	3	4	5	6	7	8

DO: A_INFM2C, SERVO, VECTOR, VECTOR3P, VECTORGL, VECTORMV, VECTORSL	fp_9226_51_eng.vsd	Function diagram	- 9226 -
Communication Board CAN10 (CBC10) - Status word, CANopen	24.02.14 V04.07.00	SINAMICS	

3.23 Terminal Module 31 (TM31)

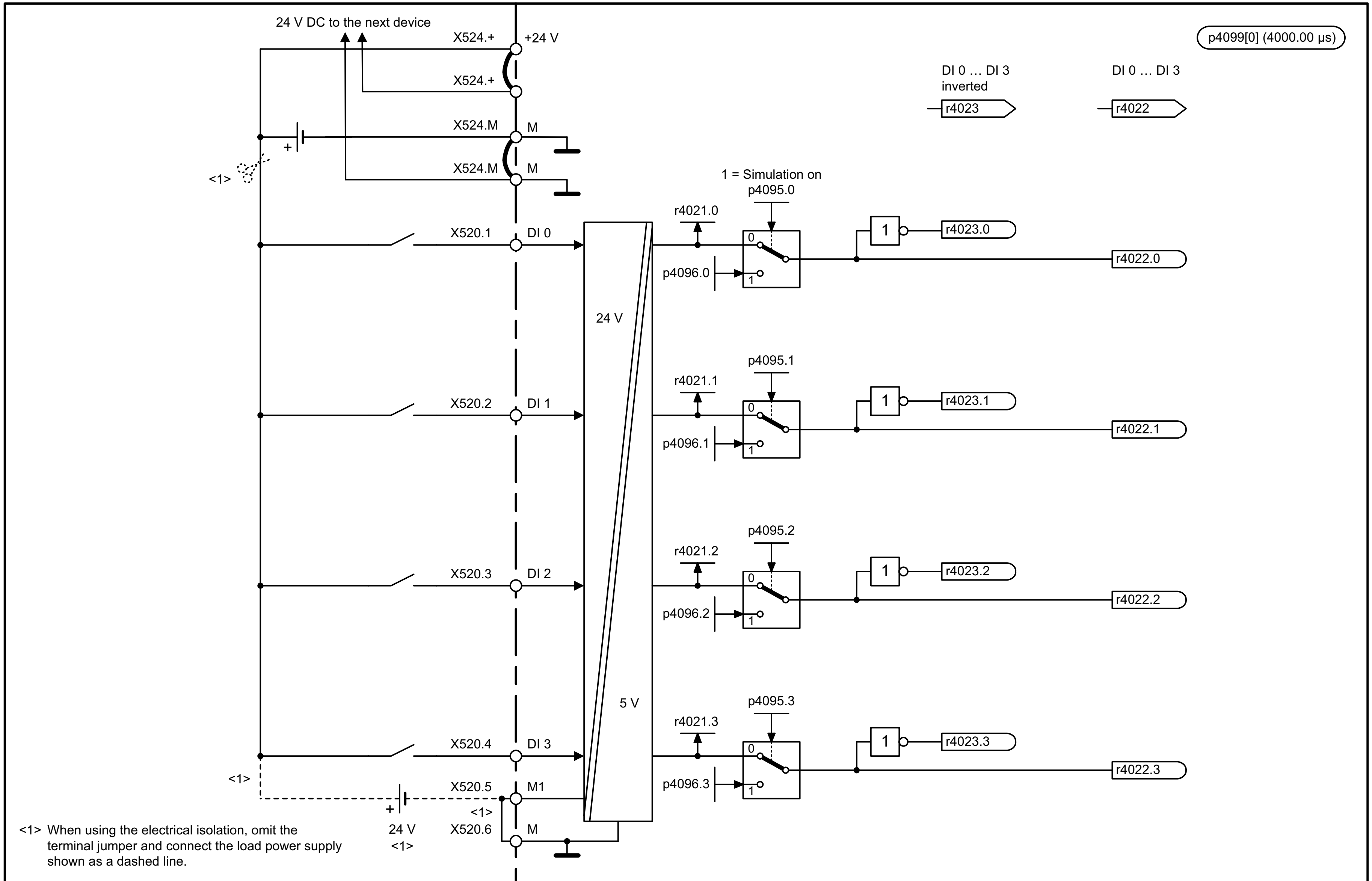
Function diagrams

Fig. 3-190 9549 – Overview



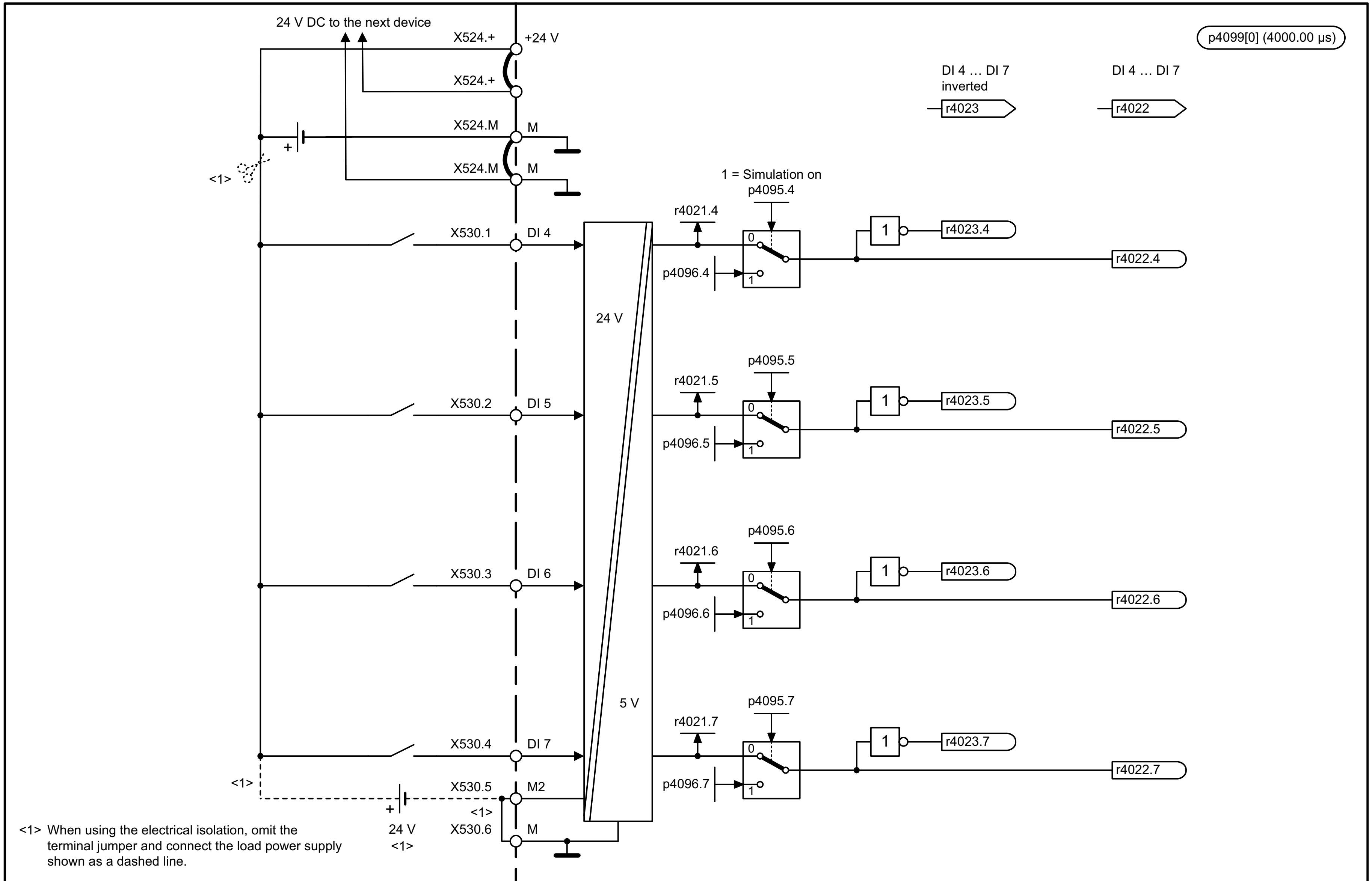
1	2	3	4	5	6	7	8
DO: TM31					fp_9549_51_eng.vsd	Function diagram	- 9549 -
Terminal Module 31 (TM31) - Overview					12.03.13 V04.07.00	SINAMICS	

Fig. 3-191 9550 – Digital inputs, electrically isolated (DI 0 ... DI 3)



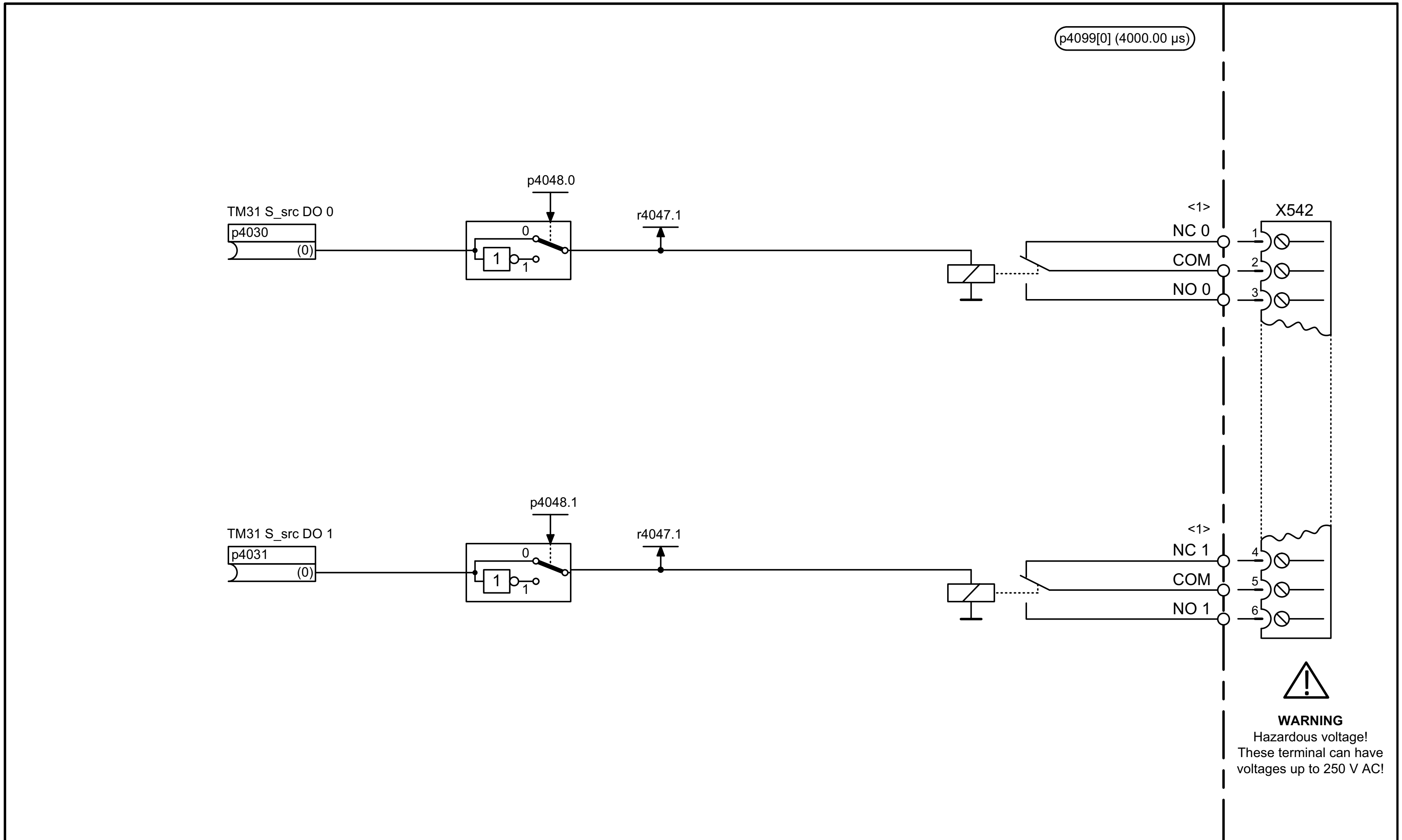
1	2	3	4	5	6	7	8
DO: TM31					fp_9550_51_eng.vsd	Function diagram	- 9550 -
Terminal Module 31 (TM31) - Digital inputs, electrically isolated (DI 0 ... DI 3)					25.03.09 V04.07.00	SINAMICS	

Fig. 3-192 9552 – Digital inputs, electrically isolated (DI 4 ... DI 7)



1	2	3	4	5	6	7	8
DO: TM31					fp_9552_51_eng.vsd	Function diagram	- 9552 -
Terminal Module 31 (TM31) - Digital inputs, electrically isolated (DI 4 ... DI 7)					25.03.09 V04.07.00	SINAMICS	

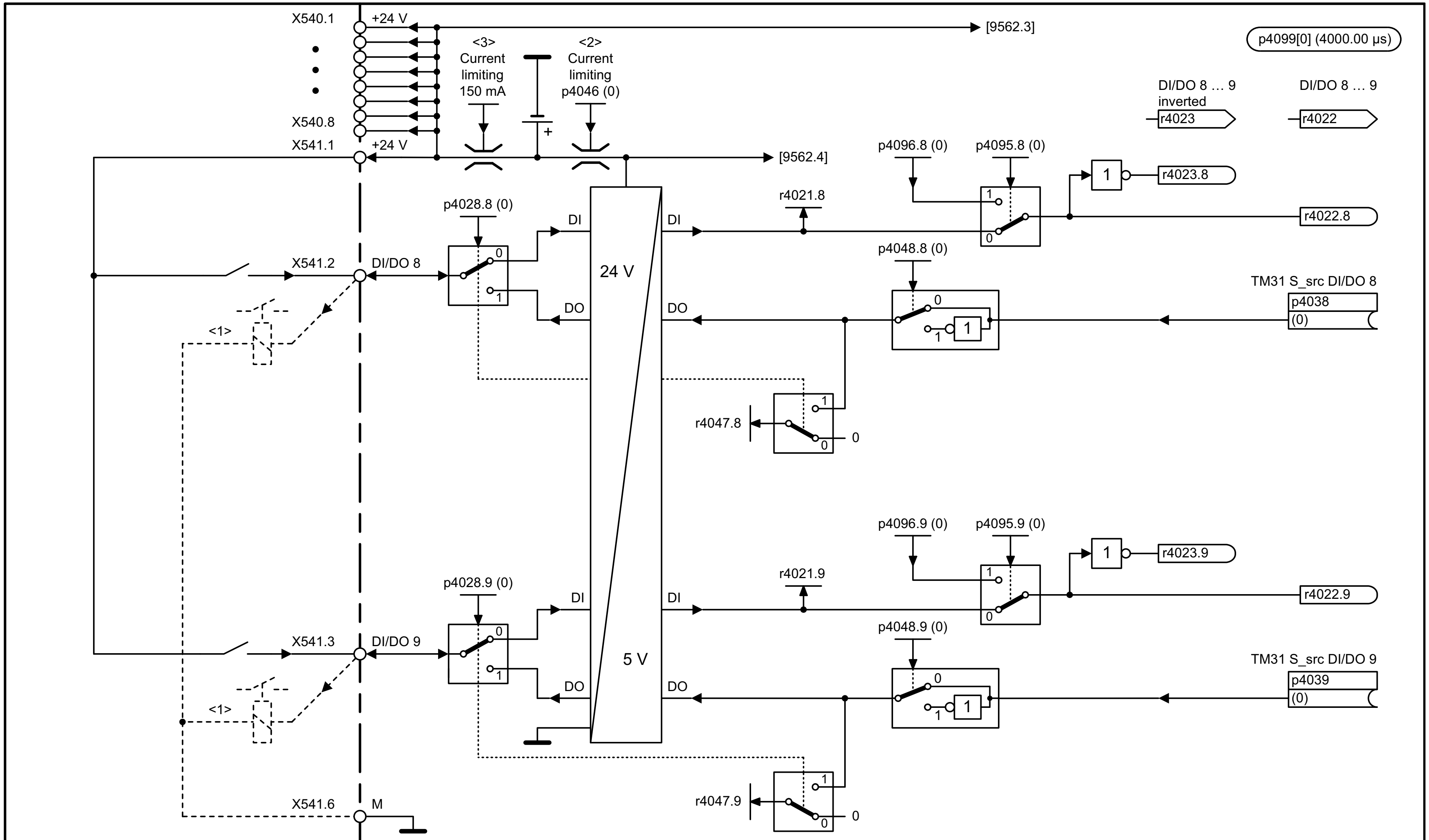
Fig. 3-193 9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1)



<1> NO: Normally Open contact ("open" in the quiescent state = NO contact)
NC: Normally Closed contact ("closed" in the quiescent state = NC contact)
The relay contacts have the following ratings - up to 100 V DC 240 W or 250 V AC 2000 VA.

1	2	3	4	5	6	7	8
DO: TM31					fp_9556_51_eng.vsd	Function diagram	- 9556 -
Terminal Module 31 (TM31) - Digital relay outputs, electrically isolated (DO 0 ... DO 1)					30.07.07 V04.07.00	SINAMICS	

Fig. 3-194 9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

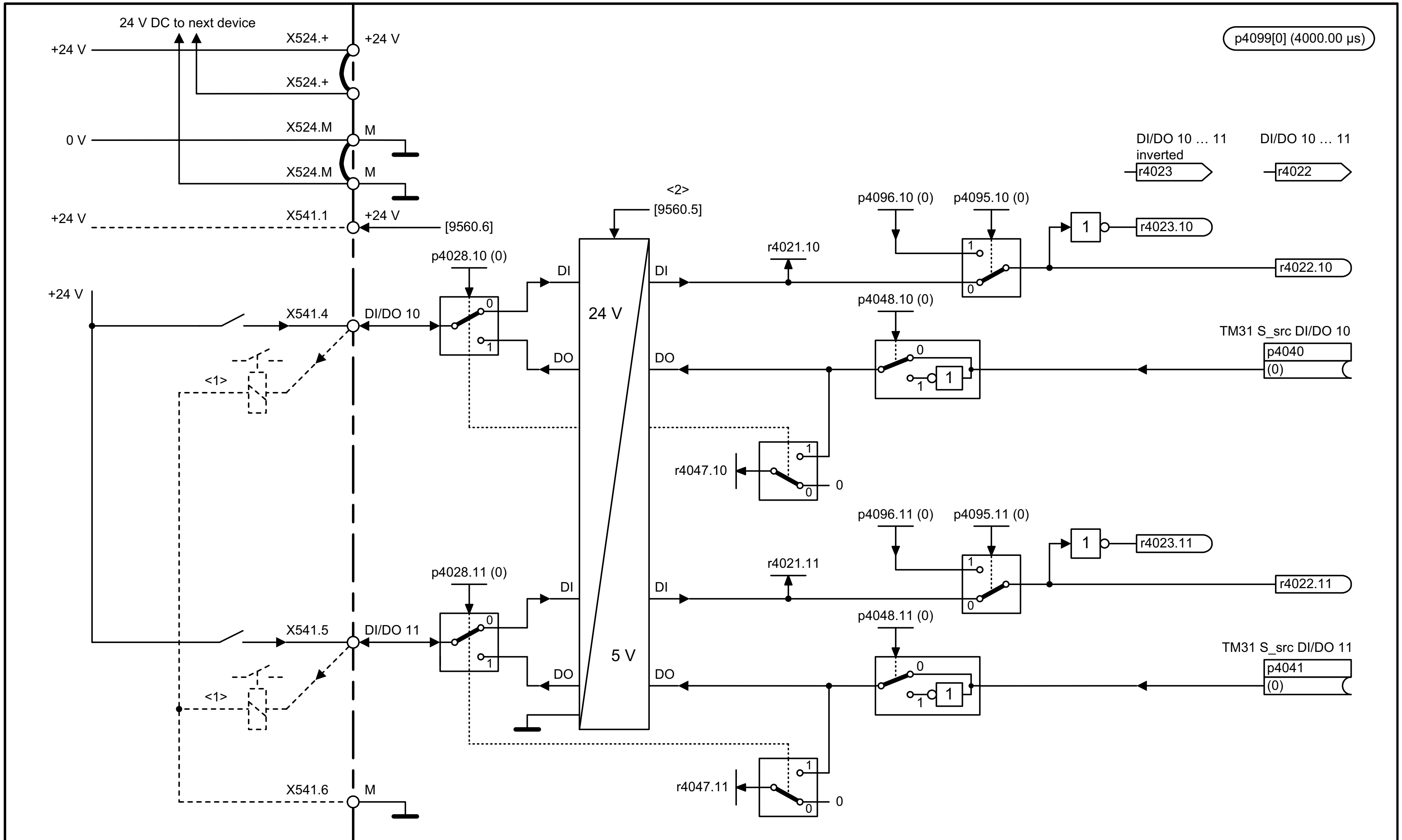


<1> The connection shown as a dashed line applies when used as digital output (p4028.x = 1).

<2> Limits the total output current of the terminals X541.2, X541.3, X541.4 and X541.5 to 0.1 A (p4046 = 0) or 1 A (p4046 = 1).
<3> The total (summed) output current of the 24 V auxiliary power supply on terminals X540.1 to X540.8 and X541.1 is limited to 150 mA. Incandescent lamps must not be connected to the 24 V auxiliary power supply!

1	2	3	4	5	6	7	8
DO: TM31					fp_9560_51_eng.vsd	Function diagram	- 9560 -
Terminal Module 31 (TM31) - Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)					27.03.09 V04.07.00	SINAMICS	

Fig. 3-195 9562 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)

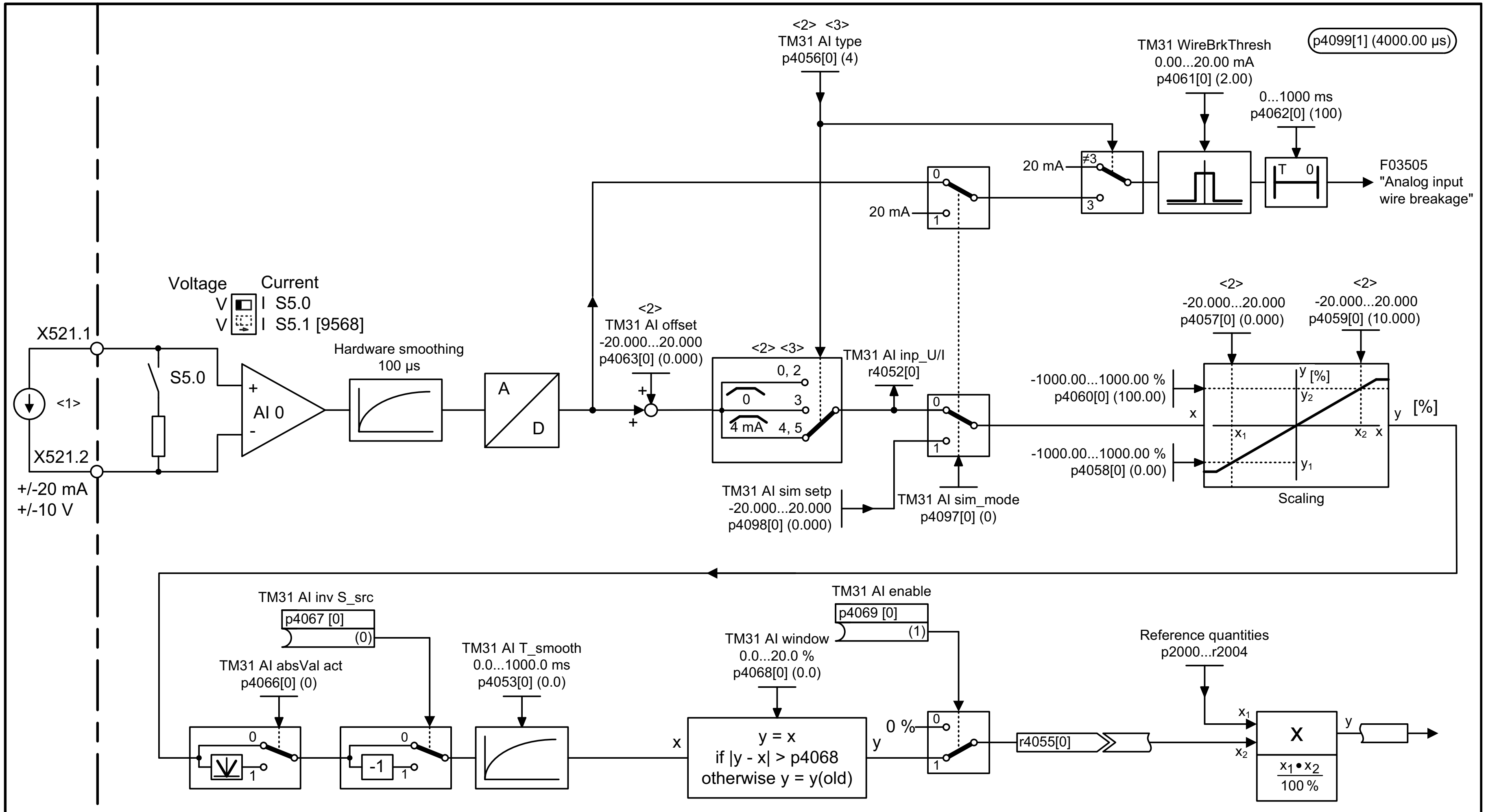


<1> The connection shown in a dashed line applies when used as digital output (p4028.x = 1).

<2> Limits the total output current of the terminals X541.2, X541.3, X541.4 and X541.5 to 0.1 A (p4046 = 0) or 1 A (p4046 = 1).

1	2	3	4	5	6	7	8
DO: TM31					fp_9562_51_eng.vsd	Function diagram	- 9562 -
Terminal Module 31 (TM31) - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)					27.03.09 V04.07.00	SINAMICS	

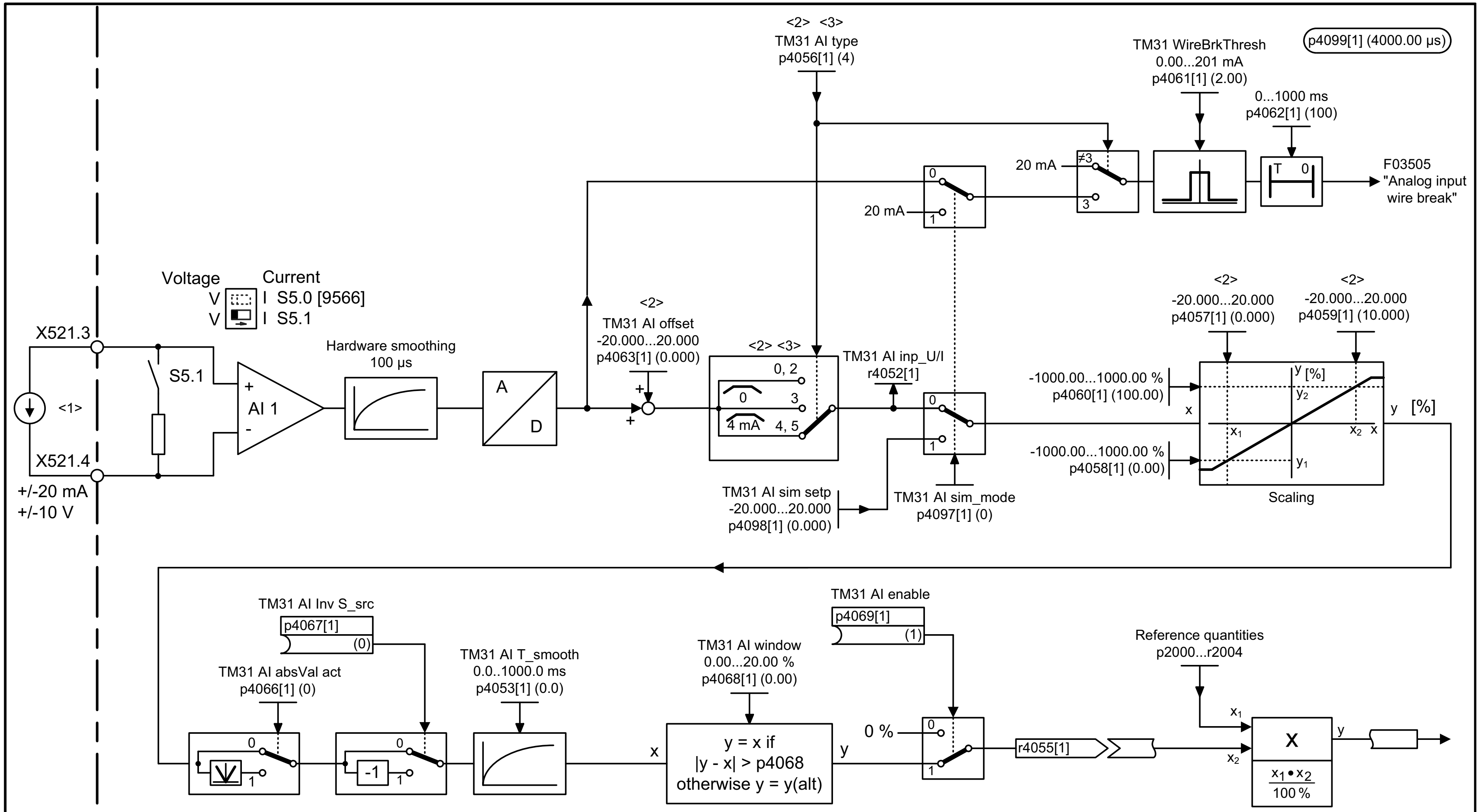
Fig. 3-196 9566 – Analog input 0 (AI 0)



<1> Differential input!
For an input signal referred to ground, terminal X521.2 must be connected to reference potential M.
Caution:
The voltage between an input (X521.1 or X521.2) and the ground point must not exceed 35 V.
When the load resistor is switched in (S5.0 closed), the voltage between the input terminals must not exceed 15 V.
<2> For p4056 = 2, 3, 5 the units are mA.
For p4056 = 0, 4 the units are V.

<3> p4056
= 0: 0 V ... +10 V
= 2: 0 mA ... +20 mA
= 3: 4 mA ... +20 mA with monitoring
= 4: -10 V ... +10 V
= 5: -20 mA ... +20 mA

1	2	3	4	5	6	7	8
DO: TM31					fp_9566_51_eng.vsd	Function diagram	- 9566 -
Terminal Module 31 (TM31) - Analog input 0 (AI 0)					29.12.10 V04.07.00	SINAMICS	



<1> Differential input!
For an input signal referred to ground, terminal X521.4 must be connected to reference potential M.
Caution:
The voltage between an input (X521.3 or X521.4) and the ground point must not exceed 35 V.
When the load resistor is switched in (S5.1 closed), the voltage between the input terminals must not exceed 15 V.

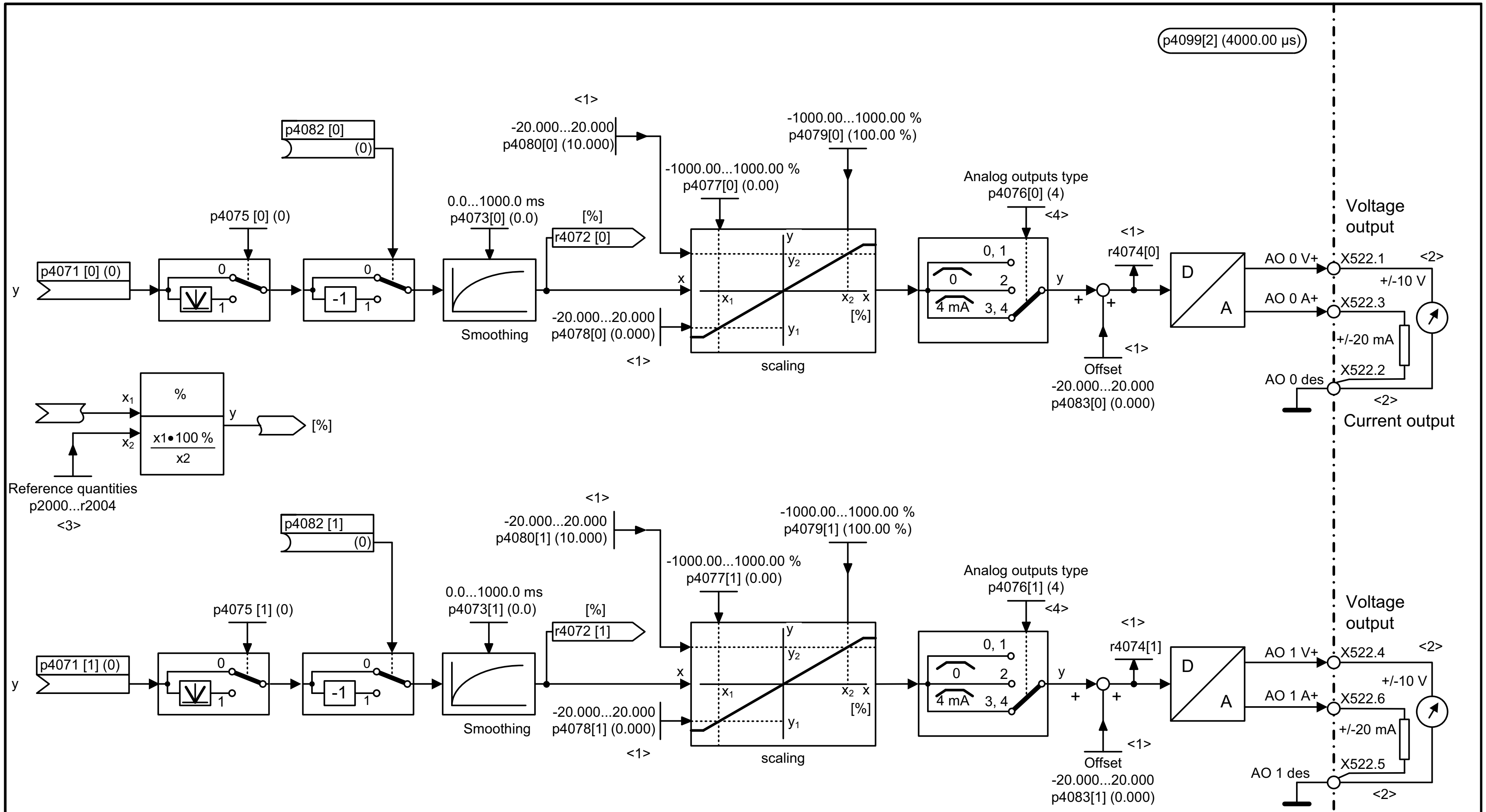
<2> For p4056 = 2, 3, 5 the units are mA.
For p4056 = 0, 4 the units are V.

<3> p4056
= 0: 0 V ... +10 V
= 2: 0 mA ... +20 mA
= 3: 4 mA ... +20 mA with monitoring
= 4: -10 V ... +10 V
= 5: -20 mA ... +20 mA

1	2	3	4	5	6	7	8
DO: TM31					fp_9568_51_eng.vsd	Function diagram	- 9568 -
Terminal Module 31 (TM31) - Analog input 1 (AI 1)					29.12.10 V04.07.00	SINAMICS	

Fig. 3-197 9568 – Analog input 1 (AI 1)

Fig. 3-198 9572 – Analog outputs (AO 0 ... AO 1)



<1> For p4076 = 0, 2, 3 the units are mA.
For p4076 = 1, 4 the units are V.

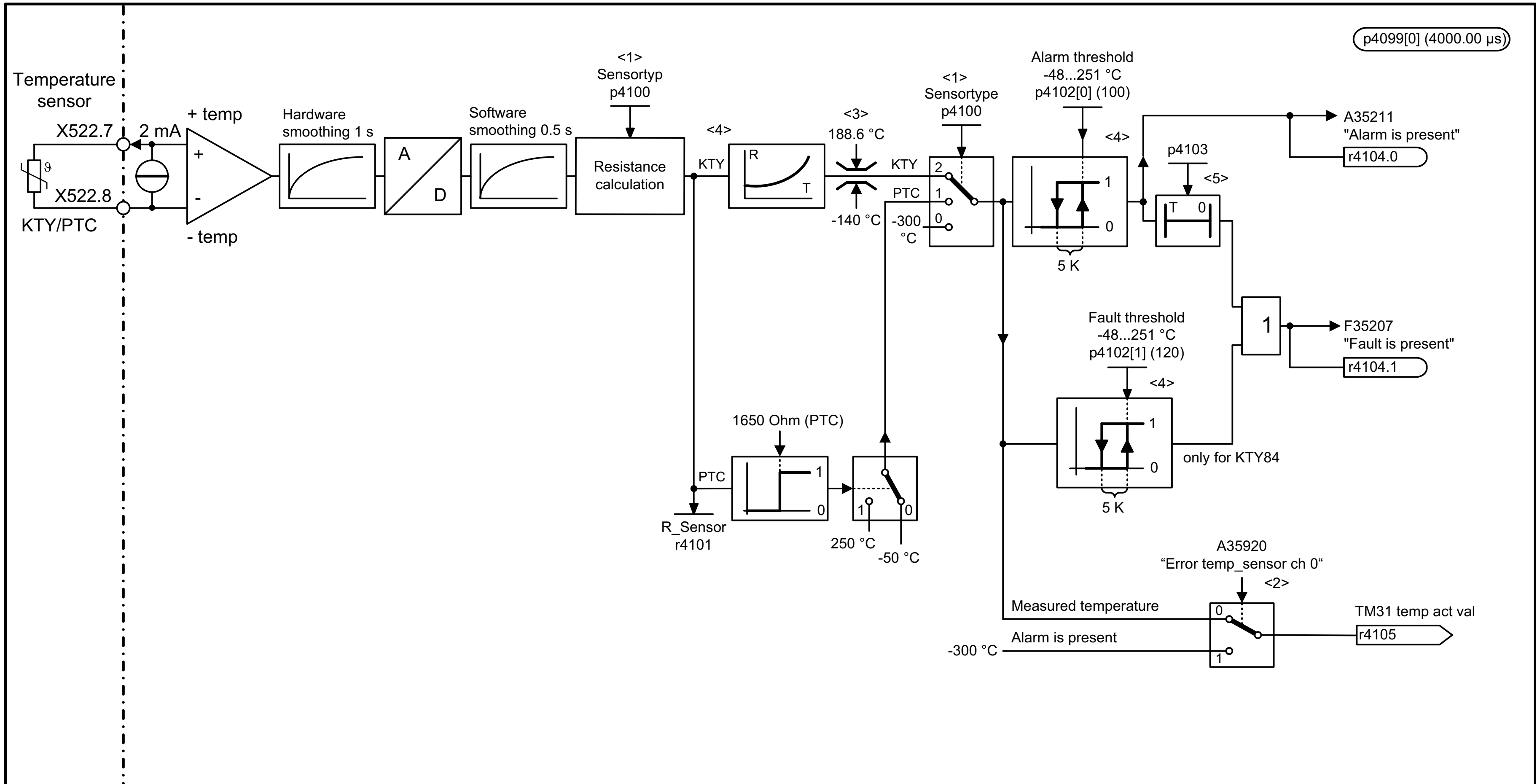
<2> For a voltage output, the output voltage can be taken between the following terminals:
AO 0 between X522.2 (reference potential) and X522.1, AO 1 between X522.5 (reference potential) and X522.4.
For a current output, the output current can be taken from between the following terminals:
AO 0 between X522.2 and X522.3, AO 1 between X522.5 and X522.6.

<3> The input signals are referred to the reference quantities p2004 ... r2004 (100 % = p200x).

<4> p4076
= 0: 0 mA ... +20 mA
= 1: 0 V ... +10 V
= 2: 4 mA ... +20 mA
= 3: -20 mA ... +20 mA
= 4: -10 V ... +10 V

1	2	3	4	5	6	7	8
DO: TM31					fp_9572_51_eng.vsd	Function diagram	- 9572 -
Terminal Module 31 (TM31) - Analog outputs (AO 0 ... AO 1)					17.03.09 V04.07.00	SINAMICS	

Fig. 3-199 9576 – Temperature evaluation (KTY/PTC)



<1> p4100
= 0: Evaluation disabled
= 1: PTC
= 2: KTY

<2> An alarm A35920 in the temperature evaluation of the TM31 is signaled to the next (downstream) vector control via the special temperature value -300 °C.

<3> As a result of the wire breakage monitoring the maximum temperature that can be measured is limited to approx. 188.6 °C.

<4> A value > 250 °C de-activates the alarm or fault.

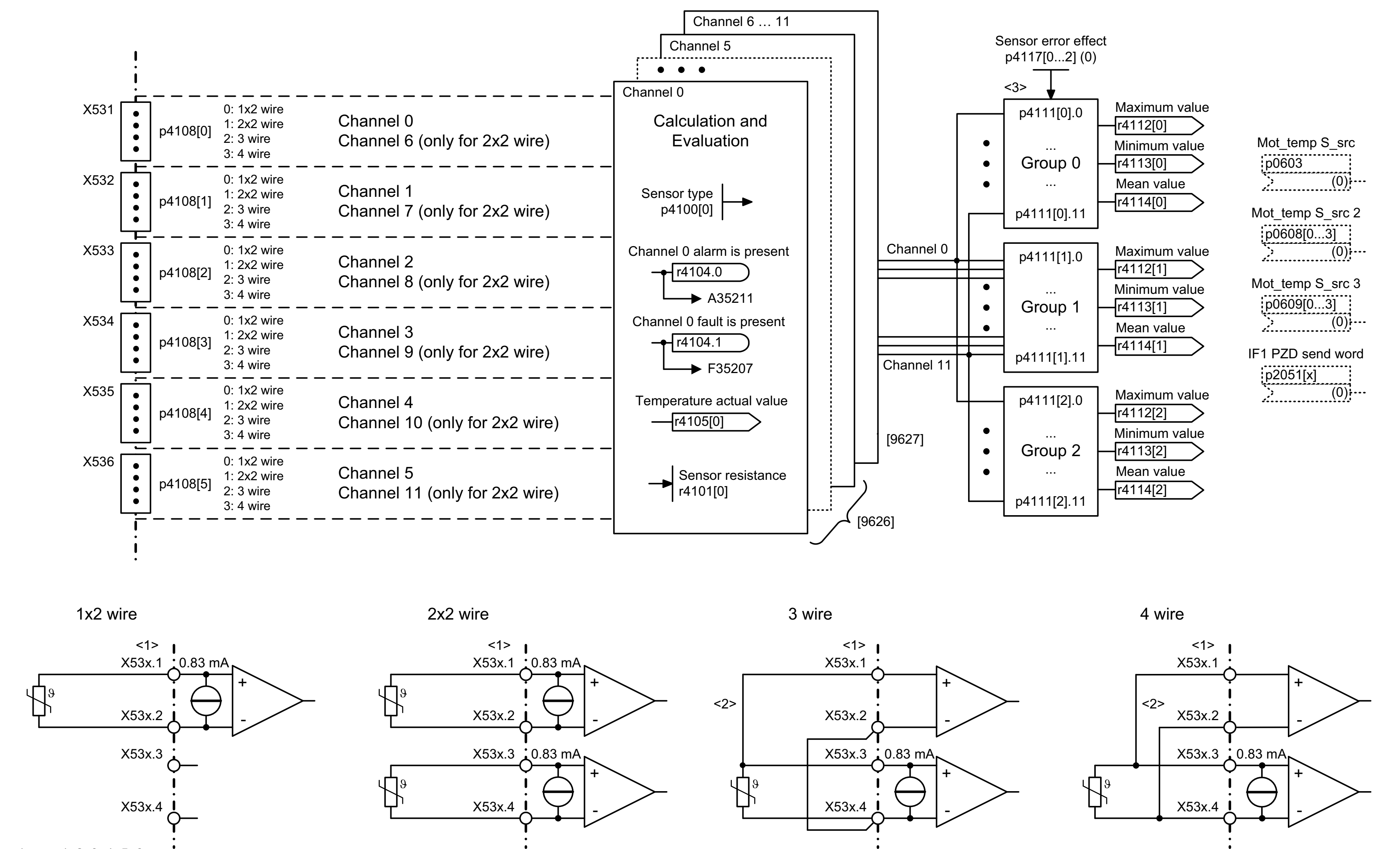
<5> For KTY p4103 = 0 ≙ Output from TempTimer (0).
For PTC p4103 = 0 ≙ delay time = 0s.

1	2	3	4	5	6	7	8
DO: TM31					fp_9576_51_eng.vsd	Function diagram	- 9576 -
Terminal Module 31 (TM31) - Temperature evaluation (KTY/PTC)					21.01.13 V04.07.00	SINAMICS	

3.24 Terminal Module 150 (TM150)

Function diagrams

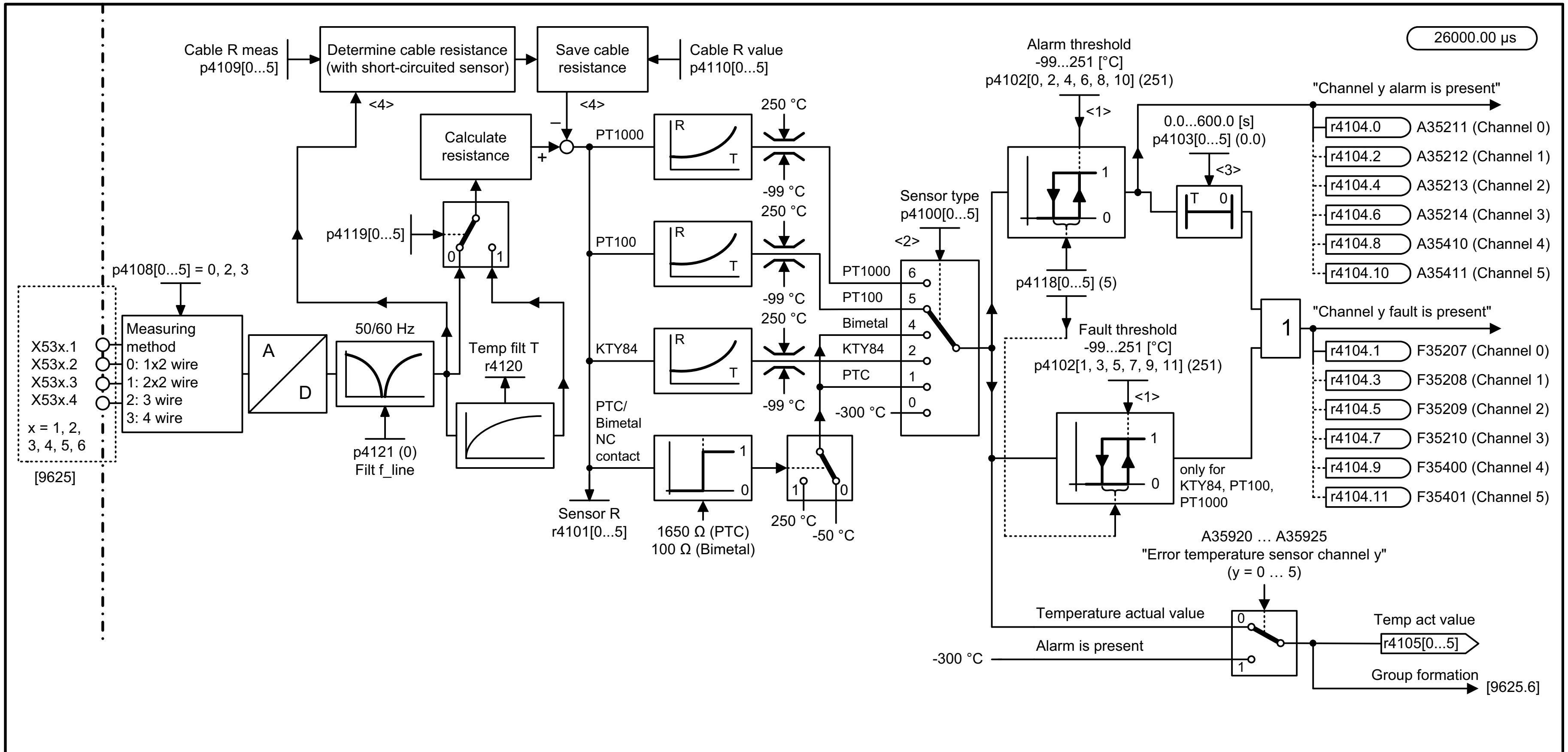
Fig. 3-200 9625 – Temperature evaluation structure (channels 0 ... 11)



<1> x = 1, 2, 3, 4, 5, 6
<2> Connect measuring cables.
<3> Carefully read the safety notes included in the parameter description for p4111!

1	2	3	4	5	6	7	8
DO: TM150					fp_9625_51_eng.vsd	Function diagram	- 9625 -
Terminal Module 150 (TM150) - Temperature evaluation structure (channels 0 … 11)					04.12.12 V04.07.00	SINAMICS	

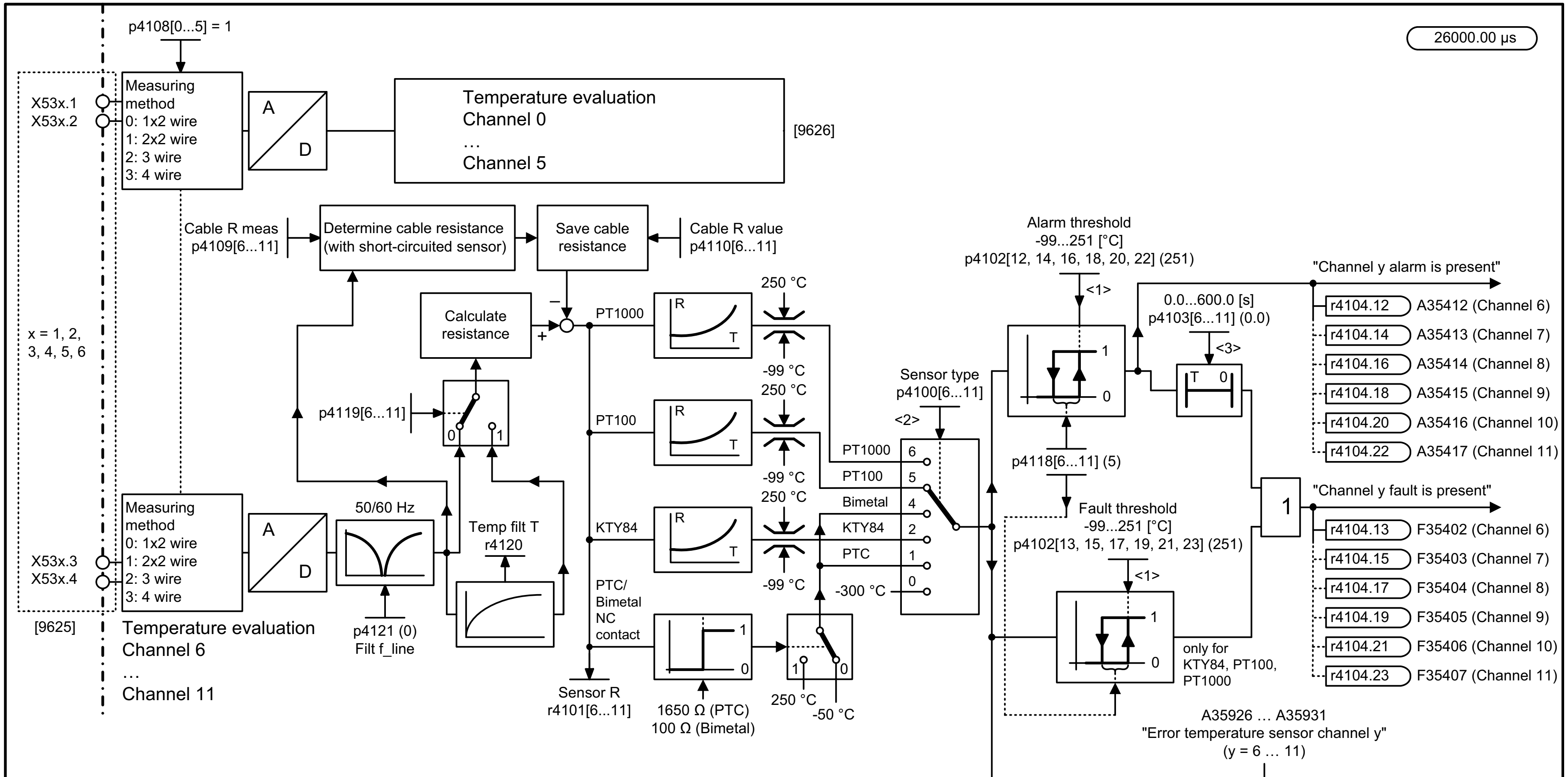
Fig. 3-201 9626 – Temperature evaluation 1x2, 3, 4 wire (channels 0 ... 5)



<1> For p4102[0...23] = 251 °C the evaluation of the appropriate threshold is deactivated.
<2> p4100[0...11]
= 0: Evaluation disabled
= 1: PTC thermistor (with monitoring for short-circuit)
= 2: KTY84 (with monitoring for wire break and short-circuit)
= 4: Bimetal NC contact (no monitoring)
= 5: PT100 (with monitoring for wire break and short-circuit)
= 6: PT1000 (with monitoring for wire break and short-circuit)
<3> For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- The relevant fault can only be triggered via the fault threshold (the timer output is always logical 0).
For p4103 = 0 s and sensor type "PTC thermistor", "Bimetal NC contact" (p4100[0...11] = 1, 4) the following applies:
- The corresponding alarm and fault are output simultaneously (delay time = 0 s).
<4> Only for 1x2/2x2 wire evaluation (p4108[0...5] = 0, 1).

1	2	3	4	5	6	7	8
DO: TM150					fp_9626_51_eng.vsd	Function diagram	- 9626 -
Terminal Module 150 (TM150) - Temperature evaluation 1x2, 3, 4 wire (channels 0 … 5)					04.12.12 V04.07.00	SINAMICS	

Fig. 3-202 9627 – Temperature evaluation 2x2 wire (channels 0 ... 11)



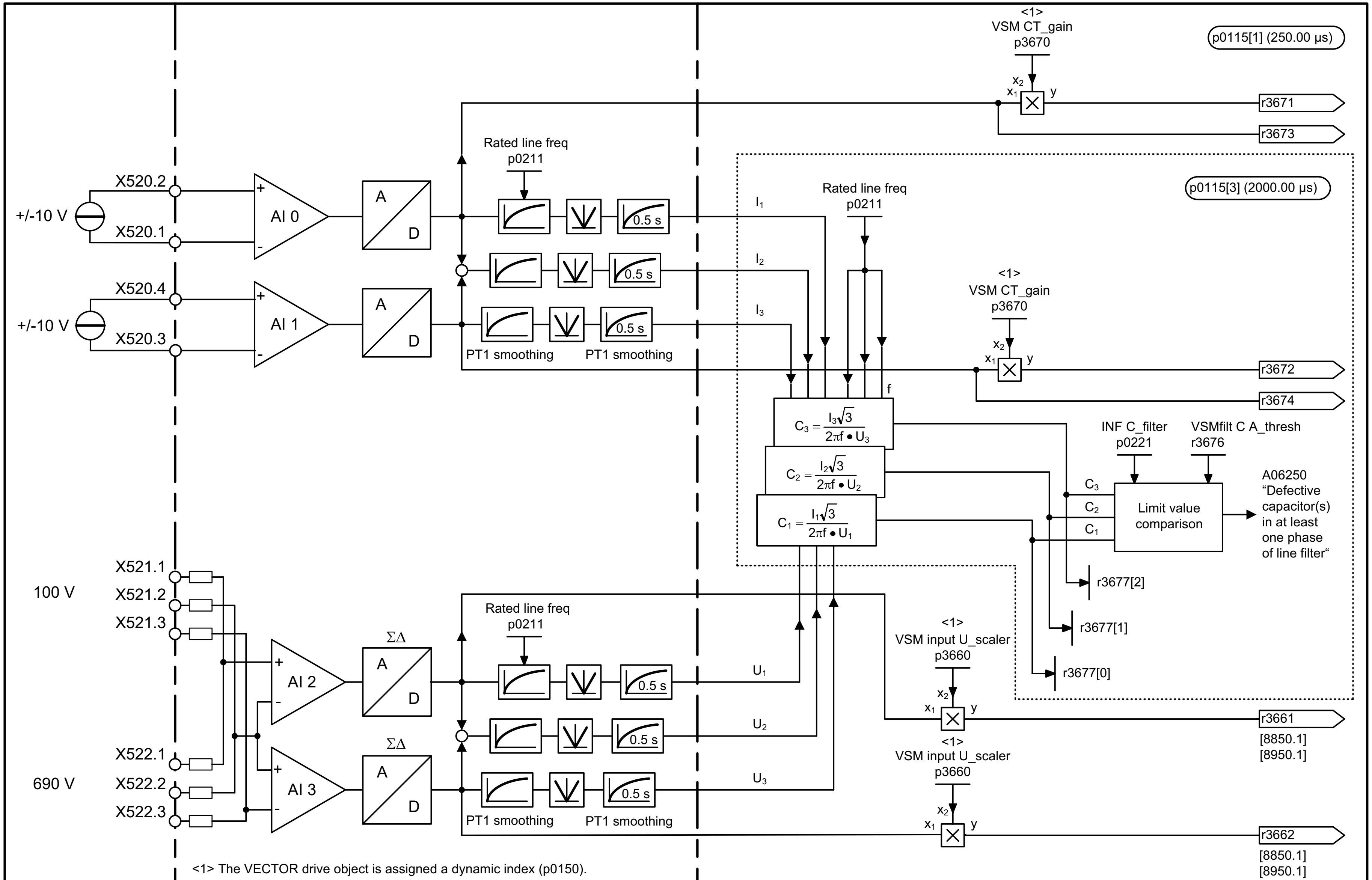
<1> For p4102[0...23] = 251 °C the evaluation of the appropriate threshold is deactivated.
<2> p4100[0...11]
= 0: Evaluation deactivated
= 1: PTC thermistor (with monitoring for short-circuit)
= 2: KTY84 (with monitoring for wire break and short-circuit)
= 4: Bimetal NC contact (no monitoring)
= 5: PT100 (with monitoring for wire break and short-circuit)
= 6: PT1000 (with monitoring for wire break and short-circuit)
<3> For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- The relevant fault can only be triggered via the fault threshold (the timer output is always logical 0).
For p4103 = 0 s and sensor type "PTC thermistor", "Bimetal NC contact" (p4100[0...11] = 1, 4) the following applies:
- The corresponding alarm and fault are output simultaneously (delay time = 0 s).

1	2	3	4	5	6	7	8
DO: TM150					fp_9627_51_eng.vsd	Function diagram	- 9627 -
Terminal Module 150 (TM150) - Temperature evaluation 2x2 wire (channels 0 … 11)					04.12.12 V04.07.00	SINAMICS	

3.25 Voltage Sensing Module (VSM)

Function diagrams

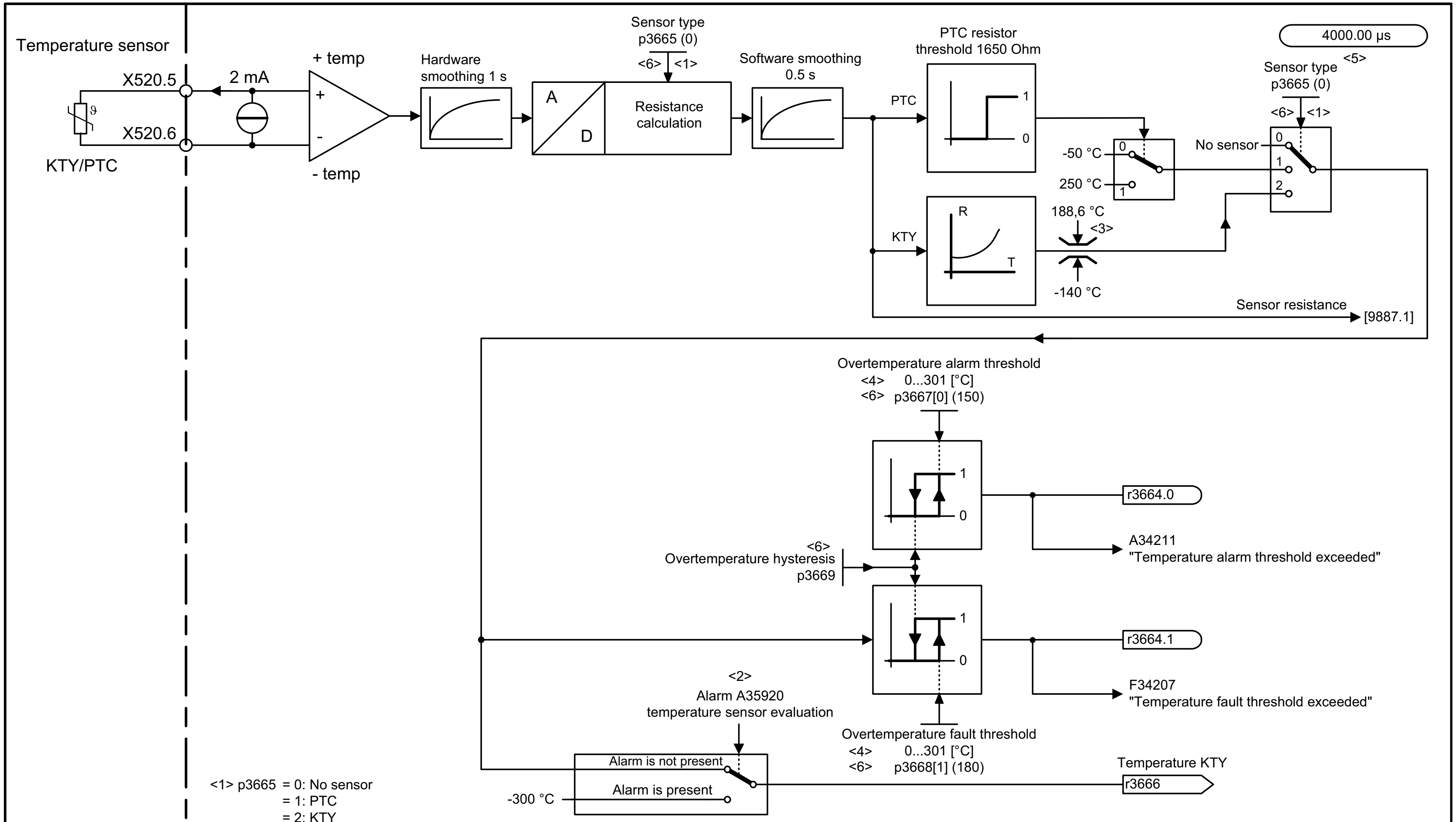
Fig. 3-203 9880 – Analog inputs (AI 0 ... AI 3)



1	2	3	4	5	6	7	8

DO: A_INF, S_INF, VECTOR	fp_9880_54_eng.vsd	Function diagram	- 9880 -
Voltage Sensing Module (VSM) - Analog inputs (AI 0 ... AI 3)	18.12.13 V04.07.00	S120/S150/G130/G150	

Fig. 3-204 9886 – Temperature evaluation



<1> p3665 = 0: No sensor
= 1: PTC
= 2: KTY

<2> A fault or alarm in the temperature evaluation of the VSM is communicated to the downstream evaluation using special temperature values.
<3> As a result of the wire breakage monitoring the maximum temperature that can be measured is limited to approx. 175 °C.
<4> When using a PTC, a value exceeding 250 °C deactivates the warning resp. fault.
When using a KTY, a value exceeding 188.6 °C deactivates the warning resp. fault.
<5> Can only be used with chassis infeeds.
<6> The VECTOR drive object is assigned a dynamic index (p0150).

1	2	3	4	5	6	7	8
DO: A_INF, S_INF, VECTOR					fp_9886_54_eng.vsd	Function diagram	- 9886 -
Voltage Sensing Module (VSM) - Temperature evaluation					07.01.14 V04.07.00	S120/S150/G130/G150	

3.26 Basic Operator Panel 20 (BOP20)

Function diagrams

Fig. 3-205 9912 – Control word interconnection

PROFIdrive sampling time

Interconnection STW BOP (r0019)

<1>

Signal	Meaning	Interconnection parameters
STW BOP.0	**1 = On** **0 = OFF (OFF1)**	p0840[0] = r0019.0
STW BOP.1	**1 = No coast down** 0 = Coast down (OFF2)	p0844[0] = r0019.1
STW BOP.2	**1 = No fast stop** 0 = Fast stop (OFF3)	p0848[0] = r0019.2
STW BOP.3	**Reserved**	-
STW BOP.4	**Reserved**	-
STW BOP.5	**Reserved**	-
STW BOP.6	**Reserved**	-
STW BOP.7	**= Acknowledge fault**	p2102[0] = r0019.7
STW BOP.8	**Reserved**	-
STW BOP.9	**Reserved**	-
STW BOP.10	**Reserved**	-
STW BOP.11	**Reserved**	-
STW BOP.12	**Reserved**	-
STW BOP.13	**1 = Motorized potentiometer, raise**	p1035[0] = r0019.13
STW BOP.14	**1 = Motorized potentiometer, lower**	p1036[0] = r0019.14
STW BOP.15	**Reserved**	-

<1> The BICO interconnection represents an example that can be be changed by the user.

1	2	3	4	5	6	7	8
DO: CU_G, CU_S					fp_9912_54_eng.vsd	Function diagram	- 9912 -
Basic Operator Panel 20 (BOP20) - Control word interconnection					03.07.13 V04.07.00	S120/S150/G130/G150	

Faults and alarms 4

Content

4.1 Overview of faults and alarms

4.1.1 General information on faults and alarms

Display of faults/alarms (messages)

In the case of a fault, the drive signals the corresponding fault(s) and/or alarm(s).

For example, the following methods for displaying faults and alarms are available:

- Display via the fault and alarm buffer with PROFIBUS/PROFINET.
- Display online using the commissioning software.

Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 4-1 Differences between faults and alarms

Type	Description
Faults	What happens when a fault occurs? • The appropriate fault reaction is triggered. • Status signal ZSW1.3 is set. • The fault is entered in the fault buffer. How are faults eliminated? • Remove the original cause of the fault. • Acknowledge the fault.
Alarms	What happens when an alarm occurs? • Status signal ZSW1.7 is set. • The alarm is entered in the alarm buffer. How are alarms removed? • Alarms acknowledge themselves. If the cause of the alarm is no longer present, they automatically reset themselves.

Fault reactions

Note

The following table lists all fault reactions and their meanings used for the entire SINAMICS drive family.

The following fault reactions are defined:

Table 4-2 Fault reactions

List	PROFIdrive	Reaction	Description
NONE	-	None	No reaction when a fault occurs. **Note** When the "Basic positioner" function module is activated (r0108.4 = 1), the following applies: When a fault occurs with fault reaction "NONE", an active traversing task is interrupted and the system switches to tracking mode until the fault has been rectified and acknowledged.
OFF1	ON/ OFF	Brake along the ramp-function generator down ramp followed by pulse inhibit	**Closed-loop speed control (p1300 = 20, 21)** • n_set = 0 is input immediately to brake the drive along the ramp-function generator ramp down (p1121). • When zero speed is detected, the motor holding brake (if parameterized) is closed (p1215). The pulses are suppressed when the brake application time (p1217) expires. Zero speed is detected if the actual speed drops below the threshold (p1226) or if the monitoring time (p1227) started when the speed setpoint <= speed threshold (p1226) has expired. **Torque control (p1300 = 23)** • The following applies for torque control: Reaction as for OFF2. • When the system switches to torque control with p1501, the following applies: No separate braking reaction. If the actual speed value drops below the speed threshold (p1226) or the timer stage (p1227) has expired, the motor holding brake (if one is being used) is closed. The pulses are suppressed when the brake application time (p1217) expires.
OFF1_ DELAYED	-	As for OFF1, however delayed	Faults with this fault response only become effective after the delay time in p3136 has expired. The remaining time up to OFF1 is displayed in r3137.
OFF2	COAST STOP	Internal/external pulse inhibit	**Closed-loop speed and torque control** • Instantaneous pulse suppression, the drive "coasts" to a standstill. • The motor holding brake (if one is being used) is closed immediately. • Switching on inhibited is activated.

Table 4-2 Fault reactions, continued

List	PROFIdrive	Reaction	Description
OFF3	QUICK STOP	Braking along the OFF3 down ramp followed by pulse inhibit	**Closed-loop speed control (p1300 = 20, 21)** • n_set = 0 is input immediately to brake the drive along the OFF3 ramp down (p1135). • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the closing time of the holding brake (p1217) expires. Zero speed is detected if the actual speed drops below the threshold (p1226) or if the monitoring time (p1227) started when the speed setpoint <= speed threshold (p1226) has expired. • Switching on inhibited is activated. **Torque control (p1300 = 23)** • Changeover to speed-controlled operation and other reactions as described for speed-controlled operation.
STOP2	-	n_set = 0	• n_set = 0 is input immediately to brake the drive along the OFF3 ramp down (p1135). • The drive remains in closed-loop speed control.
IASC/ DCBRK	-	-	• For synchronous motors, the following applies: If a fault occurs with this fault reaction, an internal armature short-circuit is triggered. The conditions for p1231 = 4 must be observed. • For induction motors, the following applies: If a fault occurs with this fault reaction, DC braking is triggered. DC braking must have been commissioned (p1232, p1233, p1234).
ENCODER	-	Internal/external pulse inhibit (p0491)	The fault reaction ENCODER is applied as a function of the setting in p0491. Factory setting: p0491 = 0 --> Encoder fault causes OFF2 **Notice** When changing p0491, it is imperative that the information in the description of this parameter is carefully observed.

Acknowledging faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been removed.

Table 4-3 Acknowledging faults

Acknowledgement	Description
POWER ON	The fault is acknowledged by a POWER ON (switch drive unit off and on again). **Note** If this action has not removed the fault cause, the fault is displayed again immediately after power up.
IMMEDIATELY	Faults can be acknowledged on one drive object (Points 1 to 3) or on all drive objects (Point 4) as follows: 1 Acknowledge by setting parameter: p3981 = 0 --> 1 2 Acknowledge via binector inputs: p2103 BI: 1. Acknowledge faults p2104 BI: 2. Acknowledge faults p2105 BI: 3. Acknowledge faults 3 Acknowledge via PROFIBUS control signal: STW1.7 = 0 --> 1 (edge) 4 Acknowledge all faults p2102 BI: Acknowledge all faults All of the faults on all of the drive objects of the drive system can be acknowledged using this binector input. **Note** • These faults can also be acknowledged by a POWER ON. • If the cause of the fault has not been removed, the fault will continue to be displayed after acknowledgement. • Safety Integrated faults The "Safe standstill" (SH) function must be deselected before these faults are acknowledged.
PULSE INHIBIT	The fault can only be acknowledged when the pulses are inhibited (r0899.11 = 0). The same options are available for acknowledging as described under acknowledge IMMEDIATELY.

Fault buffer - saved when switching off

The contents of the fault buffer are saved to the non-volatile memory when the Control Unit is switched off, i.e. the fault buffer history is still available when the unit is switched on again.

The fault buffer of a drive object comprises the following parameters:

- r0945[0...63], r0947[0...63], r0948[0...63], r0949[0...63]
- r2109[0...63], r2130[0...63], r2133[0...63], r2136[0...63]

The fault buffer contents can be deleted manually as follows:

- Delete fault buffer for all drive objects:
  p2147 = 1 --> p2147 = 0 is automatically set after execution.
- Delete fault buffer for a specific drive object:
  p0952 = 0 --> The parameter belongs to the specified drive object.

The fault buffer contents are automatically deleted when the following occurs:

- Restore factory setting (p0009 = 30 and p0976 = 1).
- Download with modified structure (e.g. number of drive objects changed).
- Power-up after other parameter values have been loaded (e.g. p0976 = 10).
- Upgrade firmware to later version.

4.1.2 Explanation of the list of faults and alarms

The data in the following example has been chosen at random. The information listed below is the maximum amount of information that a description can contain. Some of the information is optional.

The "List of faults and alarms" (Page 1279) has the following layout:

------------ Start of example ------------

Axxxxx (F, N)	**Fault location (optional): Name**
Message value:	Component number: %1, fault cause: %2
Message class:	Text of the message class (number according to PROFIdrive)
Drive object:	List of objects.
Reaction:	NONE
Acknowledgement:	NONE
Cause:	Description of possible causes. Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional) Information about fault or alarm values (optional).
Remedy:	Description of possible remedies.
Response to F:	A_INFEED: OFF2 (OFF1, NONE) SERVO: NONE (OFF1, OFF2, OFF3) VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Response upon N:	NONE
Acknowl. upon N:	NONE

------------ End of example ------------

Axxxxx	**Alarm xxxxx**
Axxxxx (F, N)	**Alarm xxxxx (message type can be changed to F or N)**
Fxxxxx	**Fault xxxxx**
Fxxxxx (A, N)	**Fault xxxxx (report type can be changed to A or N)**
Nxxxxx	**No message**
Nxxxxx (A)	**No message (message type can be changed to A)**
Cxxxxx	**Safety message (separate message buffer)**

A message comprises a letter followed by the relevant number.

The meaning of the letters is as follows:

- A means "Alarm"
- F means "Fault"
- N means "No message" or "Internal message"
- C means "Safety message"

The optional brackets indicate whether the type specified for this message can be changed and which message types can be adjusted via parameters (p2118, p2119).

Information about reaction and acknowledgement is specified independently for a message with adjustable message type (e.g. reaction to F, acknowledgement for F).

Note

You can change the default properties of a fault or alarm by setting parameters.

The "List of faults and alarms" (Page 1279) supplies information referred to the properties of a message set as default. If the properties of a specific message are changed, the corresponding information may have to be modified in this list.

Fault location (optional): Name

The fault location (optional), the name of the fault or alarm and the message number are all used to identify the message (e.g. with the commissioning software).

Message value:

The information provided under the message value informs you about the composition of the fault/alarm value.

Example:

Message value: Component number: %1, fault cause: %2

This message value contains information about the component number and cause of the fault. The entries %1 and %2 are placeholders, which are filled appropriately in online operation (e.g. with the commissioning software).

Message class:

For each message, specifies the associated message class with the following structure:

Text of the message class (number according to PROFIdrive)

The message classes are transferred at different interfaces to higher-level control systems and their associated display and operating units.

The message classes that are available are shown in Table "Message classes and coding of various diagnostic interfaces" (Page 1273). In addition to the text of the message class and their number according to PROFIdrive – as well as a brief help text regarding the cause and remedy – they also include information about the various diagnostic interfaces:

- PN (hex)

  Specifies the "Channel error type" of the PROFINET channel diagnostics.

  When activating the channel diagnostics, using the GSDML file, the texts listed in the table can be displayed.
- DS1 (dec)

  Specifies the bit number in date set DS1 of the diagnostic alarm for SIMATIC S7.

  When the diagnostic alarms are activated, the texts listed in the table can be displayed.
- DP (dec)

  Specifies the "Error type" of the channel-related diagnostics for PROFIBUS.

  When the channel diagnostics are activated, the texts listed in the standard and the GSD file can be displayed.

- ET 200 (dec)

  Specifies the "Error type" of the channel-related diagnostics for the SIMATIC ET 200pro FC-2 device.

  When the channel diagnostics are activated, the texts listed in the standard and the GSD file of the ET 200pro can be displayed.

- NAMUR (r3113.x)

  Specifies the bit number in parameter r3113.

For the interfaces DP, ET 200, NAMUR, in some instances, the message classes are combined.

Table 4-4 Message classes and coding of various diagnostic interfaces

Text of the message class (number according to PROFIdrive) Cause and remedy.	**Diagnostics interface**				
	PN (hex)	**DS1 (dec)**	**DP (dec)**	**ET 200 (dec)**	**NAMUR (r3113.x)**
Hardware/software errors (1) A hardware or software malfunction was detected. Carry out a POWER ON for the relevant component. If it occurs again, contact the hotline.	9000	0	16	9	0
Line fault (2) A line supply fault has occurred (phase failure, voltage level ...). Check the line supply and fuses. Check the supply voltage. Check the wiring.	9001	1	17	24	1
Supply voltage fault (3) An electronics supply voltage fault (48 V, 24 V, 5 V …) was detected. Check the wiring. Check the voltage level.	9002	2	2 [1] 3 [2]	2 [1] 3 [2]	15
DC-link overvoltage (4) The DC-link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.	9003	3	18	24	2
Power electronics fault (5) An impermissible operating state of the power electronics was detected (overcurrent, overtemperature, IGBT failure …). Check compliance with the permissible load cycles. Check the ambient temperatures (fan).	9004	4	19	24	3
Overtemperature of the electronic component (6) The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet ventilation.	9005	5	20	5	4
Ground fault / inter-phase short-circuit detected (7) A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cables (connection). Check the motor.	9006	6	21	20	5
Motor overload (8) The motor was operated outside the permissible limits (temperature, current, torque …). Check the load cycles and set limits. Check the ambient temperature / motor cooling.	9007	7	22	24	6

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

Text of the message class (number according to PROFIdrive) Cause and remedy.	Diagnostics interface				
	PN (hex)	DS1 (dec)	DP (dec)	ET 200 (dec)	NAMUR (r3113.x)
Communication to the higher-level controller faulted (9) The communication to the higher-level controller (internal coupling, PROFIBUS, PROFINET …) is faulted or interrupted. Check the state of the higher-level controller. Check the communication connection/-wiring. Check the bus configuration/cycles.	9008	8	23	19	7
Safety monitoring channel has detected an error (10) A safe operation monitoring function has detected an error.	9009	9	24	25	8
Actual position/speed value incorrect or not available (11) An illegal signal state was detected while evaluating the encoder signals (track signals, zero marks, absolute values …). Check the encoder / state of the encoder signals. Observe the maximum permissible frequencies.	900A	10	25	29	9
Internal (DRIVE-CLiQ) communication faulted (12) The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant installation. Observe the maximum permissible quantity structures / cycles.	900B	11	26	31	10
Infeed fault (13) The infeed is faulty or has failed. Check the infeed and its environment (line supply, filters, reactors, fuses …). Check the infeed control.	900C	12	27	24	11
Braking controller / Braking Module faulted (14) The internal or external Braking Module is faulted or overloaded (temperature). Check the connection/state of the Braking Module. Comply with the permissible number of braking operations and their duration.	900D	13	28	24	15
Line filter fault (15) The line filter monitoring has detected an excessively high temperature or another impermissible state. Check the temperature / temperature monitoring. Check the configuration to ensure that it is permissible (filter type, infeed, thresholds).	900E	14	17	24	15
External measured value / signal state outside of the permissible range (16) A measured value / signal state read in via the input area (digital/analog/temperature) has assumed an impermissible value/state. Identify and check the relevant signal. Check the set thresholds.	900F	15	29	26	15
Application / technological function faulty (17) The application / technological function has exceeded a (set) limit (position, velocity, torque …). Identify and check the relevant limit. Check the setpoint specification of the higher-level controller.	9010	16	30	9	15

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

Text of the message class (number according to PROFIdrive) Cause and remedy.	**Diagnostics interface**				
	PN (hex)	**DS1 (dec)**	**DP (dec)**	**ET 200 (dec)**	**NAMUR (r3113.x)**
Error in the parameterization/configuration/commissioning procedure (18) An error was identified in the parameterization or in a commissioning procedure, or the parameterization does not match the actual device configuration. Determine the precise cause of the fault using the commissioning tool. Adapt the parameterization or device configuration.	9011	17	31	16	15
General drive fault (19) Group fault. Determine the precise cause of the fault using the commissioning tool.	9012	18	9	9	15
Auxiliary unit fault (20) The monitoring of an auxiliary unit (incoming transformer, cooling unit …) has detected an illegal state. Determine the exact cause of the fault and check the relevant device.	9013	19	29	26	15

1. Undervoltage condition of the electronics power supply
2. Overvoltage condition of the electronics power supply

Drive object:

Each message (fault/alarm) specifies the drive object in which it can be found.

A message can belong to either one, several, or all drive objects.

Reaction: Default fault reaction (adjustable fault reaction)

Specifies the default reaction in the event of a fault.

The optional parentheses indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101).

Note

See Table "Fault reactions" (Page 1267).

Acknowledgement: Default acknowledgement (adjustable acknowledgement)

Specifies the default method of acknowledging faults after the cause has been eliminated.

The optional parentheses indicate whether the default acknowledgement can be changed and which acknowledgement can be adjusted via parameters (p2126, p2127).

Note

See Table "Acknowledging faults" (Page 1269).

Cause:

Describes the possible causes of the fault or alarm. A fault or alarm value can also be specified (optional).

Fault value (r0949, format):

The fault value is entered into the fault buffer in r0949[0...63] and specifies additional, more precise information about a fault.

Alarm value (r2124, format):

The alarm value specifies additional, more precise information about an alarm.

The alarm value is entered in the alarm buffer in r2124[0...7] and specifies additional, more precise information about an alarm.

Remedy:

Description of the methods available for eliminating the cause of the active fault/alarm

⚠ **WARNING**
In certain cases, servicing and maintenance personnel are responsible for choosing a suitable method for eliminating the cause of faults.

4.1.3 Number ranges of faults and alarms

Note

The following number ranges represent an overview of all faults and alarms used in the SINAMICS drive family.

The faults and alarms for the product described in this List Manual are described in detail in "List of faults and alarms" (Page 1279).

Faults and alarms are organized into the following number ranges:

Table 4-5 Number ranges of faults and alarms

of	To	Area
1000	3999	Control Unit
4000	4999	Reserved
5000	5999	Power section
6000	6899	Infeed
6900	6999	Braking Module
7000	7999	Drive
8000	8999	Option Board
9000	12999	Reserved
13000	13020	Licensing
13021	13099	Reserved
13100	13102	Know-how protection
13103	19999	Reserved
20000	29999	OEM
30000	30999	DRIVE-CLiQ component power unit
31000	31999	DRIVE-CLiQ component encoder 1
32000	32999	DRIVE-CLiQ component encoder 2 **Note** Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control.
33000	33999	DRIVE-CLiQ component encoder 3 **Note** Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control.
34000	34999	Voltage Sensing Module (VSM)
35000	35199	Terminal Module 54F (TM54F)
35200	35999	Terminal Module 31 (TM31)
36000	36999	DRIVE-CLiQ Hub Module
37000	37999	HF Damping Module

Table 4-5 Number ranges of faults and alarms, continued

of	To	Area
40000	40999	Controller Extension 32 (CX32)
41000	48999	Reserved
49000	49999	SINAMICS GM/SM/GL
50000	50499	Communication Board (COMM BOARD)
50500	59999	OEM Siemens
60000	65535	SINAMICS DC MASTER (closed-loop DC current control)

4.2 List of faults and alarms

Product: SINAMICS G130/G150, Version: 4702900, Language: eng
Objects: B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

F01000 Internal software error

Message value: Module: %1, line: %2
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - evaluate fault buffer (r0945).
- carry out a POWER ON (power off/on) for all components.
- if required, check the data on the non-volatile memory (e.g. memory card).
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

F01001 FloatingPoint exception

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An exception occurred during an operation with the FloatingPoint data type.
The error may be caused by the basic system or an OA application (e.g., FBLOCKS, DCC).
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Note:
Refer to r9999 for further information about this fault.
r9999[0]: Fault number.
r9999[1]: Program counter at the time when the exception occurred.
r9999[2]: Cause of the FloatingPoint exception.
Bit 0 = 1: Operation invalid
Bit 1 = 1: Division by zero
Bit 2 = 1: Overflow
Bit 3 = 1: Underflow
Bit 4 = 1: Inaccurate result
Remedy: - carry out a POWER ON (power off/on) for all components.
- check configuration and signals of the blocks in FBLOCKS.
- check configuration and signals of DCC charts.
- upgrade firmware to later version.
- contact the Hotline.

F01002 Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01003 Acknowledgement delay when accessing the memory

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A memory area was accessed that does not return a "READY".
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
- contact the Hotline.

N01004 (F, A) Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An internal software error has occurred.
Fault value (r0949, hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - read out diagnostics parameter (r9999).
- contact the Hotline.
See also: r9999 (Software error internal supplementary diagnostics)
Reaction upon F: OFF2
Acknowl. upon F: POWER ON
Reaction upon A: NONE
Acknowl. upon A: NONE

F01005 Firmware download for DRIVE-CLiQ component unsuccessful

Message value: Component number: %1, fault cause: %2
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: It was not possible to download the firmware to a DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = component number, xxxx = fault cause
xxxx = 000B hex = 11 dec:
DRIVE-CLiQ component has detected a checksum error.
xxxx = 000F hex = 15 dec:
The selected DRIVE-CLiQ component did not accept the contents of the firmware file.
xxxx = 0012 hex = 18 dec:
Firmware version is too old and is not accepted by the component.
xxxx = 0013 hex = 19 dec:
Firmware version is not suitable for the hardware release of the component.
xxxx = 0065 hex = 101 dec:
After several communication attempts, no response from the DRIVE-CLiQ component.
xxxx = 008B hex = 139 dec:
Initially, a new boot loader is loaded (must be repeated after POWER ON).

xxxx = 008C hex = 140 dec:
Firmware file for the DRIVE-CLiQ component not available on the memory card.
xxxx = 008D hex = 141 dec:
An inconsistent length of the firmware file was signaled. The firmware download may have been caused by a loss of connection to the firmware file. This can occur during a project download/reset in the case of a SINAMICS Integrated Control Unit, for example.
xxxx = 008F hex = 143 dec:
Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
xxxx = 0090 hex = 144 dec:
When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective.
xxxx = 0091 hex = 145 dec:
Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
xxxx = 009C hex = 156 dec:
Component with the specified component number is not available (p7828).
xxxx = Additional values:
Only for internal Siemens troubleshooting.

Remedy:
- check the selected component number (p7828).
- check the DRIVE-CLiQ wiring.
- save suitable firmware file for download in the directory "/siemens/sinamics/code/sac/".
- use a component with a suitable hardware version
- after POWER ON has been carried out again for the DRIVE-CLiQ component, download firmware again. Depending on p7826, the firmware will be automatically downloaded.

A01006 Firmware update for DRIVE-CLiQ component required

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
Remedy: Firmware update using the commissioning software:
The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out.
Firmware update via parameter:
- take the component number from the alarm value and enter into p7828.
- start the firmware download with p7829 = 1.

A01007 POWER ON for DRIVE-CLiQ component required

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ component must be powered up again (POWER ON) (e.g. due to a firmware update).
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
Note:
For a component number = 1, a POWER ON of the Control Unit is required.
Remedy:
- Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.
- For SINUMERIK, auto commissioning is prevented. In this case, a POWER ON is required for all components and the auto commissioning must be restarted.

A01009 (N)	**CU: Control module overtemperature**
Message value:	-
Message class:	Overtemperature of the electronic components (6)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.
Remedy:	- check the air intake for the Control Unit. - check the Control Unit fan. Note: The alarm automatically disappears after the limit value has been undershot.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F01010	**Drive type unknown**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An unknown drive type was found. Fault value (r0949, interpret decimal): Drive object number (refer to p0101, p0107).
Remedy:	- replace Power Module. - carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.

F01011 (N)	**Download interrupted**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The project download was interrupted. Fault value (r0949, interpret decimal): 1: The user prematurely interrupted the project download. 2: The communication cable was interrupted (e.g. cable breakage, cable withdrawn). 3: The project download was prematurely ended by the commissioning software (e.g. STARTER, SCOUT). 100: Different versions between the firmware version and project files which were loaded by loading into the file system "Download from memory card". Note: The response to an interrupted download is the state "first commissioning".
Remedy:	- check the communication cable. - download the project again. - boot from previously saved files (power-down/power-up or p0976). - when loading into the file system (download from memory card), use the matching version.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F01012 (N) Project conversion error

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: When converting the project of an older firmware version, an error occurred.
Fault value (r0949, interpret decimal):
Parameter number of the parameter causing the error.
For fault value = 600, the following applies:
The temperature evaluation is no longer assigned to the power unit but to the encoder evaluation.
Notice:
Monitoring of the motor temperature is no longer ensured.
Remedy: Check the parameter indicated in the fault value and correctly adjust it accordingly.
For fault value = 600:
Parameter p0600 must be set to the values 1, 2 or 3 in accordance with the assignment of the internal encoder evaluation to the encoder interface.
Value 1 means: The internal encoder evaluation is assigned to the encoder interface 1 via p0187.
Value 2 means: The internal encoder evaluation is assigned to the encoder interface 2 via p0188.
Value 3 means: The internal encoder evaluation is assigned to the encoder interface 3 via p0189.
- If necessary, the internal encoder evaluation must be assigned to an encoder interface via parameters p0187, p0188 or p0189 accordingly.
- If necessary, upgrade the firmware to a later version.

Reaction upon N: NONE
Acknowl. upon N: NONE

F01015 Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

A01016 (F) Firmware changed

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: At least one firmware file in the directory was illegally changed on the non-volatile memory (memory card/device memory) with respect to the version when shipped from the factory.
Alarm value (r2124, interpret decimal):
0: Checksum of one file is incorrect.
1: File missing.
2: Too many files.
3: Incorrect firmware version.
4: Incorrect checksum of the back-up file.

Remedy: For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition.
Note:
The file involved can be read out using parameter r9925.
The status of the firmware check is displayed using r9926.
See also: r9925 (Firmware file incorrect), r9926 (Firmware check status)

Reaction upon F: OFF2

Acknowl. upon F: POWER ON

A01017 Component lists changed

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory.
Alarm value (r2124, interpret decimal):
zyx dec: x = Problem, y = Directory, z = File name
x = 1: File does not exist.
x = 2: Firmware version of the file does not match the software version.
x = 3: File checksum is incorrect.
y = 0: Directory /SIEMENS/SINAMICS/DATA/
y = 1: Directory /ADDON/SINAMICS/DATA/
z = 0: File MOTARM.ACX
z = 1: File MOTSRM.ACX
z = 2: File MOTSLM.ACX
z = 3: File ENCDATA.ACX
z = 4: File FILTDATA.ACX
z = 5: File BRKDATA.ACX
z = 6: File DAT_BEAR.ACX
z = 7: File CFG_BEAR.ACX
z = 8: File ENC_GEAR.ACX

Remedy: For the file on the memory card involved, restore the status originally supplied from the factory.

A01020 Writing to RAM disk unsuccessful

Message value: -

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A write access to the internal RAM disk was unsuccessful.

Remedy: Adapt the file size for the system logbook to the internal RAM disk (p9930).
See also: p9930 (System logbook activation)

F01023 Software timeout (internal)

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An internal software timeout has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01030	**Sign-of-life failure for master control**
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2) Infeed: OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	For active PC master control, no sign-of-life was received within the monitoring time. The master control was returned to the active BICO interconnection.
Remedy:	Set the monitoring time higher at the PC or, if required, completely disable the monitoring function. For the commissioning software, the monitoring time is set as follows: <Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds. Notice: The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!

F01031	**Sign-of-life failure for OFF in REMOTE**
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2) Infeed: OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 seconds.
Remedy:	- Check the data cable connection at the serial interface for the Control Unit (CU) and operator panel. - Check the data cable between the Control Unit and operator panel.

A01032 (F)	**ACX: all parameters must be saved**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The parameters of an individual drive object were saved (p0971 = 1), although there is still no backup of all drive system parameters. The saved object-specific parameters are not loaded the next time that the system powers up. For the system to successfully power up, all of the parameters must have been completely backed up. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0971 (Save drive object parameters)
Remedy:	Save all parameters (p0977 = 1 or "copy RAM to ROM"). See also: p0977 (Save all parameters)
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

F01033	**Units changeover: Reference parameter value invalid**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0

Fault value (r0949, parameter):

Reference parameter whose value is 0.0.

See also: p0349 (System of units motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Technological unit selection)

Remedy: Set the value of the reference parameter to a number different than 0.0.

See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

F01034 Units changeover: Calculation parameter values after reference value change unsuccessful

Message value: Parameter: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The change of a reference parameter meant that for an involved parameter the selected value was not able to be re-calculated in the per unit representation. The change was rejected and the original parameter value restored.

Fault value (r0949, parameter):

Parameter whose value was not able to be re-calculated.

See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

Remedy: - Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.

- Technology unit selection (p0595) before changing the reference parameter p0596, set p0595 = 1.

See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

A01035 (F) ACX: Parameter back-up file corrupted

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out.

It is possible that the backup was interrupted by switching off or withdrawing the memory card.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

aa = 01 hex:

Power up was realized without data backup. The drive is in the factory setting.

aa = 02 hex:

The last available backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again.

dd, cc, bb:

Only for internal Siemens troubleshooting.

See also: p0971 (Save drive object parameters), p0977 (Save all parameters)

Remedy: - Download the project again with the commissioning software.

- save all parameters (p0977 = 1 or "copy RAM to ROM").

See also: p0977 (Save all parameters)

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)

Infeed: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY

F01036 (A) ACX: Parameter back-up file missing

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF2)
Acknowledge: IMMEDIATELY
Cause: When downloading the device parameterization, a parameter back-up file PSxxxyyy.ACX associated with a drive object cannot be found.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file
yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2, 3, 4:
Only for internal Siemens troubleshooting.
Remedy: If you have saved the project data using the commissioning software, carry out a new download for your project.
Save using the function "Copy RAM to ROM" or with p0977 = 1
This means that the parameter files are again completely written into the non-volatile memory.
Note:
If the project data have not been backed up, then a new first commissioning is required.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01038 (A) ACX: Loading the parameter back-up file unsuccessful

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF2)
Acknowledge: IMMEDIATELY
Cause: An error has occurred when downloading PSxxxyyy.ACX or PTxxxyyy.ACX files from the non-volatile memory.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file
yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2:
255: Incorrect drive object type.
254: Topology comparison unsuccessful -> drive object type was not able to be identified.
Reasons could be:
- Incorrect component type in the actual topology
- Component does not exist in the actual topology.
- Component not active.
Additional values:
Only for internal Siemens troubleshooting.
Byte 4, 3:
Only for internal Siemens troubleshooting.
Remedy: - If you have saved the project data using the commissioning software, download the project again. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
- replace the memory card or Control Unit.
Re byte 2 = 255:
- Correct the drive object type (see p0107).

Reaction upon A: NONE
Acknowl. upon A: NONE

F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF2)
Acknowledge: IMMEDIATELY
Cause: Writing to at least one parameter back-up file PSxxxyyy.*** in the non-volatile memory was unsuccessful.
- In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxyyy.*** has the "read only" file attribute and cannot be overwritten.
- There is not sufficient free memory space available.
- The non-volatile memory is defective and cannot be written to.
Fault value (r0949, interpret hexadecimal):
dcba hex
a = yyy in the file names PSxxxyyy.***
a = 000 --> consistency back-up file
a = 001 ... 062 --> drive object number
a = 070 --> FEPROM.BIN
a = 080 --> DEL4BOOT.TXT
a = 099 --> PROFIBUS parameter back-up file
b = xxx in the file names PSxxxyyy.***
b = 000 --> data save started with p0977 = 1 or p0971 = 1
b = 010 --> data save started with p0977 = 10
b = 011 --> data save started with p0977 = 11
b = 012 --> data save started with p0977 = 12
d, c:
Only for internal Siemens troubleshooting.
Remedy: - check the file attribute of the files (PSxxxyyy.***, CAxxxyyy.***, CCxxxyyy.***) and, if required, change from "read only" to "writeable".
- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01040 Save parameter settings and carry out a POWER ON

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL
Reaction: OFF2
Acknowledge: POWER ON
Cause: A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot.
Remedy: - save parameters (p0971, p0977).
- carry out a POWER ON (power off/on) for all components.
Then:
- upload the drive unit (commissioning software).

F01040	**Save parameter settings and carry out a POWER ON**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot. Examples: - p1810.2 (wobulation of the pulse frequency) and p1802 (edge modulation) - p1750.5 (cl.-loop control mode PESM up to f=0Hz with HF signal injection)
Remedy:	- save parameters (p0971, p0977). - carry out a POWER ON for all components (switch-on the Control Unit with or after the power units). When changing p1750.5 or p1810.2 for edge modulation, a warm restart is sufficient (p0009 = 30, p0976 = 3). Then: - upload the drive unit (commissioning software).

F01041	**Parameter save necessary**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Defective or missing files were detected on the memory card when booting. Fault value (r0949, interpret decimal): 1: Source file cannot be opened. 2: Source file cannot be read. 3: Target directory cannot be set up. 4. Target file cannot be set up/opened. 5. Target file cannot be written to. Additional values: Only for internal Siemens troubleshooting.
Remedy:	- save the parameters. - download the project again to the drive unit. - update the firmware - if required, replace the Control Unit and/or memory card card.

F01042	**Parameter error during project download**
Message value:	Parameter: %1, Index: %2, fault cause: %3
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	Vector: OFF2 (NONE, OFF1, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value). For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters. Fault value (r0949, interpret hexadecimal): ccbbaaaa hex aaaa = Parameter bb = Index cc = fault cause 0: Parameter number illegal. 1: Parameter value cannot be changed. 2: Lower or upper value limit exceeded.

3: Sub-index incorrect.
4: No array, no sub-index.
5: Data type incorrect.
6: Setting not permitted (only resetting).
7: Descriptive element cannot be changed.
9: Descriptive data not available.
11: No master control.
15: No text array available.
17: Task cannot be executed due to operating state.
20: Illegal value.
21: Response too long.
22: Parameter address illegal.
23: Format illegal.
24: Number of values not consistent.
25: Drive object does not exist.
101: Presently de-activated.
104: Illegal value.
107: Write access not permitted when controller enabled.
108: Unit unknown.
109: Write access only in the commissioning state, encoder (p0010 = 4).
110: Write access only in the commissioning state, motor (p0010 = 3).
111: Write access only in the commissioning state, power unit (p0010 = 2).
112: Write access only in the quick commissioning mode (p0010 = 1).
113: Write access only in the ready mode (p0010 = 0).
114: Write access only in the commissioning state, parameter reset (p0010 = 30).
115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
116: Write access only in the commissioning state, technological application/units (p0010 = 5).
117: Write access only in the commissioning state (p0010 not equal to 0).
118: Write access only in the commissioning state, download (p0010 = 29).
119: Parameter may not be written in download.
120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3).
121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4).
123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
124: Write access only in the commissioning state, device download (device: p0009 = 29).
125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
126: Write access only in the commissioning state, device ready (device: p0009 = 0).
127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
129: Parameter may not be written in download.
130: Transfer of the master control is inhibited via binector input p0806.
131: Required BICO interconnection not possible because BICO output does not supply floating value
132: Free BICO interconnection inhibited via p0922.
133: Access method not defined.
200: Below the valid values.
201: Above the valid values.
202: Cannot be accessed from the Basic Operator Panel (BOP).
203: Cannot be read from the Basic Operator Panel (BOP).
204: Write access not permitted.

Remedy:
- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

F01043 Fatal error at project download

Message value: Fault cause: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: Vector: OFF2 (OFF1, OFF3)
Infeed: OFF2 (OFF1)

Acknowledge: IMMEDIATELY

Cause: A fatal error was detected when downloading a project using the commissioning software.

Fault value (r0949, interpret decimal):

1: Device status cannot be changed to Device Download (drive object ON?).

2: Incorrect drive object number.

3: A drive object that has already been deleted is deleted again.

4: Deleting of a drive object that has already been registered for generation.

5: Deleting a drive object that does not exist.

6: Generating an undeleted drive object that already existed.

7: Regenerating a drive object already registered for generation.

8: Maximum number of drive objects that can be generated exceeded.

9: Error while generating a device drive object.

10: Error while generating target topology parameters (p9902 and p9903).

11: Error while generating a drive object (global component).

12: Error while generating a drive object (drive component).

13: Unknown drive object type.

14: Drive status cannot be changed to "ready for operation" (r0947 and r0949).

15: Drive status cannot be changed to drive download.

16: Device status cannot be changed to "ready for operation".

17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.

18: A new download is only possible if the factory settings are restored for the drive unit.

19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)

20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).

21: Error when accepting the download parameters.

22: Software-internal download error.

Additional values: only for internal Siemens troubleshooting.

Remedy:

- use the current version of the commissioning software.
- modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other messages/signals and remove their cause.
- boot from previously saved files (power-down/power-up or p0976).

F01044 CU: Descriptive data error

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: OFF2

Acknowledge: POWER ON

Cause: An error was detected when loading the descriptive data saved in the non-volatile memory.

Remedy: Replace the memory card or Control Unit.

A01045 CU: Configuring data invalid

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the parameter files PSxxxyyy.ACX, PTxxxyyy.ACX, CAxxxyyy.ACX, or CCxxxyyy.ACX saved in the non-volatile memory. Because of this, under certain circumstances, several of the saved parameter values were not able to be accepted. Also see r9406 up to r9408.

Alarm value (r2124, interpret hexadecimal):

Only for internal Siemens troubleshooting.

Remedy: - Check the parameters displayed in r9406 up to r9408, and correct these if required.

- Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit.

Then save the parameterization in STARTER using the "Copy RAM to ROM" function or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn.

A01049 CU: It is not possible to write to file

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to write into a write-protected file (PSxxxxxx.acx). The write request was interrupted.

Alarm value (r2124, interpret decimal):

Drive object number.

Remedy: Check whether the "write protected" attribute has been set for the files in the non-volatile memory under .../USER/SINAMICS/DATA/...

When required, remove write protection and save again (e.g. set p0977 to 1).

F01050 Memory card and device incompatible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY
Cause: The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G).

Remedy: - insert the matching memory card.

- use the matching Control Unit or power unit.

F01054 CU: System limit exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one system overload has been identified.

Fault value (r0949, interpret decimal):

1: Computing time load too high (r9976[1]).

5: Peak load too high (r9976[5]).

Note:

As long as this fault is present, it is not possible to save the parameters (p0971, p0977).

See also: r9976 (System utilization)

Remedy: Re fault value = 1, 5:
- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
- check the sampling times and adjust if necessary (p0115, p0799, p4099).
- de-activate function modules.
- de-activate drive objects.
- remove drive objects from the target topology.
- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.

When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies
- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or r20005 (FBLOCKS).
- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

F01055 CU: Internal error (SYNO of port and application not identical)

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: All applications that operate with slaves at one port must be derived from the same SYNO clock cycle.
The first application whose registration (log-on) connects a slave to a port defines the SYNO clock cycle that will be used as basis for the port.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

F01056 CU: Internal error (clock cycle of parameter group already assigned differently)

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested parameter group (IREG, NREG, ...) is already being used in a different clock cycle.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

F01057 CU: Internal error (different DRIVE-CLiQ type for the slave)

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested DRIVE-CLiQ type (hps_ps, hps_enc, ...) has been specified differently for the same slave component.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

F01058	CU: Internal error (slave missing in topology)
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested slave component does not exist in the topology. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting.
Remedy:	Contact the Hotline.

F01059	CU: Internal error (port does not exist)
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The port object assigned according to the topology of the requested slave component does not exist. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting.
Remedy:	Contact the Hotline.

F01060	CU: Internal error (parameter group not available)
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested parameter group (IREG, NREG, ...) is not offered by this slave type. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting.
Remedy:	Contact the Hotline.

F01061	CU: Internal error (application not known)
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An application that is not registered with TSM has attempted to register with registerSlaves(). The cause can be an unsuccessful TSM registration or an incorrect registration sequence. It is always necessary to log in to the TSM before registerSlaves() can be used. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting.
Remedy:	Contact the Hotline.

F01063 CU: Internal error (PDM)

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

A01064 (F) CU: Internal error (CRC)

Message value: -
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CRC error in the Control Unit program memory
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F01068 CU: Data memory memory overflow

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The utilization for a data memory area is too large.
Fault value (r0949, interpret binary):
Bit 0 = 1: High-speed data memory 1 overloaded
Bit 1 = 1: High-speed data memory 2 overloaded
Bit 2 = 1: High-speed data memory 3 overloaded
Bit 3 = 1: High-speed data memory 4 overloaded
Remedy: - de-activate the function module.
- de-activate drive object.
- remove the drive object from the target topology.

A01069 Parameter backup and device incompatible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The parameter backup on the memory card and the drive unit do not match.
The module boots with the factory settings.
Example:
Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.

Remedy: - insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- save the parameters (p0977 = 1).

F01070 Project/firmware is being downloaded to the memory card

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An upgrade (project/firmware download) was initiated on the memory card.
While this fault is present, the corresponding update takes place with plausibility and consistency checks. After this, depending on the command option, a new boot (reset) for the Control Unit is initiated.
Caution:
During the upgrade and while this fault is present, it is not permissible to switch off the Control Unit.
If the operation is interrupted, this can destroy the file system on the memory card. The memory card will then no longer work properly and must be repaired.
Remedy: Not necessary.
The fault automatically disappears after the upgrade has been completed.

F01072 Memory card restored from the backup copy

Message value: -
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The Control Unit was switched-off while writing to the memory card. This is why the visible partition became defective.
After switching on, the data from the non-visible partition (backup copy) were written to the visible partition.
Remedy: Check that the firmware and parameterization is up-to-date.

A01073 (N) POWER ON required for backup copy on memory card

Message value: -
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The parameter assignment on the visible partition of the memory card has changed.
In order that the backup copy on the memory card is updated on the non-visible partition, it is necessary to carry out a POWER ON or hardware reset (p0972) of the Control Unit.
Note:
It is possible that a new POWER ON is requested via this alarm (e.g. after saving with p0971 = 1).
Remedy: - carry out a POWER ON (power off/on) for the Control Unit.
- carry out a hardware reset (RESET button, p0972).
Reaction upon N: NONE
Acknowl. upon N: NONE

A01099 Tolerance window of time synchronization exited

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time master exited the selected tolerance window for time synchronization.
See also: p3109 (RTC real time synchronization tolerance window)

Remedy: Select the re-synchronization interval so that the synchronization deviation between the time master and drive system lies within the tolerance window.
See also: r3108 (RTC last synchronization deviation)

A01100 CU: Memory card withdrawn

Message value: -
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The memory card (non-volatile memory) was withdrawn during operation.
Notice:
It is not permissible for the memory card to be withdrawn or inserted under voltage.
Remedy: - power down the drive system.
- re-insert the memory card that was withdrawn - this card must match the drive system.
- power up the drive system again.

F01105 (A) CU: Insufficient memory

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: POWER ON
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
- use an additional Control Unit.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01106 CU: Insufficient memory

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: There is not sufficient free memory space available.
Remedy: Not necessary.

F01107 CU: Save to memory card unsuccessful

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A data save in the non-volatile memory was not able to be successfully carried out.
- non-volatile memory is defective.
- insufficient space in the non-volatile memory.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - try to save again.
- replace the memory card or Control Unit.

F01110	**CU: More than one SINAMICS G on one Control Unit**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	More than one SINAMICS G type power unit is being operated from the Control Unit. Fault value (r0949, interpret decimal): Number of the second drive with a SINAMICS G type power unit.
Remedy:	Only one SINAMICS G drive type is permitted.

F01111	**CU: Mixed operation of drive units illegal**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Illegal operation of various drive units on one Control Unit: - SINAMICS S together with SINAMICS G - SINAMICS S together with SINAMICS S Value or Combi Fault value (r0949, interpret decimal): Number of the first drive object with a different power unit type.
Remedy:	Only power units of one particular drive type may be operated with one Control Unit.

F01112	**CU: Power unit not permissible**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The connected power unit cannot be used together with this Control Unit. Fault value (r0949, interpret decimal): 1: Power unit is not supported (e.g. PM240). 2: DC/AC power unit connected to CU310 not permissible. 3: Power unit (S120M) not permitted for vector control.
Remedy:	Replace the power unit that is not permissible by a component that is permissible.

F01120 (A)	**Terminal initialization has failed**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal software error occurred while the terminal functions were being initialized. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline. - replace the Control Unit.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01122 (A)	**Frequency at the measuring probe input too high**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The frequency of the pulses at the measuring probe input is too high. Fault value (r0949, interpret decimal): 1: DI/DO 9 (X122.8) 2: DI/DO 10 (X122.10) 4: DI/DO 11 (X122.11) 8: DI/DO 13 (X132.8) 16: DI/DO 14 (X132.10) 32: DI/DO 15 (X132.11) 64: DI/DO 8 (X122.7) 128: DI/DO 12 (X132.7)
Remedy:	Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01150	**CU: Number of instances of a drive object type exceeded**
Message value:	Drive object type: %1, number permitted: %2, actual number: %3
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The maximum permissible number of instances of a drive object type was exceeded. Drive object type: Drive object type (p0107), for which the maximum permissible number of instances was exceeded. Number permitted: Max. permissible number of instances for this drive object type. Actual number: Current number of instances for this drive object type. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): ddccbbaa hex: aa = drive object type, bb = number limited, cc = actual number, dd = no significance
Remedy:	- power down the unit. - suitably restrict the number of instances of a drive object type by reducing the number of inserted components. - re-commission the unit.

F01151	**CU: Number of drive objects of a category exceeded**
Message value:	Drive object category: %1, number permitted: %2, actual number: %3
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The maximum permissible number of drive objects of a category was exceeded. Drive object category: Drive object category, for which the maximum permissible number of drive objects was exceeded. Number permitted: Max. permissible number for this drive object category. Actual number: Actual number for this drive object category.

	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	ddccbbaa hex: aa = drive object category, bb = number limited, cc = actual number, dd = no significance
Remedy:	- power down the unit.
	- suitably restrict the number of drive objects of the specified category by reducing the number of inserted components.
	- re-commission the unit.

F01152 CU: Invalid constellation of drive object types

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: It is not possible to simultaneously operate drive object types SERVO, VECTOR and HLA.
A maximum of 2 of these drive object types can be operated on a Control Unit.
Remedy: - power down the unit.
- restrict the use of drive object types SERVO, VECTOR, HLA to a maximum of 2.
- re-commission the unit.

F01200 CU: Time slice management internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A time slice management error has occurred.
It is possible that the sampling times have been inadmissibly set.
Fault value (r0949, interpret hexadecimal):
998:
Too many time slices occupied by OA (e.g. DCC).
999:
Too many time slices occupied by the basic system. Too many different sampling times may have been set.
Additional values:
Only for internal Siemens troubleshooting.
Remedy: - check the sampling time setting (p0112, p0115, p4099, p9500, p9511).
- contact the Hotline.

F01205 CU: Time slice overflow

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: Insufficient processing time is available for the existing topology.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - reduce the number of drives.
- increase the sampling times.

F01221	**CU: Bas clk cyc too low**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The closed-loop control / monitoring cannot maintain the envisaged clock cycle. The runtime of the closed-loop control/monitoring is too long for the particular clock cycle or the computing time remaining in the system is not sufficient for the closed-loop control/monitoring. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	Increase the basic clock cycle of DRIVE-CLiQ communication. See also: p0112 (Sampling times pre-setting p0115)

F01222	**CU: Basic clock cycle too low (computing time for communication not available)**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A time slice has not been defined that fulfills the requirements. The port cannot be correctly operated as the alternating cyclic clock cycle cannot be maintained. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting.
Remedy:	Contact the Hotline.

A01223	**CU: Sampling time inconsistent**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When changing a sampling time (p0115[0], p0799 or p4099), inconsistency between the clock cycles has been identified. Alarm value (r2124, interpret decimal): 1: Value lower than minimum value. 2: Value higher than maximum value. 3: Value not a multiple of 1.25 µs. 4: Value does not match clock-cycle synchronous PROFIBUS operation. 5: Value not a multiple of 125 µs. 6: Value not a multiple of 250 µs. 7: Value not a multiple of 375 µs. 8: Value not a multiple of 400 µs. 10: Special restriction of the drive object violated. 20: On a SERVO with a sampling time of 62.5 µs, more than two drive objects or one drive object of a type other than SERVO have been detected on the same DRIVE-CLiQ line (a maximum of two SERVO type drive objects are permitted). 21: Value can be a multiple of the current controller sampling time of a servo or vector drive in the system (e.g. for TB30, the values of all of the indices should be taken into account). 30: Value less than 31.25 µs. 31: Value less than 62.5 µs (31.25 µs is not supported for SMC10, SMC30, SMI10 and Double Motor Modules). 32: Value less than 125 µs. 33: Value less than 250 µs.

40: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 µs. Further, none of the nodes has a sampling time of less than 125 µs.

41: A chassis unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 250 µs.

42: An Active Line Module was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 125 µs.

43: A Voltage Sensing Module (VSM) was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is not equal to the current controller sampling time of the drive object of the VSM.

44: The highest common denominator of the sampling times of all of the components connected to the DRIVE-CLiQ line is not the same for all components of this drive object (e.g. there are components on different DRIVE-CLiQ lines on which different highest common denominators are generated).

45: A chassis parallel unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 162.5 µs or 187.5 µs (for a 2 or 3x parallel connection).

46: A node has been identified on the DRIVE-CLiQ line whose sampling time is not a multiple of the lowest sampling time on this line.

52: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 31.25 µs.

54: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 62.5 µs.

56: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 µs.

58: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 250 µs.

99: Inconsistency of cross drive objects detected.

116: Recommended clock cycle in r0116[0...1].

General note:

The topology rules should be noted when connecting up DRIVE-CLiQ (refer to the appropriate product documentation).

The parameters of the sampling times can also be changed with automatic calculations.

Example for highest common denominator: 125 µs, 125 µs, 62.5 µs --> 62.5 µs

Remedy: - check the DRIVE-CLiQ cables.

- set a valid sampling time.

See also: p0115, p0799, p4099

A01224 CU: Pulse frequency inconsistent

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.

Alarm value (r2124, interpret decimal):

1: Value lower than minimum value.

2: Value higher than maximum value.

3: Resulting sampling time is not a multiple of 1.25 µs.

4: Value does not match clock-cycle synchronous PROFIBUS operation.

10: Special restriction of the drive object violated.

99: Inconsistency of cross drive objects detected.

116: Recommended clock cycle in r0116[0...1].

Remedy: Set a valid pulse frequency.

See also: p0113 (Minimum pulse frequency, selection)

F01250	**CU: CU-EEPROM incorrect read-only data**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	POWER ON
Cause:	Error when reading the read-only data of the EEPROM in the Control Unit. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON. - replace the Control Unit.

A01251	**CU: CU-EEPROM incorrect read-write data**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Control Unit. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	For alarm value r2124 < 256, the following applies: - carry out a POWER ON. - replace the Control Unit. For alarm value r2124 >= 256, the following applies: - for the drive object with this alarm, clear the fault memory (p0952 = 0). - as an alternative, clear the fault memory of all drive objects (p2147 = 1). - replace the Control Unit.

F01255	**CU: Option Board EEPROM read-only data error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE (OFF2)
Acknowledge:	POWER ON
Cause:	Error when reading the read-only data of the EEPROM in the Option Board. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON. - replace the Control Unit.

A01256	**CU: Option Board EEPROM read-write data error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when reading the read-write data of the EEPROM in the Option Board. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON. - replace the Control Unit.

A01302 Error in the component trace

Message value: %1

Message class: General drive fault (19)

Drive object: B_INF, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: An error has occurred in the component trace.

The message appears in the following cases:

- upload trace data (p7792 = 1).
- change factory setting (p7790, p7791) for missing property "component trace" (r0193.1 = 0).

Alarm value (r2124, interpret decimal):

1: The DRIVE-CLiQ component does not support the component trace (r0193.1 = 0).

101: Data from trace 1 cannot be read.

102: Data from trace 2 cannot be read.

103: Data from trace 3 cannot be read.

104: Data from trace 4 cannot be read.

105: Data from trace 5 cannot be read.

Remedy: Re alarm value = 1:

Upgrade the firmware of the DRIVE-CLiQ component involved.

F01303 Component does not support the required function

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.

Fault value (r0949, interpret decimal):

1: The component does not support the de-activation.

101: The Motor Module does not support an internal armature short-circuit.

102: The Motor Module does not support the de-activation.

201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation.

202: The Sensor Module does not support parking/unparking.

203: The Sensor Module does not support the de-activation.

204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO.

205: The Sensor Module does not support the selected temperature evaluation (r0458).

206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation.

207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.

208: The Sensor Module does not support de-selection of commutation with zero mark (via p0430.23).

211: The Sensor Module does not support single-track encoders (r0459.10).

212: The Sensor Module does not support LVDT sensors (p4677.0).

213: The Sensor Module does not support the characteristic type (p4662).

Remedy: Upgrade the firmware of the DRIVE-CLiQ component involved.

For fault value = 205:

Check parameter p0600 and p0601 and if required, adapt interpretation.

For fault value = 207:

Replace the power unit or if required set the device supply voltage higher (p0210).

For fault value = 208:

Check parameter p0430.23 and reset if necessary.

A01304 (F)	**Firmware version of DRIVE-CLiQ component is not up-to-date**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component involved.
Remedy:	Update the firmware (p7828, p7829 and commissioning software).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY

F01305	**Topology: Component number missing**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161). Fault value (r0949, interpret decimal): Data set number. Note: The fault also occurs if encoders have been configured (p0187 to p0189) but no component numbers exist for them. In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered in p0141 for encoder 3 (p0189)). See also: p0121, p0131, p0141, p0142, p0151, p0161, p0186, p0187, p0188, p0189
Remedy:	- enter missing component number. - if required, remove the component and restart commissioning. See also: p0121, p0131, p0141, p0142, p0151, p0161, p0186, p0187, p0188, p0189

A01306	**Firmware of the DRIVE-CLiQ component being updated**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Firmware update is active for at least one DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component.
Remedy:	Not necessary. This alarm automatically disappears after the firmware has been updated.

A01314	**Topology: Component must not be present**
Message value:	%1, to %2: %3, connection: %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For a component, "de-activate and not present" is set but this component is still in the topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: aa = component number

	bb = component class of the component
	cc = connection number
	Note:
	Component class and connection number are described in F01375.
Remedy:	- remove the corresponding component.
	- change the setting "de-activate and not present".
	Note:
	Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
	See also: p0105, p0125, p0145, p0155

A01315 Drive object not ready for operation

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the active drive object involved, at least one activated component is missing.
	Note:
	All other active and operational drive objects can be in the "RUN" state.
Remedy:	The alarm automatically disappears again with the following actions:
	- de-activate the drive object involved (p0105 = 0).
	- de-activate the components involved (p0125 = 0, p0145 = 0, p0155 = 0, p0165 = 0).
	- re-insert the components involved.
	See also: p0105, p0125, p0145, p0155

A01316 Drive object inactive and again ready for operation

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	If, when inserting a component of the target topology, an inactive, non-operational drive object becomes operational again. The associated parameter of the component is, in this case, set to "activate" (p0125, p0145, p0155, p0165).
	Note:
	This is the only message that is displayed for a de-activated drive object.
Remedy:	The alarm automatically disappears again with the following actions:
	- activate the drive object involved (p0105 = 1).
	- again withdraw the components involved.
	See also: p0105 (Activate/de-activate drive object)

A01317 (N) De-activated component again present

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "de-activate" (p0125, p0145, p0155, p0165).
	Note:
	This is the only message that is displayed for a de-activated component.
Remedy:	The alarm automatically disappears again with the following actions:
	- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
	- again withdraw the components involved.
	See also: p0125 (Activate/de-activate power unit components), p0145 (Activate/de-activate encoder interface), p0155 (Voltage Sensing Module activate/de-activate)

Reaction upon N: NONE
Acknowl. upon N: NONE

A01318 BICO: De-activated interconnections present

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This alarm is used in the following cases:
- If an inactive/non-operational drive object is active again/ready for operation
- If there are items in the list of BI/CI parameters (r9498[0...29], r9499[0...29])
- If the BICO interconnections saved in the list of BI/CI parameters (r9498[0...29], r9499[0...29]) have actually been changed

Remedy: Reset alarm:
- Set p9496 to 1 or 2

or
- de-activate the drive object again.

A01319 Inserted component not initialized

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Initialization is required for at least one inserted component.
This is only possible if the pulses are inhibited for all the drive objects.
Remedy: Activate pulse inhibit for all drive objects.

A01320 Topology: Drive object number does not exist in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is missing in p0978
Alarm value (r2124, interpret decimal):
Index of p0101 under which the missing drive object number can be determined.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01321 Topology: Drive object number does not exist in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: p0978 contains a drive object number that does not exist.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the drive object number can be determined.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01322 Topology: Drive object number present twice in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is present more than once in p0978.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the involved drive object number is located.
Remedy: Set parameter p0009 = 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01323 Topology: More than two partial lists created

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Partial lists are available more than twice in p0978. After the second 0, all must be 0.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01324 Topology: Dummy drive object number incorrectly created

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.

- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

F01325 Topology: Component number not present in target topology

Message value: Component number: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The component configured in a parameter (e.g. p0121, p0131, etc.) is not present in the target topology.
Alarm value (r2124, interpret decimal):
Configured component number that is not present in target topology.
Remedy: Establish topology and DO configuration consistency.

A01330 Topology: Quick commissioning not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary component number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.
Alarm value (r2124, interpret hexadecimal):
ccccbbaa hex: cccc = preliminary component number, bb = supplementary information, aa = fault cause
aa = 01 hex = 1 dec:
On one component illegal connections were detected.
- bb = 01 hex = 1 dec: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.
- bb = 02 hex = 2 dec: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.
aa = 02 hex = 2 dec:
The topology contains too many components of a particular type.
- bb = 01 hex = 1 dec: There is more than one master Control Unit.
- bb = 02 hex = 2 dec: There is more than 1 infeed (8 for a parallel circuit configuration).
- bb = 03 hex = 3 dec: There are more than 10 Motor Modules (8 for a parallel circuit configuration).
- bb = 04 hex = 4 dec: There are more than 9 encoders.
- bb = 05 hex = 5 dec: There are more than 8 Terminal Modules.
- bb = 07 hex = 7 dec: Unknown component type
- bb = 08 hex = 8 dec: There are more than 6 drive slaves.
- bb = 09 hex = 9 dec: Connection of a drive slave not permitted.
- bb = 0a hex = 10 dec: There is no drive master.
- bb = 0b hex = 11 dec: There is more than one motor with DRIVE-CLiQ for a parallel circuit.
- bb = 0c hex = 12 dec: Different power units are being used in a parallel connection.
- cccc: Not used.
aa = 03 hex = 3 dec:
More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.
- bb = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.
- cccc: Not used.
aa = 04 hex = 4 dec:
The number of components connected one after the other is greater than 125.
- bb: Not used.
- cccc = preliminary component number of the first component and component that resulted in the fault.
aa = 05 hex = 5 dec:
The component is not permissible for SERVO.
- bb = 01 hex = 1 dec: SINAMICS G available.
- bb = 02 hex = 2 dec: Chassis available.
- cccc = preliminary component number of the first component and component that resulted in the fault.

aa = 06 hex = 6 dec:

On one component illegal EEPROM data was detected. These must be corrected before the system continues to boot.

- bb = 01 hex = 1 dec: The Order No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.

- cccc = preliminary component number of the component with illegal EEPROM data.

aa = 07 hex = 7 dec:

The actual topology contains an illegal combination of components.

- bb = 01 hex = 1 dec: Active Line Module (ALM) and Basic Line Module (BLM).

- bb = 02 hex = 2 dec: Active Line Module (ALM) and Smart Line Module (SLM).

- bb = 03 hex = 3 dec: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).

- bb = 04 hex = 4 dec: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).

- cccc: Not used.

Note:

Connection type and connection number are described in F01375.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

Remedy: - adapt the output topology to the permissible requirements.

- carry out commissioning using the commissioning software.

- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).

Re aa = 06 hex = 6 dec and bb = 01 hex = 1 dec:

Correct the order number when commissioning using the commissioning software.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

A01331 Topology: At least one component not assigned to a drive object

Message value: Component number: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: At least one component is not assigned to a drive object.

- when commissioning, a component was not able to be automatically assigned to a drive object.

- the parameters for the data sets are not correctly set.

Alarm value (r2124, interpret decimal):

Component number of the unassigned component.

Remedy: This component is assigned to a drive object.

Check the parameters for the data sets.

Examples:

- power unit (p0121).

- motor (p0131, p0186).

- encoder interface (p0140, p0141, p0187 ... p0189).

- encoder (p0140, p0142, p0187 ... p0189).

- Terminal Module (p0151).

- option board (p0161).

F01340 Topology: Too many components on one line

Message value: Component number or connection number: %1, fault cause: %2

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.

Fault value (r0949, interpret hexadecimal):

xyy hex: x = fault cause, yy = component number or connection number.

1yy:

The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers.

2yy:

The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers.

3yy:

Cyclic communication is fully utilized.

4yy:

The DRIVE-CLiQ cycle starts before the earliest end of the application. An additional dead time must be added to the control. Sign-of-life errors can be expected.

The conditions of operation with a current controller sampling time of 31.25 µs have not been maintained.

5yy:

Internal buffer overflow for net data of a DRIVE-CLiQ connection.

6yy:

Internal buffer overflow for receive data of a DRIVE-CLiQ connection.

7yy:

Internal buffer overflow for send data of a DRIVE-CLiQ connection.

8yy:

The component clock cycles cannot be combined with one another

900:

The lowest common multiple of the clock cycles in the system is too high to be determined.

901:

The lowest common multiple of the clock cycles in the system cannot be generated with the hardware.

Remedy: - check the DRIVE-CLiQ wiring.

- Reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ sockets of the Control Unit. This means that communication is uniformly distributed over several lines.

Re fault value = 1yy - 4yy in addition:

- increase the sampling times (p0112, p0115, p4099). If necessary, for DCC or FBLOCKS, change the assignment of the run-time group (p21000, p20000) so that the sampling time (r21001, r20001) is increased.

- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

- reduce the function modules (r0108).

- establish the conditions for operation with a current controller sampling time of 31.25 µs (at the DRIVE-CLiQ line, only operate Motor Modules and Sensor Modules with this sampling time and only use a permitted Sensor Module (e.g. SMC20, this means a 3 at the last position of the order number)).

- For an NX, the corresponding Sensor Module for a possibly existing second measuring system should be connected to a free DRIVE-CLiQ socket of the NX.

Re fault value = 8yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). Clock cycles on a DRIVE-CLiQ line must be perfect integer multiples of one another. As clock cycle on a line, all clock cycles of all drive objects in the previously mentioned parameters apply, which have components on the line involved.

Re fault value = 9yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). The lower the numerical value difference between two clock cycles, the higher the lowest common multiple. This behavior has a significantly stronger influence, the higher the numerical values of the clock cycles.

F01341 Topology: Maximum number of DRIVE-CLiQ components exceeded

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Too many DRIVE-CLiQ components were defined in the actual topology.

Note:

Pulse enable is withdrawn and prevented.

Remedy: - check the DRIVE-CLiQ wiring.
- reduce the number components on the DRIVE-CLiQ line involved in order to maintain the maximum quantity structure.

F01354 Topology: Actual topology indicates an illegal component

Message value: Fault cause: %1, component number: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The actual topology indicates at least one illegal component.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = cause.
xx = 1: Component at this Control Unit not permissible.
xx = 2: Component in combination with another component not permissible.
Note:
Pulse enable is prevented.
Remedy: Remove the illegal components and restart the system.

F01355 Topology: Actual topology changed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The device target topology (p0099) does not correspond to the device actual topology (r0098).
The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning software.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: r0098 (Actual device topology), p0099 (Device target topology)
Remedy: One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
If commissioning is still not completed:
- carry out a self-commissioning routine (starting from p0009 = 1).
In general:
Set p0099 = r0098, set p0009 = 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
Generating servo drives: Set p0097 to 1, set p0009 to 0.
Generating vector drives: Set p0097 to 2, set p0009 to 0.
Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107).
If commissioning has already been completed:
- re-establish the original connections and re-connect power to the Control Unit.
- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
- change the device parameterization to match the connections (this is only possible using the commissioning software).
Notice:
Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but must be transferred using the commissioning software and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.
See also: r0098 (Actual device topology)

F01356 **Topology: There is a defective DRIVE-CLiQ component**

Message value: Fault cause: %1, Component number: %2, Connection number: %3
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The actual topology indicates at least one defective DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
zzyyxx hex:
zz = connection number of the component at which the defective component is connected
yy = component number of the component at which the defective component is connected
xx = fault cause
xx = 1: Component at this Control Unit not permissible.
xx = 2: component with communication defect.
Note:
Pulse enable is withdrawn and prevented.
Remedy: Replace the defective component and restart the system.

F01357 **Topology: Two Control Units identified on the DRIVE-CLiQ line**

Message value: component number: %1, connection number: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: In the actual topology, 2 Control Units are connected with one another through DRIVE-CLiQ.
As standard, this is not permitted.
It is only permitted, if the OA application OALINK is already installed on both Control Units.
Fault value (r0949, interpret hexadecimal):
yyxx hex:
yy = connection number of the Control Unit at which the second Control Unit is connected
xx = component number of the Control Unit at which the second Control Unit is connected
Note:
Pulse enable is withdrawn and prevented.
Remedy: - remove the DRIVE-CLiQ connection, restart the systems, install OALINK on both Control Units and commission.
- remove the connection to the second Control Unit and restart.
- for the S120M component DRIVE-CLiQ extension, interchange the hybrid cable (IN/OUT).

A01358 **Topology: Line termination not available**

Message value: CU connection number: %1, component number: %2, connection number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: At least one line with distributed drives is not terminated. The last participant on the line must be terminated with a line termination connector.
This therefore ensures the degree of protection of the distributed drives.
Fault value (r0949, interpret hexadecimal):
zzyyxx hex:
zz = connection number of the distributed drive where there is no terminating connector
yy = component number
xx = CU connection number
Remedy: Install the line terminating connector for the last distributed drive.

F01359	**Topology: DRIVE-CLiQ performance not sufficient**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ performance is not sufficient at one line in order to identify an inserted component. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on). - Distribute components across several DRIVE-CLiQ lines. Note: For this topology, do not withdraw and insert components in operation.

F01360	**Topology: Actual topology not permissible**
Message value:	Fault cause: %1, preliminary component number: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The detected actual topology is not permissible. Fault value (r0949, interpret hexadecimal): ccccbbaa hex: cccc = preliminary component number, bb = no significance, aa = fault cause aa = 01 hex = 1 dec: Too many components were detected at the Control Unit. A maximum of 199 components is permissible. aa = 02 hex = 2 dec: The component type of a component is not known. aa = 03 hex = 3 dec: It is illegal to combine ALM and BLM. aa = 04 hex = 4 dec: It is illegal to combine ALM and SLM. aa = 05 hex = 5 dec: It is illegal to combine BLM and SLM. aa = 06 hex = 6 dec: A CX32 was not directly connected to a permitted Control Unit. aa = 07 hex = 7 dec: An NX10 or NX15 was not directly connected to a permitted Control Unit. aa = 08 hex = 8 dec: A component was connected to a Control Unit that is not permitted for this purpose. aa = 09 hex = 9 dec: A component was connected to a Control Unit with out-of-date firmware. aa = 0A hex = 10 dec: Too many components of a particular type detected. aa = 0B hex = 11 dec: Too many components of a particular type detected on a single line. Note: The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Re fault cause = 1: Change the configuration. Connect less than 199 components to the Control Unit. Re fault cause = 2: Remove the component with unknown component type. Re fault cause = 3, 4, 5: Establish a valid combination.

Re fault cause = 6, 7:
Connect the expansion module directly to a permitted Control Unit.
Re fault cause = 8:
Remove component or use a permissible component.
Re fault cause = 9:
Upgrade the firmware of the Control Unit to a later version.
Re fault cause = 10, 11:
Reduce the number of components.

A01361 Topology: Actual topology contains SINUMERIK and SIMOTION components

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The detected actual topology contains SINUMERIK and SIMOTION components.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
cc = 01 hex = 1 dec:
An NX10 or NX15 was connected to a SIMOTION control.
cc = 02 hex = 2 dec:
A CX32 was connected to a SINUMERIK control.
Remedy: Re alarm value = 1:
Replace all NX10 or NX15 by a CX32.
Re alarm value = 2:
Replace all CX32 by an NX10 or NX15.

A01362 Topology: Topology rule(s) broken

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: At least one topology rule for the SINAMICS S120 Combi has been broken.
In the event of a fault, the ramping up of the drive system is aborted and closed-loop drive control is not enabled.
Alarm value (r2124, interpret decimal):
The alarm value indicates which rule has been violated.
1: The S120 Combi may only be wired via DRIVE-CLiQ socket X200 to X100 on the NCU.
2: Only one Single Motor Module (SMM) or one Double Motor Module (DMM) may be connected via X200 to the DRIVE-CLiQ socket X101 on the NCU.
3: Only one Terminal Module 54F (TM54F) or one DRIVE-CLiQ Hub Module (hub) may be connected via X500 to the DRIVE-CLiQ socket X102 on the NCU.
4: Only Sensor Modules may be connected to DRIVE-CLiQ sockets X201 up to X203 (3-axis) or X204 (4-axis) on the S120 Combi.
5: Only one Sensor Module, type SMC20 or SME20 may be connected to DRIVE-CLiQ socket X205 (X204 is not available for 3-axis).
6: If a Single Motor Module is being used as the first expansion axis, only one more Single Motor Module may be connected (via X200 to X201 on the first Single Motor Module).
7: Only Sensor Modules may be connected to the corresponding DRIVE-CLiQ socket X202 on any Single Motor Modules which may be present.
8: For a second Single Motor Module or for a Double Motor Module, it is not permissible to connect anything at X201.
9: If a Double Motor Module is used as an expansion axis, only Sensor Modules may be connected to X202 and X203.
10: If a Terminal Module 54F (TM54F) is configured, only one DRIVE-CLiQ Hub Module (DMC20, DME20) may be connected to X501 of the TM54F module via DRIVE-CLiQ socket X500.

11: On the DRIVE-CLiQ Hub Module, only Sensor Modules Cabinet (SMC) and Sensor Modules External (SME) may be connected to X501 through X505.

12: Only certain Motor Modules may be used for expansion axes.

13: For an S120 Combi with 3 axes, nothing must be connected at the DRIVE-CLiQ Hub Module at X503.

Remedy: Evaluate the alarm value and ensure compliance with the corresponding topology rule(s).

F01375 Topology: Connection duplicated between two components

Message value: Component: %1, %2, connection: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When checking the actual topology, a ring-type connection was detected.

The fault value describes a component contained in the ring.

Fault value (r0949, interpret hexadecimal):

ccbbaaaa hex:

cc = connection number (%3)

bb = component class (% 2)

aaaa = preliminary component number (%1)

Component class:

0: Component unknown.

1: Control Unit

2: Motor Module

3: Line Module

4: Sensor Module

5: Voltage Sensing Module

6: Terminal Module

7: DRIVE-CLiQ Hub Module

8: Controller Extension

9: Filter Module

10: Hydraulic Module.

49: DRIVE-CLiQ component

50: Option slot

60: Encoder

70: DRIVE-CLiQ motor

71: Hydraulic cylinder

72: Hydraulic valve

80: Motor

Connection number:

0: Port 0, 1: Port 1, 2: Port 2, 3: Port 3, 4: Port 4, 5: Port 5

10: X100, 11: X101, 12: X102, 13: X103, 14: X104, 15: X105

20: X200, 21: X201, 22: X202, 23: X203

50: X500, 51: X501, 52: X502, 53: X503, 54: X504, 55: X505

Remedy: Output the fault value and remove the specified connection.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

F01380 Topology: Actual topology EEPROM defective

Message value: Preliminary component number: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: POWER ON

Cause: When detecting the actual topology, a component with a defective EEPROM was detected.

Fault value (r0949, interpret hexadecimal):

bbbbaaaa hex:

bbbb = reserved

aaaa = preliminary component number of the defective components

Remedy: Output the fault value and remove the defected component.

A01381 Topology: power unit incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a power unit in the actual topology that has been incorrectly inserted.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the incorrectly inserted component (% 1)

Note:

The component is described in dd, cc and bb, where the component involved is incorrectly inserted.

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01382 Topology: Sensor Module incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Sensor Module in the actual topology that has been incorrectly inserted with respect to the target technology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the incorrectly inserted component (% 1)

Note:

The component is described in dd, cc and bb, where the component involved is incorrectly inserted.

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01383	Topology: Terminal Module incorrectly inserted
Message value:	Component: %1, to %2: %3, connection : %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Terminal Module in the actual topology that has been incorrectly inserted with respect to the target technology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1) Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01384	Topology: DRIVE-CLiQ Hub Module incorrectly inserted
Message value:	Component: %1, to %2: %3, connection : %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a DRIVE-CLiQ Hub Module in the actual topology that has been incorrectly inserted with respect to the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1) Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01385 Topology: Controller Extension incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a controller extension 32 (CX32) in the actual topology that has been incorrectly inserted with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the incorrectly inserted component (% 1)

Note:

The component is described in dd, cc and bb, where the component involved is incorrectly inserted.

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01386 Topology: DRIVE-CLiQ component incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ component in the actual topology that has been incorrectly inserted with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the incorrectly inserted component (% 1)

Note:

The component is described in dd, cc and bb, where the component involved is incorrectly inserted.

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01389	**Topology: Motor with DRIVE-CLiQ incorrectly inserted**
Message value:	Component: %1, to %2: %3, connection : %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a motor with DRIVE-CLiQ in the actual topology that has been incorrectly inserted with respect to the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1) Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy:	Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01416	**Topology: Component additionally inserted**
Message value:	%1, to %2: %3, connection: %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has found a component in the actual topology which is not specified in the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = component class (% 2) cc = connection number (%4) bb = component class of the additional component (%1) aa = component number (%3) Note: The component class of the additional component is contained in bb. The component is described in dd, cc and aa, where the additional component is inserted. Component class and connection number are described in F01375.
Remedy:	Adapting topologies: - remove the additional component (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01420 Topology: Component different

Message value: Component : %1, Soll: %2, actual: %3, difference: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected differences in the actual and target topologies in the electronic rating plate.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex: aa = component number (%1), bb = component class of the target topology (%2), cc = component class of the actual topology (%3), dd = difference (%4)

dd = 01 hex = 1 dec:

Different component type.

dd = 02 hex = 2 dec:

Different Order No.

dd = 03 hex = 3 dec:

Different manufacturer.

dd = 04 hex = 4 dec:

Connection changed over for a multi-component slave (e.g. Double Motor Module), defective EEPROM data in the electronic rating plate, or only part of a multi-component slave set to "de-activate and not present".

dd = 05 hex = 5 dec:

NX10 or NX15 used instead of CX32.

dd = 06 hex = 6 dec:

NX10 or NX15 used instead of CX32.

dd = 07 hex = 7 dec:

Different number of connections.

Note:

The component class is described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- connect the expected component (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Topology comparison - if required, adapt the comparison level:

- parameterize the topology comparison of all components (p9906).
- parameterize the topology comparison of one components (p9907, p9908).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01425 Topology: Serial number different

Message value: Component: %1, %2, differences: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = reserved

cc = number of differences (%3)

bb = component class (% 2)

aa = component number (%1)

Note:

The component class is described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- change over the actual topology to match the target topology.
- download the target topology that matches the actual topology (commissioning software).

Re byte cc:

cc = 1 --> can be acknowledged using p9904 or p9905.

cc > 1 --> can be acknowledged using p9905 and can be de-activated using p9906 or p9907/p9908.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

See also: p9904 (Topology comparison acknowledge differences), p9905 (Device specialization), p9906 (Topology comparison comparison stage of all components), p9907 (Topology comparison comparison stage of the component number), p9908 (Topology comparison comparison stage of a component)

A01428 Topology: Incorrect connection used

Message value: Component: %1, %2, connection (actual): %3, connection (target): %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. For a component, another connection was used.

The different connections of a component are described in the alarm value.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number of the target topology (%4)

cc = connection number of the actual topology (%3)

bb = component class (% 2)

aa = component number (%1)

Note:

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- reinsert the DRIVE-CLiQ cable to the component (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

See also: p9904 (Topology comparison acknowledge differences)

F01451 Topology: Target topology is invalid

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An error was detected in the target topology.

The target topology is invalid.

Fault value (r0949, interpret hexadecimal):

ccccbbaa hex: cccc = index error, bb = component number, aa = fault cause

aa = 1B hex = 27 dec: Error not specified.

aa = 1C hex = 28 dec: Value illegal.

aa = 1D hex = 29 dec: Incorrect ID.

aa = 1E hex = 30 dec: Incorrect ID length.

aa = 1F hex = 31 dec: Too few indices left.

aa = 20 hex = 32 dec: component not connected to Control Unit.

Remedy: Reload the target topology using the commissioning software.

A01481 (N) Topology: power unit not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a power unit that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

Reaction upon N: NONE

Acknowl. upon N: NONE

A01482 Topology: Sensor Module not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Sensor Module that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01483 Topology: Terminal Module not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Terminal Module that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01484 Topology: DRIVE-CLiQ Hub Module not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ Hub Module missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01485 Topology: Controller Extension not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Control Extension (CX32) missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01486 Topology: DRIVE-CLiQ component not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ component missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01487 Topology: Option slot component not inserted

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected an option slot component missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.
Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01489 Topology: Motor with DRIVE-CLiQ not inserted

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a motor with DRIVE-CLiQ missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.
Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

F01505 (A) BICO: Interconnection cannot be established

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A PROFIdrive telegram has been set (p0922).
An interconnection contained in the telegram was not able to be established.
Fault value (r0949, interpret decimal):
Parameter receiver that should be changed.
Remedy: Establish another interconnection.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01506 (A) BICO: No standard telegram

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The standard telegram in p0922 is not maintained and therefore p0922 is set to 999.
Fault value (r0949, interpret decimal):
BICO parameter for which the write attempt was unsuccessful.
Remedy: Again set the required standard telegram (p0922).
Reaction upon A: NONE
Acknowl. upon A: NONE

A01507 (F, N) BICO: Interconnections to inactive objects present

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: There are BICO interconnections to an inactive/inoperable drive object.
The BI/CI parameters involved are listed in r9498.
The associated BO/CO parameters are listed in r9499.
The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the de-activated drive object.
Note:
r9498 and r9499 are only written to, if p9495 is not set to 0.
Alarm value (r2124, interpret decimal):
Number of BICO interconnections found to inactive drive objects.
Remedy: - set all open BICO interconnections centrally to the factory setting with p9495 = 2.
- make the non-operational drive object active/operational again (re-insert or activate components).
Reaction upon F: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A01508	**BICO: Interconnections to inactive objects exceeded**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The maximum number of BICO interconnections (signal sinks) when de-activating a drive object was exceeded. When de-activating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters: - r9498[0...29]: List of the BI/CI parameters involved. - r9499[0...29]: List of the associated BO/CO parameters.
Remedy:	The alarm automatically disappears as soon as no BICO interconnection (value = 0) is entered in r9498[29] and r9499[29]. Notice: When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

F01510	**BICO: Signal source is not float type**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested connector output does not have the correct data type. This interconnection is not established. Fault value (r0949, interpret decimal): Parameter number to which an interconnection should be made (connector output).
Remedy:	Interconnect this connector input with a connector output having a float data type.

F01511 (A)	**BICO: Interconnection with different scalings**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. - the BICO output has different normalized units than the BICO input. - message only for interconnections within a drive object. Example: The BICO output has, as normalized unit, voltage and the BICO input has current. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input. p2002: contains the reference value for current p2001: contains the reference value for voltage Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01512	**BICO: No scaling available**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	Vector: OFF2 Infeed: OFF2 (OFF1)
Acknowledge:	POWER ON
Cause:	An attempt was made to determine a conversion factor for a scaling that does not exist.

	Fault value (r0949, interpret decimal):
	Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.
Remedy:	Apply scaling or check the transfer value.

F01513 (N, A) BICO: Interconnection cross DO with different scalings

Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different. Example 1: BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input. p2002: contains the reference value for current p2001: contains the reference value for voltage Example 2: BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the factor p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input. p2001: contains the reference value for voltage, drive objects 1, 2 Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A01514 (F) BICO: Error when writing during a reconnect

Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to. Example: When writing to BICO input with double word format (DWORD), in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting. Alarm value (r2124, interpret decimal): Parameter number of the BICO input (signal sink).
Remedy:	Not necessary.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When changing the number of CDS or when copying from CDS, the master control is active.

Remedy: If required, return the master control and repeat the operation.
Reaction upon A: NONE
Acknowl. upon A: NONE

A01590 (F) Drive: Motor maintenance interval expired

Message value: Fault cause: %1 bin
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected service/maintenance interval for this motor was reached.
Alarm value (r2124, interpret decimal):
Motor data set number.
See also: p0650 (Actual motor operating hours), p0651 (Motor operating hours maintenance interval)
Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01600 SI P1 (CU): STOP A initiated

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected a fault and initiated a STOP A (STO via the safety shutdown path of the Control Unit).
- forced checking procedure of the safety shutdown path of the Control Unit unsuccessful.
- subsequent response to fault F01611 (defect in a monitoring channel).
Fault value (r0949, interpret decimal):
0: Stop request from monitoring channel 2.
1005: STO active although STO not selected and there is no internal STOP A present.
1010: STO inactive although STO is selected or an internal STOP A is present.
1015: Feedback signal of STO for Motor Modules connected in parallel are different.
9999: Subsequent response to fault F01611.
Remedy: - select Safe Torque Off and de-select again.
- replace the Motor Module involved.
For fault value = 9999:
- carry out diagnostics for fault F01611.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

F01611 (A) SI P1 (CU): Defect in a monitoring channel

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on processor 1 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F.
As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.

Fault value (r0949, interpret decimal):

0: Stop request from monitoring channel 2.

1 ... 999:

Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795.

1: SI monitoring clock cycle (r9780, r9880).

2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.

3: SI SGE changeover tolerance time (p9650, p9850).

4: SI transition period STOP F to STOP A (p9658, p9858).

5: SI enable Safe Brake Control (p9602, p9802).

6: SI Motion enable, safety-relevant functions (p9501, internal value).

7: SI delay time of STO for Safe Stop 1 (p9652, p9852).

8: SI PROFIsafe address (p9610, p9810).

9: SI debounce time for STO/SBC/SS1 (MM) (p9651, p9851).

10: SI delay time for initiating STO for ESR (p9697, p9897).

11: SI Safe Brake Adapter mode, BICO interconnection (p9621, p9821).

12: SI Safe Brake Adapter relay ON time (p9622[0], p9822[0]).

13: SI Safe Brake Adapter relay OFF time (p9622[1], p9822[1]).

14: SI PROFIsafe telegram selection (p9611, p9811).

1000: Watchdog timer has expired.

Within the time of approx. 5 x p9650, alternatively, the following was defined:

- Too many signal changes have occurred at the EP terminal of the Motor Module.
- Via PROFIsafe/TM54F, STO was too frequently initiated (also as subsequent response).
- Safe pulse cancellation (r9723.9) was too frequently initiated (also as subsequent response).

1001, 1002: Initialization error, change timer / check timer.

1900: CRC error in the SAFETY sector.

1901: CRC error in the ITCM sector.

1902: Overloading in the ITCM sector has occurred in operation.

1903: Internal parameterizing error for CRC calculation.

1950: Module temperature outside the permissible temperature range.

1951: Module temperature not plausible.

2000: Status of the STO selection for both monitoring channels are different.

2001: Feedback signals of STO shutdown for both monitoring channels are different.

2002: Statuses of the delay timer SS1 on both monitoring channels are different (status of the timer in p9650/p9850).

2003: Status of the STO terminal for both monitoring channels are different.

2004: Status of the STO selection for Motor Modules connected in parallel are different.

2005: Feedback signal of the safe pulse suppression on the Control Unit and Motor Modules connected in parallel are different.

6000 ... 6999:

Error in the PROFIsafe control.

For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.

6000: A fatal PROFIsafe communication error has occurred.

6064 ... 6071: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.

6064: Destination address and PROFIsafe address are different (F_Dest_Add).

6065: Destination address not valid (F_Dest_Add).

6066: Source address not valid (F_Source_Add).

6067: Watchdog time not valid (F_WD_Time).

6068: Incorrect SIL level (F_SIL).

6069: Incorrect F-CRC length (F_CRC_Length).

6070: Incorrect F parameter version (F_Par_Version).

6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver.

6072: F parameterization is inconsistent.

6165: A communications error was identified when receiving the PROFIsafe telegram. The fault may also occur if an inconsistent or out-of-date PROFIsafe telegram has been received after switching the Control Unit off and on or after plugging in the PROFIBUS/PROFINET cable.

6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.

Remedy: Re fault value = 1 ... 5 and 7 ... 999:
- check the cross data comparison that resulted in a STOP F.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 6:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 1000:
- check the EP terminal at the Motor Module (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.
- check the wiring of the failsafe inputs at the TM54F (contact problems).
- check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).

Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 1900, 1901, 1902:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Control Unit software.
- replace Control Unit.

Re fault value = 2000, 2001, 2002, 2003, 2004, 2005:
- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
- check the causes of the STO selection in r9772. When the SMM functions are active (p9501 = 1), STO can also be selected using these functions.
- replace the Motor Module involved.

Note:

This fault can be acknowledged after removing the cause of the error and after correct selection/deselection of STO.

For fault value = 6000:
- carry out a POWER ON (power off/on) for all components.

Check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.
- increase the monitoring cycle clock settings (p9500, p9511).
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

For fault value = 6064:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave.
- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).

For fault value = 6065:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!

For fault value = 6066:
- check the setting of the value in the F parameter F_Source_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!

For fault value = 6067:
- check the setting of the value in the F parameter F_WD_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!

For fault value = 6068:
- check the setting of the value in the F parameter F_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2!

For fault value = 6069:

- check the setting of the value in the F parameter F_CRC_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!

For fault value = 6070:

- check the setting of the value in the F parameter F_Par_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!

For fault value = 6071:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.

For fault value = 6072:

- check the settings of the values for the F parameters and, if required, correct.

The following combinations are permissible for F parameters F_CRC_Length and F_Par_Version:

F_CRC_Length = 2-byte CRC and F_Par_Version = 0

F_CRC_Length = 3-byte CRC and F_Par_Version = 1

For fault value = 6165:

- if the fault occurs after powering up the Control Unit or after plugging in the PROFIBUS/PROFINET cable, acknowledge the fault.

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

Check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.

For fault value = 6166:

- check the configuration and communication at the PROFIsafe slave.

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- evaluate diagnostic information in the F host.

- check PROFIsafe connection.

Note:

CU: Control Unit

EP: Enable Pulses (pulse enable)

ESR: Extended Stop and Retract

MM: Motor Module

SGE: Safety-relevant input

SI: Safety Integrated

SMM: Safe Motion Monitoring

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

STO: Safe Torque Off / SH: Safe standstill

Reaction upon A: NONE

Acknowl. upon A: NONE

F01612 SI P1 (CU): STO inputs for power units connected in parallel different

Message value: Fault cause: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-integrated "Safety Integrated" function on the Control Unit (CU) has identified different states of the AND'ed STO inputs for power units connected in parallel and has initiated a STOP F.

As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.

Fault value (r0949, interpret binary):

Binary image of the digital inputs of the Control Unit that are used as signal source for the function "Safe Torque Off".

Remedy: - check the tolerance time SGE changeover and if required, increase the value (p9650).

- check the wiring of the safety-relevant inputs (SGE) (contact problems).

Note:

CU: Control Unit

SGE: Safety-relevant input

SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

N01620 (F, A) SI P1 (CU): Safe Torque Off active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Torque Off" (STO) function of the basic functions has been selected on the Control Unit (CU) using the input terminal and is active.
Note:
- This message does not result in a safety stop response.
- This message is not output when STO is selected using the Extended Functions.

Remedy: Not necessary.
Note:
CU: Control Unit
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

N01621 (F, A) SI P1 (CU): Safe Stop 1 active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Stop 1" (SS1) function has been selected on the Control Unit (CU) and is active.
Note:
This message does not result in a safety stop response.
Remedy: Not necessary.
Note:
CU: Control Unit
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

Reaction upon F: NONE (OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

F01625 SI P1 (CU): Sign-of-life error in safety data

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected an error in the sign-of-life of the safety data between the two monitoring channels and has initiated a STOP A.
- there is either a DRIVE-CLiQ communication error or communication has failed.
- a time slice overflow of the safety software has occurred.

Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: - select Safe Torque Off and de-select again.
- carry out a POWER ON (power off/on) for all components.
Check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.
- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

F01630 SI P1 (CU): Brake control error

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected a brake control fault and initiated a STOP A.
- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.
Fault value (r0949, interpret decimal):
10, 11:
Fault in "open holding brake" operation.
- Parameter p1278 incorrectly set.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC de-activated)).
- Ground fault in brake cable.
20:
Fault in "brake open" state.
- Short-circuit in brake winding.
30, 31:
Fault in "close holding brake" operation.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC de-activated)).
- Short-circuit in brake winding.
40:
Fault in "brake closed" state.
50:
Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
80:
Safe Brake Adapter.
Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
90:
Brake released for service purposes (X4).
Remedy: - check parameter p1278 (for SBC, only p1278 = 0 is permissible).
- for a parallel connection, check the setting of the power unit data set to control the holding brake (p7015).
- select Safe Torque Off and de-select again.
- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.

Operation with Safe Brake Module or Safe Brake Adapter:
- check the Safe Brake Module or Safe Brake Adapter connection.
- Replace the Safe Brake Module or Safe Brake Adapter.

Note:
CU: Control Unit
SBC: Safe Brake Control
SI: Safety Integrated

A01631 (F, N) SI P1 (CU): motor holding brake/SBC configuration not practical

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A configuration of motor holding brake and SBC was detected that is not practical.
The following configurations can result in this message:
- "No motor holding brake available" (p1215 = 0) and "SBC" enabled (p9602 = 1).
- "Motor holding brake just like the sequence control, connection via BICO" (p1215 = 3) and "SBC" enabled (p9602 = 1).

Note:
SBC: Safe Brake Control

Remedy: Check the parameterization of the motor holding brake and SBC and correct.
See also: p1215 (Motor holding brake configuration), p9602 (SI enable Safe Brake Control (Control Unit)), p9802 (SI enable Safe Brake Control (Motor Module))

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F01640 SI P1 (CU): component replacement identified and acknowledgment/save required

Message value: %1
Message class: General drive fault (19)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The "Safety Integrated" function integrated in the drive has identified that a component has been replaced.
It is no longer possible to operate the drive.
When safety functions are active, after a component has been replaced it is necessary to carry out a partial acceptance test.
Fault value (r0949, interpret binary):
Bit 0 = 1:
It has been identified that the Control Unit has been replaced.
Bit 1 = 1:
It has been identified that the Motor Module/Hydraulic Module has been replaced.
Bit 2 = 1:
It has been identified that the Power Module has been replaced.
Bit 3 = 1:
It has been identified that the Sensor Module channel 1 has been replaced.
Bit 4 = 1:
It has been identified that the Sensor Module channel 2 has been replaced.
Bit 5 = 1:
It has been identified that the sensor channel 1 has been replaced.

Bit 6 = 1:
It has been identified that the sensor channel 2 has been replaced.

Remedy: - acknowledge component replacement (p9702 = 29).
- save all parameters (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").
- acknowledge fault (e.g. BI: p2103).
Note:
In addition to the fault, diagnostics bits r9776.2 and r9776.3 are set.
See also: p9702 (SI Acknowledge component replacement), r9776 (SI diagnostics)

F01641 SI P1 (CU): component replacement identified and save required

Message value: %1
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The "Safety Integrated" function integrated in the drive has identified that a component has been replaced.
No additional fault response is initiated, therefore operation of the particular drive is not restricted.
When safety functions are active, after a component has been replaced it is necessary to carry out a partial acceptance test.
Fault value (r0949, interpret binary):
Bit 0 = 1:
It has been identified that the Control Unit has been replaced.
Bit 1 = 1:
It has been identified that the Motor Module/Hydraulic Module has been replaced.
Bit 2 = 1:
It has been identified that the Power Module has been replaced.
Bit 3 = 1:
It has been identified that the Sensor Module channel 1 has been replaced.
Bit 4 = 1:
It has been identified that the Sensor Module channel 2 has been replaced.
Bit 5 = 1:
It has been identified that the sensor channel 1 has been replaced.
Bit 6 = 1:
It has been identified that the sensor channel 2 has been replaced.

Remedy: - save all parameters (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").
- acknowledge fault (e.g. BI: p2103).
See also: r9776 (SI diagnostics)

F01641 SI P1 (CU): component replacement identified and save required

Message value: %1
Message class: General drive fault (19)
Drive object: TM54F_MA
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The "Safety Integrated" function integrated in the drive has identified that a Terminal Module 54F (TM54F) has been replaced.

Remedy: - save all parameters (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").
- acknowledge fault (e.g. BI: p2103).
See also: r9776 (SI diagnostics)

F01649	**SI P1 (CU): Internal software error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An internal error in the Safety Integrated software on the Control Unit has occurred. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - re-commission the "Safety Integrated" function and carry out a POWER ON. - Upgrade the firmware of the Control Unit to a later version. - contact the Hotline. - replace the Control Unit. Note: CU: Control Unit SI: Safety Integrated

F01650	**SI P1 (CU): Acceptance test required**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function on monitoring channel 1 requires an acceptance test. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 130: Safety parameters for monitoring channel 2 not available. Note: This fault value is always output when Safety Integrated is commissioned for the first time. 1000: Reference and actual checksum on monitoring channel 1 are not identical (booting). - as a result of the changed current controller sampling time (p0115[0]), the clock cycle time for the Safety Integrated Basic Functions (r9780) was adapted. - at least one checksum-checked piece of data is defective. - Safety parameters set offline and loaded into the Control Unit. 2000: Reference and actual checksum on monitoring channel 1 are not identical (commissioning mode). - reference checksum on monitoring channel 1 incorrectly entered (p9799 not equal to r9798). - when de-activating the safety functions, p9501 or p9503 were not deleted. 2001: Reference and actual checksum on monitoring channel 2 are not identical (commissioning mode). - reference checksum on monitoring channel 2 incorrectly entered (p9899 not equal to r9898). - when de-activating the safety functions, p9501 or p9503 are not deleted. 2002: Enable of safety-related functions between the two monitoring channels differ (p9601 not equal to p9801). 2003: Acceptance test is required as a safety parameter has been changed. 2004: An acceptance test is required because a project with enabled safety-functions has been downloaded. 2005: The Safety logbook has identified that a functional safety checksum has changed. An acceptance test is required. 2010: Enable of safety-related brake control between the two monitoring channels differ (p9602 not equal to p9802). 2020: Error when saving the safety parameters for the monitoring channel 2. 3003: Acceptance test is required as a hardware-related safety parameter has been changed. 3005: The Safety logbook has identified that a hardware-related safety checksum has changed. An acceptance test is required.

9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy: For fault value = 130:

- carry out safety commissioning routine.

For fault value = 1000:

- check the Safety Integrated Basic Functions (r9780) and adapt the reference checksum (p9799).
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
- Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).

For fault value = 2000:

- check the safety parameters on monitoring channel 1 and adapt the reference checksum (p9799).

For fault value = 2001:

- check the safety parameters on monitoring channel 2 and adapt the reference checksum (p9899).

For fault value = 2002:

- check the enable the safety-related functions on both monitoring channels (p9601 = p9801).

Re fault value = 2003, 2004, 2005:

- Carry out an acceptance test and generate an acceptance report.

The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:

SINAMICS S120 Function Manual Safety Integrated

The fault with fault value 2005 can only be acknowledged when the "STO" function is de-selected.

For fault value = 2010:

- check the enable the safety-related brake control on both monitoring channels (p9602 = p9802).

For fault value = 2020:

- again carry out safety commissioning routine.
- replace the memory card or Control Unit.

For fault value = 3003:

- carry out the function checks for the modified hardware and generate an acceptance report.

The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:

SINAMICS S120 Function Manual Safety Integrated

For fault value = 3005:

- carry out the function checks for the modified hardware and generate an acceptance report.

The fault with fault value 3005 can only be acknowledged when the "STO" function is de-selected.

For fault value = 9999:

- carry out diagnostics for the other safety-related fault that is present.

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

STO: Safe Torque Off

See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F01651 SI P1 (CU): Synchronization safety time slices unsuccessful

Message value: %1

Message class: Hardware / software error (1)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The "Safety Integrated" function requires a synchronization of the safety time slices between the two monitoring channels and between the Control Unit and the higher-level control. This synchronization routine was unsuccessful.

Note:

This fault results in a STOP A that cannot be acknowledged.

	Fault value (r0949, interpret decimal): 121: - with SINUMERIK Safety Integrated enabled, a drive-side warm restart was performed on the CU/NX. - with SINUMERIK Safety Integrated enabled, the function "restore factory setting" was selected on a drive object of the CU and a drive-side warm restart was initiated. 150: - fault in the synchronization to the PROFIBUS master. All other values: - only for internal Siemens troubleshooting. See also: p9510 (SI Motion clock-cycle synchronous PROFIBUS master)
Remedy:	For fault value = 121: - carry out a common POWER ON/warm restart for the higher-level control and SINAMICS. For fault value = 150: - check the setting of p9510 (SI Motion clock-cycle synchronous PROFIBUS master) and if required, correct. General: - carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module/Hydraulic Module software. - upgrade the Control Unit software. - upgrade the software of the higher-level control. Note: CU: Control Unit SI: Safety Integrated

F01652 SI P1 (CU): Illegal monitoring clock cycle

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	One of the Safety Integrated monitoring clock cycles is not permissible. - the monitoring clock cycle integrated in the drive cannot be maintained due to the communication conditions required in the system. - the monitoring clock cycle for safe motion monitoring functions is not permissible (p9500). - the actual value sensing clock cycle for safe motion monitoring functions is not permissible (p9511). - The sampling time for the current controller (p0112, p0115[0]) cannot be supported. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): For motion monitoring functions that are not enabled (p9601.2 = p9801.2 = 0, p9501 = 0), the following applies: - Minimum setting for the monitoring clock cycle (in µs). For motion monitoring functions that are enabled (p9601.2 = p9801.2 = 1 and/or p9501 > 0), the following applies: 100: - No matching monitoring clock cycle was able to be found. - an illegal actual value sensing clock cycle was set for S120M (p9511). 101: - The monitoring clock cycle is not an integer multiple of the actual value sensing clock cycle. 102: - An error has occurred when transferring the actual value sensing clock cycle to the Motor Module. 103: - An error has occurred when transferring the actual value sensing clock cycle to the Sensor Module. 104, 105: - four times the current controller sampling time (p0115[0]) is greater than 1 ms when operating with a non-isochronous PROFIBUS. - four times the current controller sampling time (p0115[0]) is greater than the DP clock cycle when operating with an isochronous PROFIBUS. - The DP clock cycle is not an integer multiple of the sampling time of the current controller (p0115[0]).

106:

- The monitoring clock cycle does not match the monitoring clock cycle of the TM54F.

107:

- The actual value sensing clock cycle (p9511) is less than four times the current controller sampling time (p0115[0]).
- The actual value sensing clock cycle (p9511) is not an integer multiple of the sampling time of the current controller (p0115[0]).

108:

- The parameterized actual value sensing clock cycle cannot be set on this component

109:

- If the motion monitoring functions have been parameterized as encoderless (p9506), the actual value sensing clock cycle (p9511) and the current controller clock cycle (p0115[0]) must be identical.

The following applies to SINAMICS S110:

- If the motion monitoring functions have been parameterized as encoderless (p9506), the actual value sensing clock cycle p9511 must be = 250 µs.

110:

- The actual value sensing clock cycle (p9511) for safety with encoder (p9506 = 0) is less than 2 ms for this Control Unit (e.g. CU305).

111:

- The monitoring clock cycle is not an integer multiple of the sampling time of the current controller (p0115[0]).

112:

- An actual value sensing clock cycle p9511 = 0 on a drive object of a Double Motor Module is not permissible in the existing configuration.

200, 201:

- S120M: the monitoring clock cycle cannot be maintained as a result of the conditions required in the system.

202:

- The current controller sampling time is set to zero (p0115[0]).

Remedy: For enabled SI monitoring integrated in the drive (p9601/p9801 > 0):

- Upgrade the firmware of the Control Unit to a later version.

For enabled motion monitoring function (p9501 > 0):

- correct the monitoring clock cycle (p9500) and carry out POWER ON.

For fault value = 100:

- for S120M, set the actual value sensing clock cycle to p9511 = 0.

For fault value = 101:

- actual value sensing clock cycle corresponds to position control clock cycle/DP clock cycle (factory setting).
- for motion monitoring functions integrated in the drive (p9601/p9801bit 2 = 1) the actual value sensing clock cycle can be directly parameterized in p9511/p9311.

Re fault value = 104, 105:

- set a separate actual value sensing clock cycle in p9511.
- restrict operation to a maximum of two vector drives. For the standard setting in p0112, p0115, the current controller sampling time is automatically reduced to 250 µs. If the standard values were changed, then the current controller sampling time (p0112, p0115) should be appropriately set.
- increase the DP clock cycle for operation with a clock-cycle synchronous PROFIBUS so that there is a multiple clock cycle ratio of at least 4:1 between the DP clock cycle and the current controller sampling time. A clock cycle ratio of at least 8:1 is recommended.
- With firmware version 2.5, please ensure that parameter p9510 is set to 1 in the drive (clock cycle synchronous operation).

For fault value = 106:

- set the parameters for the monitoring clock cycles the same (p10000 and p9500 / p9300).

For fault value = 107:

- Set an actual value sensing clock cycle that matches the current controller clock cycle (p9511 >= 4 * p0115[0], 8 * p0115[0]) is recommended.

Note:

An actual value sensing clock cycle (p9511) that is set too low, can sporadically mean that safety messages C01711/C30711 are output with message value 1020 or 1021.

For fault value = 108:

- set a suitable actual value sensing clock cycle in p9511.
- if the DP clock cycle is used as the actual value sensing clock cycle for operation with isochronous PROFIBUS (p9511 = 0), then a suitable DP clock cycle must be configured. This must be set to less than 8 ms. If this is not possible, then p9511 must be set to the required actual value sensing clock cycle (< 8 ms).
- For SIMOTION D410-2, a suitable multiple of the DP clock cycle (e.g. 1, 2, 3, 4, 5, 6, 8, 10) must be parameterized. Otherwise, the clock cycle must be set to less than 8 ms.

For fault value = 109:

- set the actual value sensing clock cycle in p9511 to the same value as the current controller clock cycle (p0115[0]).

The following applies to SINAMICS S110:

- set the actual value sensing clock cycle to p9511 = 250 µs.

For fault value = 110:

- set the actual value sensing clock cycle in p9511 to 2 ms or higher.

For fault value = 111:

- set the monitoring clock cycle in p9500 as an integer multiple of the sampling time of the current controller (p0115[0]).

For fault value = 112:

- set the actual value sensing clock cycle p9511 to the required value (not equal to zero).

Re fault value = 200, 201:

- Increase the current controller sampling time (p0115[0]).
- If required, reduce the number of components connected to the corresponding DRIVE-CLiQ line, or distribute the components across several DRIVE-CLiQ sockets.

For fault value = 202:

- Set the current controller sampling time to a sensible value (p0115[0]).

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

F01653 **SI P1 (CU): PROFIBUS/PROFINET configuration error**

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: There is a PROFIBUS/PROFINET configuration error for using Safety Integrated monitoring functions with a higher-level control (SINUMERIK or F-PLC).

Note:

For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

200: A safety slot for receive data from the control has not been configured.

210, 220: The configured safety slot for the receive data from the control has an unknown format.

230: The configured safety slot for the receive data from the F-PLC has the incorrect length.

231: The configured safety slot for the receive data from the F-PLC has the incorrect length.

240: The configured safety slot for the receive data from the SINUMERIK has the incorrect length.

250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive.

300: A safety slot for the send data to the control has not been configured.

310, 320: The configured safety slot for the send data to the control has an unknown format.

330: The configured safety slot for the send data to the F-PLC has the incorrect length.

331: The configured safety slot for the send data to the F-PLC has the incorrect length.

340: The configured safety slot for the send data to the SINUMERIK has the incorrect length.

Remedy: The following generally applies:

- check and, if necessary, correct the PROFIBUS/PROFINET configuration of the safety slot on the master side.
- upgrade the Control Unit software.

For fault value = 250:

- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.

Re fault value = 231, 331:

- in the drive, parameterize the appropriate PROFIsafe telegram (p9611/p9811) to be set on the F-PLC and to be set in p60022.
- Configure the PROFIsafe telegram matching the parameterization (p9611/p9811) in the F-PLC.

A01654 (F) SI P1 (CU): Deviating PROFIsafe configuration

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The configuration of a PROFIsafe telegram in the higher-level control (F-PLC) does not match the parameterization in the drive.

Note:

This message does not result in a safety stop response.

Alarm value (r2124, interpret decimal):

1:

A PROFIsafe telegram is configured in the higher-level control, however PROFIsafe is not enabled in the drive (p9601.3).

2:

PROFIsafe is parameterized in the drive; however, a PROFIsafe telegram has not been configured in the higher-level control.

Remedy: The following generally applies:

- check and, if necessary, correct the PROFIsafe configuration in the higher-level control.

Re alarm value = 1:

- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.

Re alarm value = 2:

- configure the PROFIsafe telegram to match the parameterization in the higher-level F-control.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

F01655 SI P1 (CU): Align monitoring functions

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: An error has occurred when aligning the Safety Integrated monitoring functions of both monitoring channels. No common set of supported SI monitoring functions was able to be determined.

- there is either a DRIVE-CLiQ communication error or communication has failed.
- Safety Integrated software releases on the Control Unit and Motor Module/Hydraulic Module are not compatible with one another.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret hexadecimal):

Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module/Hydraulic Module software.
- upgrade the Control Unit software.
- check the electrical cabinet design and cable routing for EMC compliance

Note:

CU: Control Unit

SI: Safety Integrated

F01656	**SI CU: Parameter monitoring channel 2 error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for monitoring channel 2 in the non-volatile memory, an error has occurred. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: - safety parameters for monitoring channel 2 corrupted. - drive with enabled safety functions was possibly copied offline using the commissioning software and the project downloaded. 131: Internal Motor Module/Hydraulic Module software error. 132: Communication errors when uploading or downloading the safety parameters for monitoring channel 2. 255: Internal software error on the Control Unit.
Remedy:	- re-commission the safety functions. - upgrade the Control Unit software. - upgrade the Motor Module/Hydraulic Module software. - replace the memory card or Control Unit. For fault value = 129: - activate the safety commissioning mode (p0010 = 95). - adapt the PROFIsafe address (p9610). - start the copy function for SI parameters (p9700 = D0 hex). - acknowledge data change (p9701 = DC hex). - exit the safety commissioning mode (p0010 = 0). - save all parameters (p0977 = 1 or "copy RAM to ROM"). - carry out a POWER ON (power off/on) for all components. For fault value = 132: - check the electrical cabinet design and cable routing for EMC compliance Note: CU: Control Unit SI: Safety Integrated

F01657	**SI P1 (CU): PROFIsafe telegram number invalid**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The PROFIsafe telegram number set in p9611 is not valid. When PROFIsafe is enabled (p9601.3 = 1), then a telegram number greater than zero must be entered in p9611. Note: This fault does not result in a safety stop response. See also: p9611 (SI PROFIsafe telegram selection (Control Unit)), p60022 (PROFIsafe telegram selection)
Remedy:	Check the telegram number setting (p9611).

F01658 SI P1 (CU): PROFIsafe telegram number differ

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The PROFIsafe telegram number is set differently in p9611 and p60022.
For p9611 not equal to 998, the following applies:
The telegram number must be identically set in both parameters.
The following applies for p9611 = 998:
As a result of the compatibility to firmware versions < 4.5, then only the values 0 and 30 are permitted in p60022.
Note:
This fault does not result in a safety stop response.
See also: p9611 (SI PROFIsafe telegram selection (Control Unit)), p60022 (PROFIsafe telegram selection)
Remedy: Match the telegram number in both parameters so that they are the same (p9611, p60022).

F01659 SI P1 (CU): Write request for parameter rejected

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The write request for one or several Safety Integrated parameters on the Control Unit (CU) was rejected.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
1: The Safety Integrated password is not set.
2: A reset of the drive parameters was selected. However, the Safety Integrated parameters were not reset, as Safety Integrated is presently enabled.
3: The interconnected STO input is in the simulation mode.
10: An attempt was made to enable the STO function although this cannot be supported.
11: An attempt was made to enable the SBC function although this cannot be supported.
12: An attempt was made to enable the SBC function although this cannot be supported for a parallel circuit configuration (r9871.14).
13: An attempt was made to enable the SS1 function although this cannot be supported.
14: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on both monitoring channels is different.
15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
16: An attempt was made to enable the STO function although this cannot be supported when the internal voltage protection (p1231) is enabled.
17: An attempt was made to enable the PROFIsafe function although this cannot be supported for a parallel circuit configuration.
18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.
19: An attempt was made to enable the SBA (Safe Brake Adapter), although this cannot be supported.
20: An attempt was made to enable the motion monitoring functions integrated in the drive and the STO function, both controlled via F-DI.
21: An attempt was made to enable the motion monitoring functions integrated in the drive for a parallel connection, although these cannot be supported.
22: An attempt was made to enable the Safety Integrated functions although these cannot be supported by the connected Power Module.
23: For ESR, an attempt was made to enable the delay of STO, although this cannot be supported.
24: An attempt was made to enable the SBC function, although no power unit data set is set for the brake control (p7015 = 99).
25: An attempt was made to parameterize a PROFIsafe telegram although this cannot be supported.

26: At a digital input of the Control Unit, an attempt was made to activate the simulation mode (p0795), which is used by Safety Integrated (p10049).

27: An attempt was made to activate the Basic Functions by controlling via TM54F although this cannot be supported.

See also: p0970, p3900, r9771, r9871

Remedy: For fault value = 1:

- set the Safety Integrated password (p9761).

For fault value = 2:

- Inhibit Safety Integrated (p9501, p9601) or reset safety parameters (p0970 = 5), then reset the drive parameters again.

For fault value = 3:

- end the simulation mode for the digital input (p0795).

Re fault value = 10, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22 , 23:

- check whether there are faults in the safety function alignment between the two monitoring channels (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 16:

- inhibit the internal voltage protection (p1231).

For fault value = 20:

- correct setting in p9601.

For fault value = 22:

- use a Power Module that supports the Safety Integrated functions.

For fault value = 24:

- set the power unit data set for the holding brake (p7015).

For fault value = 25:

- use a Power Module that supports the PROFIsafe telegram selection.
- Correct the telegram number setting (p9611).

For fault value = 26:

- check whether p10049 is set. Also check p10006 and p10009. Check whether in p10046, p10047 a test stop of the F-DO with read back input has been parameterized.
- correct the setting in p9611.

For fault value = 33:

- deselect drive integrated motion monitoring without selection (p9601.5, p9801.5) and select safety functions that are supported (see p9771/p9871).
- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Note:

CU: Control Unit

ESR: Extended Stop and Retract

SBA: Safe Brake Adapter

SBC: Safe Brake Control

SI: Safety Integrated

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

STO: Safe Torque Off / SH: Safe standstill

See also: p9501 (SI Motion enable safety functions (Control Unit)), p9601 (SI enable functions integrated in the drive (Control Unit)), p9620 (SI signal source for STO (SH)/SBC/SS1 (Control Unit)), p9761 (SI password input), p9801 (SI enable functions integrated in the drive (Motor Module))

F01659	**SI P1 (CU): Write request for parameter rejected**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	TM54F_MA, TM54F_SL
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)

Cause:

The write request for one or several Safety Integrated parameters on the Control Unit (CU) was rejected.

Note:

This fault does not result in a safety stop response.

Fault value (r0949, interpret decimal):

1: The Safety Integrated password is not set.

2: A reset of the drive parameters was selected. However, the Safety Integrated parameters were not reset, as Safety Integrated is presently enabled.

3: The interconnected STO input is in the simulation mode.

10: An attempt was made to enable the STO function although this cannot be supported.

11: An attempt was made to enable the SBC function although this cannot be supported.

12: An attempt was made to enable the SBC function although this cannot be supported for a parallel circuit configuration (r9871.14).

13: An attempt was made to enable the SS1 function although this cannot be supported.

14: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on both monitoring channels is different.

15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.

16: An attempt was made to enable the STO function although this cannot be supported when the internal voltage protection (p1231) is enabled.

17: An attempt was made to enable the PROFIsafe function although this cannot be supported for a parallel circuit configuration.

18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.

19: An attempt was made to enable the SBA (Safe Brake Adapter), although this cannot be supported.

20: An attempt was made to enable the motion monitoring functions integrated in the drive and the STO function, both controlled via F-DI.

21: An attempt was made to enable the motion monitoring functions integrated in the drive for a parallel connection, although these cannot be supported.

22: An attempt was made to enable the Safety Integrated functions although these cannot be supported by the connected Power Module.

23: For ESR, an attempt was made to enable the delay of STO, although this cannot be supported.

24: An attempt was made to enable the SBC function, although no power unit data set is set for the brake control (p7015 = 99).

25: An attempt was made to parameterize a PROFIsafe telegram although this cannot be supported.

26: At a digital input of the Control Unit, an attempt was made to activate the simulation mode (p0795), which is used by Safety Integrated (p10049).

27: An attempt was made to activate the Basic Functions by controlling via TM54F although this cannot be supported.

See also: p0970, p3900, r9771, r9871

Remedy:

For fault value = 1:

- set the Safety Integrated password (p10061).

For fault value = 2:

- Inhibit Safety Integrated (p9501, p9601) or reset safety parameters (p0970 = 5), then reset the drive parameters again.

For fault value = 3:

- end the simulation mode for the digital input (p0795).

Re fault value = 10, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22 , 23:

- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.

- use a Motor Module that supports the required function.

- upgrade the Motor Module software.

- upgrade the Control Unit software.

For fault value = 16:
- inhibit the internal voltage protection (p1231).
For fault value = 20:
- correct setting in p9601.
For fault value = 22:
- use a Power Module that supports the Safety Integrated functions.
Note:
CU: Control Unit
ESR: Extended Stop and Retract
MM: Motor Module
SBA: Safe Brake Adapter
SBC: Safe Brake Control
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
STO: Safe Torque Off / SH: Safe standstill
See also: p9501 (SI Motion enable safety functions (Control Unit)), p9601 (SI enable functions integrated in the drive (Control Unit)), p9620 (SI signal source for STO (SH)/SBC/SS1 (Control Unit)), p9761 (SI password input), p9801 (SI enable functions integrated in the drive (Motor Module))

F01660 SI P1 (CU): Safety-related functions not supported

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Motor Module/Hydraulic Module does not support the safety-related functions (e.g. the Motor Module/Hydraulic Module version is not the correct one). Safety Integrated cannot be commissioned.
Note:
This fault does not result in a safety stop response.
Remedy: - use a Motor Module/Hydraulic Module that supports the safety-related functions.
- upgrade the Motor Module/Hydraulic Module software.
Note:
CU: Control Unit
SI: Safety Integrated

F01661 SI P1 (CU): Simulation of the safety inputs active

Message value: Fault cause: %1 bin
Message class: General drive fault (19)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The simulation of the digital inputs of the Control Unit (p0795) is active.
It is not permissible that safety inputs are simulated.
Fault value (r0949, interpret binary):
The displayed bits indicate which digital inputs must not be simulated.
Remedy: - Deactivate the simulation of the digital inputs of the Control Unit for the safety inputs (p0795).
- acknowledge fault.

F01663 SI P1 (CU): Copying the SI parameters rejected

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: In p9700, the value 87 or 208 is saved or was entered offline.

This is the reason that when booting, an attempt is made to copy SI parameters from monitoring channel 1 to monitoring channel 2. However, no safety-relevant function has been selected on monitoring channel 1 (p9501 = 0, p9601 = 0). Copying was rejected for safety reasons.

As a consequence, inconsistent parameterization can occur in both monitoring channels, which in turn results in additional error messages.

Especially for inconsistent enabling of the safety functions on both monitoring channels (p9601 = 0, p9801 <> 0), fault F30625 is output.

Note:

This fault does not result in a safety stop response.

See also: p9700 (SI Motion copy function)

Remedy: - Set p9700 to 0.

- Check p9501 and p9601 and if required, correct.
- Restart the copying function by entering the corresponding value into p9700.

Alternatively, using the STARTER commissioning tool, perform the following steps in the online mode:

- Call the "Safety Integrated" screen form (the field "Select safety functions" is at "No Safety Integrated").
- Click on "Change settings".
- Click on "Activate settings" (as a consequence, Safety Integrated is inhibited on both monitoring channels).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for all components.

F01664 SI P1 (CU): No automatic firmware update

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated.

This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled.

Note:

This fault does not result in a safety stop response.

See also: p7826 (Firmware update automatic)

Remedy: When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0):

1. Activate the "Firmware update automatic" function (p7826 = 1).
2. Save the parameters (p0977 = 1) and carry out a POWER ON.

When de-activating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode.

F01665 SI P1 (CU): System is defective

Message value: %1

Message class: Hardware / software error (1)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).

Fault value (r0949, interpret hexadecimal):

200000 hex, 400000 hex, 8000yy hex (yy any):

- Fault in the actual booting/operation.

800004 hex:

- Parameters p9500/p9300 are, under certain circumstances, not the same. In addition, Safety message C01711/C30711 is displayed.

Additional values:

- defect before the last time that the system booted.

Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
Re fault value = 200000 hex, 400000 hex, 8000yy hex (yy any):
- ensure that the Control Unit is connected to the Power Module.
Re fault value = 800004 hex:
- Check that parameters p9500/p9300 are the same.

A01666 (F) SI Motion P1 (CU): Steady-state (static) 1 signal at the F-DI for safe acknowledgment

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A logical 1 signal is present at the F-DI configured in p10006 for more than 10 seconds.
If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.
Remedy: Set the fail-safe digital input (F-DI) to a logical 0 signal (p10006).
Note:
F-DI: Failsafe Digital Input
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

A01669 (F, N) SI Motion: Unfavorable combination of motor and power unit

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The combination of motor and power unit used is not suitable for using safe motion monitoring functions without an encoder.
The ratio between the power unit rated current (r0207[0]) and rated motor current (p0305) is greater than 5.
Alarm value (r2124, interpret decimal):
Number of the motor data set, which caused the fault.
Notice:
If this alarm is not observed, then message C01711 or C30711 – with the value 1041 ... 1044 – can sporadically occur.
Remedy: Use a suitable power unit with a lower power rating or a motor with a higher power rating.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F01670 SI Motion: Invalid parameterization Sensor Module

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameterization of a Sensor Module used for Safety Integrated is not permissible.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
1: No encoder was parameterized for Safety Integrated.
2: An encoder was parameterized for Safety Integrated that does not have an A/B track (sine/cosine).

3: The encoder data set selected for Safety Integrated is still not valid.

4: A communication error with the encoder has occurred.

5: Number of relevant bits in the encoder coarse position invalid.

6: DRIVE-CLiQ encoder configuration invalid.

7: Non-safety relevant component of the encoder coarse position for the linear DRIVE-CLiQ encoder not valid.

8: Parameterized Safety comparison algorithm not supported.

9: Relationship between the grid division and measuring step for linear DRIVE-CLiQ encoder is not binary.

10: For an encoder used for Safety Integrated, not all of the Drive Data Sets (DDS) are assigned to the same Encoder Data Set (EDS) (p0187 ... p0189).

11: The zero point setting of a linear DRIVE-CLiQ encoder used in Safety Integrated is not zero.

12: The second encoder is not parameterized.

13: Hydraulic Module: A second encoder has not been parameterized and a DRIVE-CLiQ encoder is not being used.

Remedy: Re fault value = 1, 2:

- use and parameterize an encoder that Safety Integrated supports (encoder with track A/B sine-wave, p0404.4 = 1).

For fault value = 3:

- check whether the drive or drive commissioning function is active and if required, exit this (p0009 = p00010 = 0), save the parameters (p0971 = 1) and carry out a POWER ON

For fault value = 4:

- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Sensor Module involved and if required, carry out a diagnostics routine for the faults identified.

For fault value = 5:

- p9525 = 0 (not permissible). Check the encoder parameterization on the Sensor Modules involved.

For fault value = 6:

- check p9515.0 (for DRIVE-CLiQ encoders, the following applies: p9515.0 = 1). Check the encoder parameterization on the Sensor Modules involved.

For fault value = 7:

- p12033 for an encoder used for Safety Integrated is not equal to 1. Use a linear DRIVE-CLiQ and parameterize for p12033 = 1.

For fault value = 8:

- check p9541. Use and parameterize an encoder that implements an algorithm supported by Safety Integrated.

For fault value = 9:

- check p9514 and p9522. Use an encoder and parameterize, where the ratio between p9514 and p9522 is binary.

For fault value = 10:

- align the EDS assignment of all of the encoders used for Safety Integrated (p0187 ... p0189).

For fault value = 11:

- use and parameterize a linear DRIVE-CLiQ encoder, where the zero point setting is equal to 0.

For fault value = 12:

- p0526 = 1 (not permissible). A second encoder must be parameterized.

For fault value = 13:

- Parameterize a second encoder or use a DRIVE-CLiQ encoder.

Note:

SI: Safety Integrated

F01671 SI Motion: Parameterization encoder error

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameterization of the encoder used by Safety Integrated is different to the parameterization of the standard encoder.

Note:

This fault does not result in a safety stop response.

Fault value (r0949, interpret decimal):

Parameter number of the non-corresponding safety parameter.

Remedy: Align the encoder parameterization between the safety encoder and the standard encoder.
Note:
SI: Safety Integrated

F01672 SI P1 (CU): Motor Module software/hardware incompatible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Motor Module software does not support safe motion monitoring or is not compatible to the software on the Control Unit or there is a communications error between the Control Unit and Motor Module.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
1:
The existing Motor Module software does not support the safe motion monitoring function.
2, 3, 6, 8:
There is a communications error between the Control Unit and Motor Module.
4, 5, 7:
The existing Motor Module software is not compatible to the software on the Control Unit.
9, 10, 11, 12:
The existing Motor Module software does not support the safe encoderless motion monitoring function.
13:
At least one Motor Module in parallel operation does not support the safe motion monitoring function.
Remedy: - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
For fault value = 1:
- use a Motor Module that supports safe motion monitoring.
Re fault value = 2, 3, 6, 8:
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
Re fault value = 4, 5, 7, 9, 13:
- upgrade the Motor Module software.
Note:
SI: Safety Integrated

F01673 SI Motion: Sensor Module software/hardware incompatible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Sensor Module software and/or hardware does not support the safe motion monitoring function with the higher-level control.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - upgrade the Sensor Module software.
- use a Sensor Module that supports the safe motion monitoring function.
Note:
SI: Safety Integrated

F01674	**SI Motion P1 (CU): Safety function not supported by PROFIsafe telegram**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The monitoring function enabled in p9501 and p9601 is not supported by the currently set PROFIsafe telegram (p9611). Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret bitwise binary): Bit 24 = 1: Transfer SLS (SG) limit value via PROFIsafe not supported (p9501.24). Bit 25 = 1: Transfer safe position via PROFIsafe is not supported (p9501.25). Bit 26 = 1: Gearbox stage switchover via PROFIsafe is not supported (p9501.26).
Remedy:	- Deselect the monitoring function involved (p9501, p9601). - set the matching PROFIsafe telegram (p9611). Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed SP: Safe Position

F01679	**SI CU: Safety parameter settings and topology changed, warm restart/POWER ON required**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2 (OFF1, OFF3)
Acknowledge:	POWER ON
Cause:	Safety parameters have been changed; these will only take effect following a warm restart or POWER ON (see alarm A01693). A partial power up (boot) with modified configuration was then performed.
Remedy:	- carry out a warm restart (p0009 = 30, p0976 = 2, 3). - carry out a POWER ON (power off/on) for all components.

F01680	**SI Motion P1 (CU): Checksum error safety monitoring functions**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual checksum calculated by the drive and entered in r9728 via the safety-relevant parameters does not match the reference checksum saved in p9729 at the last machine acceptance. Safety-relevant parameters have been changed or a fault is present. Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 0: Checksum error for SI parameters for motion monitoring. 1: Checksum error for SI parameters for actual values. 2: Checksum error for SI parameters for component assignment.

Remedy: - check the safety-relevant parameters and if required, correct.
- execute the function "Copy RAM to ROM".
- perform a POWER ON if safety parameters requiring a POWER ON have been modified.
- carry out an acceptance test.

F01681 SI Motion P1 (CU): Incorrect parameter value

Message value: Parameter: %1, supplementary information: %2

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameter cannot be parameterized with this value.

Note:

This message does not result in a safety stop response.

Fault value (r0949, interpret decimal):

yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter

yyyy = 0:

No information available.

xxxx = 9500 and yyyy = 1:

Parameter p9500 is not equal to p9300 or not an integer multiple of the sampling time of the current controller (p0115[0]).

xxxx = 9501:

It is not permissible to enable the function "n < nx hysteresis and filtering" (p9501.16) in conjunction with the function "Extended functions without selection" (p9601.5).

xxxx = 9501 and yyyy = 8:

Referencing via SCC (p9501.27 = 1) is enabled without enabling an absolute motion monitoring function (p9501.1 or p9501.2).

xxxx = 9501 and yyyy = 10:

Referencing via SCC (p9501.27 = 1) and epos (r108.4=1) are simultaneously enabled.

xxxx = 9505:

When SLP is active (p9501.1 = 1), the modulo function is activated and this is not permitted (p9505 not equal to 0).

xxxx = 9506 and yyyy = 1:

Parameter p9506 is not equal to p9306.

xxxx = 9511 and yyyy = 1:

Parameter p9511 is not equal to p9311.

xxxx = 9511 and yyyy = 2:

On a Double Motor Module, between the drive objects, no different values in p9511 and p0115[0] is permitted.

xxxx = 9522:

The gear stage was set too high.

xxxx = 9534 or 9535:

The limit values of SLP have been set too high (absolute values).

xxxx = 9544:

For linear axes, the maximum value is limited to 1 mm.

xxxx = 9547:

Parameter p9547 has been set too low.

xxxx = 9573:

"Referencing via safety control channel" was requested (p9573=263), without enabling the function "Referencing via SCC" (p9501.27=0).

xxxx = 9585:

For Safety without encoder and synchronous motor, p9585 must be set to 4.

xxxx = 9601 and yyyy = 1:

If motion monitoring functions integrated in the drive (p9601.2 = 1) and extended functions without selection (p9601.5 = 1) are enabled, then PROFIsafe (p9601.3 = 1) or onboard F-DI (p9601.4 = 1) is not possible.

xxxx = 9601 and yyyy = 2:

Extended functions without selection (p9601.5 =1) are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).

xxxx = 9601 and yyyy = 3:
Onboard F-DI are enabled without enabling motion monitoring functions integrated in the drive (p9601.2).
xxxx = 9601 and yyyy = 4:
Onboard F-DI are enabled. Then, it is not permissible to simultaneously set PROFIsafe and F-DI via PROFIsafe (p9501.30).
xxxx = 9601 and yyyy = 5:
Transfer of the SLS limit value via PROFIsafe (p9501.24) has been enabled, without enabling PROFIsafe.
xxxx = 9601 and yyyy = 6:
Transfer of the safe position via PROFIsafe (p9501.25) has been enabled, without enabling PROFIsafe.
xxxx = 9601 and yyyy = 7:
Safe switchover of the gearbox stages (p9501.26) has been enabled without enabling PROFIsafe.

Remedy: Correct parameter (if required, also on another monitoring channel, p9801).
If xxxx = 9500 and yyyy = 1:
- Set p9500 "SI Motion monitoring clock cycle" as an integer multiple of p0115[0] "Current controller sampling time".
- Align parameters 9300 and 9500, backup parameters (p0971 = 1) and carry out a POWER ON.
If xxxx = 9501:
- Correct parameters p9501.16 and p9301.16, or deselect the extended functions without selection (p9601.5).
If xxxx = 9501 and yyyy = 8:
Inhibit referencing via SCC (p9501.27) or enable an absolute motion monitoring function (p9501.1 or p9501.2).
If xxxx = 9501 and yyyy = 10:
Inhibit referencing via SCC (p9501.27) or epos (r108.4).
If xxxx = 9505:
Correct parameter p9501.1 or p9505.
If xxxx = 9507:
Set synchronous or induction motor according to p0300.
If xxxx = 9506:
Align parameters p9306 and p9506, backup parameters (p0971 = 1) and carry out a POWER ON.
If xxxx = 9511:
Align parameters p9311 and p9511, backup parameters (p0971 = 1) and carry out a POWER ON.
If xxxx = 9517:
Parameter p9516.0 should also be checked.
If xxxx = 9522:
Correct the corresponding parameter.
If xxxx = 9534 or 9535:
Reduce the limit values (absolute values) of SLP.
If xxxx = 9544:
Correct parameter (for linear axes, the maximum value is limited to 1 mm).
If xxxx = 9547:
With hysteresis/filtering enabled (p9501.16 = 1), the following applies:
- Set parameters p9546/p9346 and p9547/p9347 acc. to the following rule: p9546 >= 2 x p9547; p9346 >= 2 x p9347.
- The following rule must also be adhered to when actual value synchronization (p9501.3 = 1) is enabled: p9549 <= p9547; p9349 <= p9347.
If xxxx = 9585:
Correct parameter (if required, also on the second monitoring channel, p9385).
If xxxx = 9601:
yyyy = 1:
Only enable motion monitoring functions integrated in the drive (p9601.2 = 1) and extended functions without selection (p9601.5 = 1), or only enable PROFIsafe (p9601.3 = 1) or only onboard F-DI (p9601.4 = 1).
yyyy = 2, 3:
Enable motion monitoring functions integrated in the drive (p9601.2 = 1).
yyyy = 4:
If onboard F-DI are enabled, then it is not permissible to simultaneously set PROFIsafe and F-DI via PROFIsafe (p9501.30), deselect PROFIsafe functionality or onboard F-DI.
yyyy = 5:
To transfer the SLS limit values via PROFIsafe (p9501.24 = 1), also enable PROFIsafe (p9601.3 =1) and motion monitoring functions integrated in the drive (p9601.2 = 1).

yyyy = 6:
For the safe position via PROFIsafe (p9501.25 = 1), also enable PROFIsafe (p9601.3 =1) and motion monitoring functions integrated in the drive (p9601.2 = 1).
yyyy = 7:
For safe switchover of gearbox stages (p9501.26 = 1) also enable PROFIsafe (p9601.3 =1) and motion monitoring functions integrated in the drive (p9601.2 = 1).

F01682 SI Motion P1 (CU): Monitoring function not supported

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The monitoring function enabled in p9501, p9601, p9801, p9307 or p9507 is not supported in this firmware version.

Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
1: Monitoring function SLP not supported (p9501.1).
2: Monitoring function SCA not supported (p9501.7 and p9501.8 ... 15 and p9503).
3: Monitoring function SLS override not supported (p9501.5).
4: Monitoring function external ESR activation not supported (p9501.4).
5: Monitoring function F-DI in PROFIsafe not supported (p9501.30).
6: Enable actual value synchronization not supported (p9501.3).
9: Monitoring function not supported by the firmware or enable bit not used.
10: Monitoring functions only supported for a SERVO drive object.
11: Encoderless monitoring functions (p9506.1) only supported for motion monitoring integrated in the drive (p9601.2).
12: Monitoring functions for ncSI are not supported for CU305.
20: Motion monitoring functions integrated in the drive are only supported in conjunction with PROFIsafe (p9501, p9601.1 ... 2 and p9801.1 ... 2).
21: Enable a safe motion monitoring function (in p9501), not supported for enabled basic functions via PROFIsafe (p9601.2 = 0, p9601.3 = 1).
22: Encoderless monitoring functions in "chassis" format not supported.
23: CU240 does not support monitoring functions requiring an encoder.
24: Monitoring function SDI not supported (p9501.17).
25: Drive-integrated motion monitoring functions not supported (p9501, p9601.2).
26: hysteresis and filtering for SSM monitoring function without an encoder not supported (p9501.16).
27: This hardware does not support onboard F-DI and F-DO.
28: Encoderless monitoring functions are not supported for synchronous motors (p9507.2).
29: SINAMICS S120M: Safety Extended Functions without encoder not supported.
31: This hardware does not support transfer SLS (SG) limit value via PROFIsafe (p9301/p9501.24).
33: Safety functions without selection not supported (p9601.5, p9801.5).
34: This module does not support safe position via PROFIsafe.
36: Function "SS1E" not supported.
37: safe actual value sensing with HTL/TTL encoder (SMC30) not supported.
38: It is not permissible to simultaneously enable the safety functions (p9601) and the essential service mode (ESM, Essential Service Mode, p3880).
39: This module or software version of the CU/MM does not support safe gearbox stage switchover (p9501.26).
40: SIMOTION D410-2: Motion monitoring functions integrated in the drive or PROFIsafe control not supported.
41: SIMOTION D410-2: Safety functions not supported for the "Chassis" format.
42: Motion monitoring functions SLP and SP not supported for D4x5-2 and CX32-2 (p9501.1/25).
43: Motion monitoring functions SLP and SP as well as PROFIsafe telegrams 31/901/902 not supported for D410-2 (p9501.1/24/25/30, p9611).
44: This module/this software version does not support referencing via the safety control channel (p9501.27).
45: Deactivating SOS/SLS during an external STOP A is not supported (p9501.23).

	46: This software version does not support control of the basis functions via TM54F and the simultaneous enable of the extended functions or ncSI or Profisafe. 50: Shortening the switchover times for SOS (p9569/p9369, p9567/p9367) is not supported. 9586: Set value of p9586/p9386 is greater than the supported maximum value. 9588: Set value of p9588/p9388 is greater than the supported maximum value. 9589: Set value of p9589/p9389 is greater than the supported maximum value.
Remedy:	- Deselect the monitoring function involved (p9501, p9503, p9506, p9601, p9801, p9307, p9507). - Reduce the set value (p9586 , p9588 , p9589). Note: ESR: Extended Stop and Retract SCA: Safe Cam / SN: Safe software cam SDI: Safe Direction (safe motion direction) SI: Safety Integrated SLP: Safely-Limited Position / SE: Safe software limit switches SLS: Safely-Limited Speed / SG: Safely reduced speed SP: Safe Position SPL: Safe programmable logic SS1E: Safe Stop 1 external (Safe Stop 1 with external stop) SOS: Safe Operating Stop / SBH: Safe operating stop See also: p9501 (SI Motion enable safety functions (Control Unit)), p9503 (SI Motion SCA (SN) enable (Control Unit)), r9771 (SI common functions (Control Unit))

F01683 SI Motion P1 (CU): SOS/SLS enable missing

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The safety-relevant basic function "SOS/SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled. Note: This fault does not result in a safety stop response.
Remedy:	Enable the function "SOS/SLS" (p9501.0) and carry out a POWER ON. Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop See also: p9501 (SI Motion enable safety functions (Control Unit))

F01684 SI Motion P1 (CU): Safely limited position limit values interchanged

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the function "Safely Limited Position" (SLP), a lower value is in p9534 than in p9535. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 1: Limit values SLP1 interchanged. 2: Limit values SLP2 interchanged. See also: p9534 (SI Motion SLP (SE) upper limit values (Control Unit)), p9535 (SI Motion SLP (SE) lower limit values (Control Unit))
Remedy:	- correct the lower and upper limit values (p9535, p9534). - carry out a POWER ON (power off/on).

Note:
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches

F01685 **SI Motion P1 (CU): Safely-limited speed limit value too high**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Maximum permissible speed.
Remedy: Correct the limit values for SLS and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9531 (SI Motion SLS (SG) limit values (Control Unit))

F01686 **SI Motion: Illegal parameterization cam position**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: At least one enabled "Safety Cam" (SCA) is parameterized in p9536 or p9537 too close to the tolerance range around the modulo position.
The following conditions must be complied with to assign cams to a cam track:
- the cam length of cam x = p9536[x]-p9537[x] must be greater or equal to the cam tolerance + the position tolerance (= p9540 + p9542). This also means that for cams on a cam track, the minus position value must be less than the plus position value.
- the distance between 2 cams x and y (minus position value[y] - plus position value[x] = p9537[y] - p9536[x]) on a cam track must be greater than or equal to the cam tolerance + position tolerance (= p9540 + p9542).
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Number of the "Safe Cam" with an illegal position.
See also: p9501 (SI Motion enable safety functions (Control Unit))
Remedy: Correct the cam position and carry out a POWER ON.
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
See also: p9536 (SI Motion SCA (SN) plus cam position (Control Unit)), p9537 (SI Motion SCA (SN) plus cam position (Control Unit))

F01687 **SI Motion: Illegal parameterization modulo value SCA (SN)**

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameterized modulo value for the "Safe Cam" (SCA) function is not a multiple of 360 000 mDegrees.

	Note:
	This fault does not result in a safety stop response.
Remedy:	Correct the modulo value for SCA and carry out a POWER ON.
	Note:
	SCA: Safe Cam / SN: Safe software cam
	SI: Safety Integrated
	See also: p9505 (SI Motion SP modulo value (Control Unit))

F01688 SI Motion CU: Actual value synchronization not permissible

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	- It is not permissible to enable actual value synchronization for a 1-encoder system.
	- It is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
	- It is not permissible to simultaneously enable actual value synchronization and safe position via PROFIsafe.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
Remedy:	- Either select the "actual value synchronization" function or parameterize a 2-encoder system.
	- Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
	- Either deselect the "actual value synchronization" function or do not enable "Safe position via PROFIsafe".
	Note:
	SCA: Safe Cam / SN: Safe software cam
	SI: Safety Integrated
	SLP: Safely-Limited Position / SE: Safe software limit switches
	SP: Safe Position
	See also: p9501 (SI Motion enable safety functions (Control Unit)), p9526 (SI Motion encoder assignment second channel)

C01689 SI Motion: Axis re-configured

Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The axis configuration was changed (e.g. changeover between linear axis and rotary axis).
	Parameter p0108.13 is internally set to the correct value.
	Note:
	This fault does not result in a safety stop response.
	Fault value (r0949, interpret decimal):
	Parameter number of parameter that initiated the change.
	See also: p9502 (SI Motion axis type (Control Unit))
Remedy:	The following should be carried out after the changeover:
	- exit the safety commissioning mode (p0010).
	- save all parameters (p0977 = 1 or "copy RAM to ROM").
	- carry out a POWER ON.
	Once the Control Unit has been switched on, safety message F01680 or F30680 indicates that the checksums in r9398[0] and r9728[0] have changed in the drive. The following must, therefore, be carried out:
	- activate safety commissioning mode again.
	- complete safety commissioning of the drive.
	- exit the safety commissioning mode (p0010).
	- save all parameters (p0977 = 1 or "copy RAM to ROM").
	- carry out a POWER ON.

Note:
For the commissioning software, the units are only consistently displayed after a project upload.

F01690 SI Motion: Data save problem for the NVRAM

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowledge: POWER ON
Cause: There is not sufficient memory space in the NVRAM on the drive to save parameters r9781 and r9782 (safety logbook).
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
0: There is no physical NVRAM available in the drive.
1: There is no longer any free memory space in the NVRAM.
Remedy: For fault value = 0:
- use a Control Unit NVRAM.
For fault value = 1:
- de-select functions that are not required and that take up memory space in the NVRAM.
- contact the Hotline.
Note:
NVRAM: Non-Volatile Random Access Memory (non-volatile read and write memory)

A01691 (F) SI Motion: Ti and To unsuitable for DP cycle

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The configured times for PROFIBUS communication are not permitted and the DP cycle is used as the actual value acquisition cycle for the safe movement monitoring functions.
Isochronous PROFIBUS:
The sum of Ti and To is too high for the selected DP cycle. The DP cycle should be at least 1 current controller cycle greater than the sum of Ti and To.
No isochronous PROFIBUS:
The DP clock cycle must be at least 4x the current controller clock cycle.
Notice:
If this alarm is not observed, then message C01711 or C30711 – with the value 1020 ... 1021 – can sporadically occur.
Remedy: Configure Ti and To low so that they are suitable for the DP cycle or increase the DP cycle time.
Alternative when SI monitoring integrated in the drive is enabled (p9601/p9801 > 0):
Use the actual value acquisition cycle p9511/p9311 and, in turn, set independently from DP cycle. The actual values sensing clock cycle must be at least 4x the current controller clock cycle. A clock cycle ratio of at least 8:1 is recommended.
See also: p9511 (SI Motion actual value sensing cycle clock (Control Unit))
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F01692 SI Motion P1 (CU): Parameter value not permitted for encoderless

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter cannot be set to this value if encoderless motion monitoring functions have been selected in p9506.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Parameter number with the incorrect value.
See also: p9501 (SI Motion enable safety functions (Control Unit))
Remedy: - Correct the parameter specified in the fault value.
- If necessary, de-select encoderless motion monitoring functions (p9506).
See also: p9501 (SI Motion enable safety functions (Control Unit))

A01693 (F) SI P1 (CU): Safety parameter setting changed, wam restart/POWER ON required

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Safety parameters have been changed; these will only take effect following a warm restart or POWER ON.
Notice:
All changed parameters of the safety motion monitoring functions will only take effect following a warm restart or POWER ON.
Alarm value (r2124, interpret decimal):
Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.
Remedy: - carry out a warm restart (p0009 = 30, p0976 = 2, 3).
- carry out a POWER ON (power off/on) for all components.
Note:
Before performing an acceptance test, a POWER ON must be carried out for all components.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: POWER ON

F01694 (A) SI Motion CU: Firmware version Motor Module/Hydraulic Module older Control Unit

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The firmware version of the Motor Module/Hydraulic Module is older than the version of the Control Unit.
It is possible that safety functions are not available (r9771/r9871).
Note:
This message does not result in a safety stop response.
This message can also occur, if after an automatic firmware update, a POWER ON was not carried out (Alarm A01007).
Remedy: Upgrade the firmware of the Motor Module/Hydraulic Module to a later version.
See also: r9390 (SI Motion version safety motion monitoring (Motor Module)), r9590 (SI Motion version safety motion monitoring (Control Unit))
Reaction upon A: NONE
Acknowl. upon A: NONE

A01695 (F) SI Motion: Sensor Module was replaced

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A Sensor Module, which is used for safe motion monitoring functions, was replaced. The hardware replacement must be acknowledged. An acceptance test must be subsequently performed.

Note:

This message does not result in a safety stop response.

Remedy: Carry out the following steps using the STARTER commissioning software:

- press the "Acknowledge hardware replacement" button in the safety screen form.
- execute the function "Copy RAM to ROM".
- carry out a POWER ON (power off/on) for all components.

As an alternative, carry out the following steps in the expert list of the commissioning software:

- start the copy function for the node identifier on the drive (p9700 = 1D hex).
- acknowledge the hardware CRC on the drive (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

Then carry out an acceptance test (refer to the Safety Integrated Function Manual).

For SINUMERIK, the following applies:

HMI supports the replacement of components with Safety functions (operating area "Diagnostics" --> Softkey "Alarm list" --> Softkey "Confirm SI HW" etc.).

The precise procedure is given in the following document:

SINUMERIK Function Manual Safety Integrated

See also: p9700 (SI Motion copy function), p9701 (Acknowledge SI motion data change)

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A01696 (F) SI Motion: Testing of the motion monitoring functions selected when booting

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The test of the motion monitoring functions was already illegally active when booting.

This is the reason that the test is only carried out again after selecting the forced checking procedure parameterized in p9705.

Note:

This message does not result in a safety stop response.

See also: p9705 (SI Motion: Test stop signal source)

Remedy: De-select the forced checking procedure of the safety motion monitoring functions and then select again.

The signal source for initiation is parameterized in binector input p9705.

Notice:

It is not permissible to use TM54F inputs to start the test stop.

Note:

SI: Safety Integrated

See also: p9705 (SI Motion: Test stop signal source)

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A01697 (F) SI Motion: Motion monitoring functions must be tested

Message value: -

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The time set in p9559 for the forced checking procedure of the safety motion monitoring functions has been exceeded. A new test is required.

After next selecting the forced checking procedure parameterized in p9705, the message is withdrawn and the monitoring time is reset.

Note:

- This message does not result in a safety stop response.

- As the shutdown paths are not automatically checked during booting, an alarm is always issued once booting is complete.

- The test must be performed within a defined, maximum time interval (p9559, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.

See also: p9559 (SI Motion forced checking procedure timer (Control Unit)), p9705 (SI Motion: Test stop signal source)

Remedy: Carry out the forced checking procedure of the safety motion monitoring functions.

The signal source for initiation is parameterized in binector input p9705.

Notice:

It is not permissible to use TM54F inputs to start the test stop.

Note:

SI: Safety Integrated

See also: p9705 (SI Motion: Test stop signal source)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A01698 (F) SI P1 (CU): Commissioning mode active

Message value: -

Message class: General drive fault (19)

Drive object: B_INF, TM54F_MA, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The commissioning of the "Safety Integrated" function is selected.

This message is withdrawn after the safety functions have been commissioned.

Note:

- This message does not result in a safety stop response.

- In the safety commissioning mode, the "STO" function is internally selected.

See also: p0010

Remedy: Not necessary.

Note:

CU: Control Unit

SI: Safety Integrated

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)

Infeed: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A01699 (F) SI P1 (CU): Shutdown path must be tested

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The time set in p9659 for the forced checking procedure of the safety shutdown paths has been exceeded. The safety shutdown paths must be re-tested.

After the next time the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset.

Note:

- This message does not result in a safety stop response.
- The test must be performed within a defined, maximum time interval (p9659, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value).

Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.

See also: p9659 (SI forced checking procedure timer)

Remedy: Select STO and then de-select again.

Note:

CU: Control Unit

SI: Safety Integrated

STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

C01700 SI Motion P1 (CU): STOP A initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP A (STO via the safety shutdown path of the Control Unit).

Possible causes:

- stop request from the second monitoring channel.
- STO not active after a parameterized time (p9557) after test stop selection.
- subsequent response to the message C01706 "SI Motion CU: SAM/SBR limit exceeded".
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01701 "SI Motion CU: STOP B initiated".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".

Remedy:

- remove the cause of the fault on the second monitoring channel.
- carry out a diagnostics routine for message C01706.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01701.
- carry out a diagnostics routine for message C01715.
- carry out a diagnostics routine for message C01716.
- check the value in p9557 (where available), increase the value if necessary, and carry out a POWER ON
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication if it has been implemented)
- replace the Motor Module, Power Module or Hydraulic Module.
- replace Control Unit.

This message can be acknowledged without a POWER ON as follows:

- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only

Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe brake ramp monitoring)
SI: Safety Integrated

C01701 SI Motion P1 (CU): STOP B initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE (OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).
As a result of this fault, after the time parameterized in p9556 has expired, or the speed threshold parameterized in p9560 has been undershot, message C01700 "STOP A initiated" is output.
Possible causes:
- stop request from the second monitoring channel.
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01711 "SI Motion CU: Defect in a monitoring channel".
- subsequent response to the message C01707 "SI Motion CU: tolerance for safe operating stop exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".

Remedy: - remove the cause of the fault on the second monitoring channel.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01711.
- carry out a diagnostics routine for message C01707.
- carry out a diagnostics routine for message C01715.
- carry out a diagnostics routine for message C01716.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only
Note:
SI: Safety Integrated

C01706 SI Motion P1 (CU): SAM/SBR limit exceeded

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Motion monitoring functions with encoder (p9506 = 0) or encoderless with set acceleration monitoring (SAM, p9506 = 3):
- after initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.
Motion monitoring functions encoderless with set brake ramp monitoring (SBR p9506 = 1):
- after initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.
The drive is shut down by the message C01700 "SI Motion: STOP A initiated".

Remedy: Check the braking behavior and, if necessary, adapt the parameterization of the parameter settings of the "SAM" or the "SBR" function.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only

Note:

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe ramp monitoring)

SI: Safety Integrated

See also: p9548 (SI Motion SAM actual velocity tolerance (Control Unit)), p9581 (SI Motion brake ramp reference value (Control Unit)), p9582 (SI Motion brake ramp delay time (Control Unit)), p9583 (SI Motion brake ramp monitoring time (Control Unit))

C01707 SI Motion P1 (CU): Tolerance for safe operating stop exceeded

Message value: -

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The actual position has distanced itself further from the target position than the standstill tolerance.

The drive is shut down by the message C01701 "SI Motion: STOP B initiated".

Remedy: - check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.

- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.

- carry out a POWER ON.

This message can be acknowledged without a POWER ON as follows:

- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe

- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only

Note:

SI: Safety Integrated

SOS: Safe Operating Stop / SBH: Safe operating stop

See also: p9530 (SI Motion standstill tolerance (Control Unit))

C01708 SI Motion P1 (CU): STOP C initiated

Message value: -

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: STOP2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP C (braking along the OFF3 deceleration ramp).

"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.

Possible causes:

- stop request from the higher-level control.

- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".

- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".

- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".

See also: p9552 (SI Motion transition time STOP C to SOS (SBH) (Control Unit))

Remedy: - remove the cause of the fault at the control.

- carry out a diagnostics routine for message C01714/C01715/C01716.

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe

- motion monitoring functions with SINUMERIK: Via the machine control panel

Note:

SI: Safety Integrated

SOS: Safe Operating Stop / SBH: Safe operating stop

C01709 SI Motion P1 (CU): STOP D initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP D (braking along the path).
"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".
See also: p9553 (SI Motion transition time STOP D to SOS (SBH) (Control Unit))
Remedy: - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714/C01715/C01716.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C01710 SI Motion P1 (CU): STOP E initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP E (retraction motion).
"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C01716 "SI Motion CU: tolerance for safe motion direction exceeded".
See also: p9554 (SI Motion transition time STOP E to SOS (SBH) (Control Unit))
Remedy: - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714/C01715/C01716.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C01711 SI Motion P1 (CU): Defect in a monitoring channel

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When cross-comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.

If at least one monitoring function is active, then after the parameterized timer has expired, the message C01701 "SI Motion: STOP B initiated" is output.

The message value that resulted in a STOP F is displayed in r9725.

If the drive is operated together with a SINUMERIK, the message values are described in message 27001 of SINUMERIK, with the exception of the following message values, which can only occur in SINAMICS:

1007: communication error with the PLC (sign-of-life)

1008: communication error with the PLC (CRC)

The following described message values involve the crosswise data comparison between the two monitoring channels (safety functions integrated in the drive).

The message values may also occur in the following cases if the cause that is explicitly mentioned does not apply:

- cycle times not set uniformly (p9500/p9300 and p9511/p9311)

- differently parameterized axis types (p9502/p9302).

- excessively fast cycle times (p9500/p9300, p9511/p9311).

- for message values 3, 44 ... 57, 232 and 1-encoder systems, differently parameterized encoder values (p9516/p9316, p9517/p9317, p9518/p9318, p9520/p9320, p9521/p9321, p9522/p9322, p9526/p9326).

- incorrect synchronization.

Message value (r9749, interpret decimal):

0 to 999: Number of the cross-compared data that resulted in this fault.

Message values that are not subsequently listed are only for internal Siemens troubleshooting.

0: Stop request from the other monitoring channel.

1: Status image of monitoring functions SOS, SLS or SLP (result list 1) (r9710[0], r9710[1]).

2: Status image of monitoring function SCA or n < nx (result list 2) (r9711[0], r9711[1]).

3: The position actual value differential (r9713[0/1]) between the two monitoring channels is greater than the tolerance in p9542/p9342. When actual value synchronization is enabled (p9501.3/p9301.3), the velocity differential (based on the position actual value) is greater than the tolerance in p9549/p9349.

4: Error when synchronizing the crosswise data comparison between the two channels.

5: Function enable signals (p9501/p9301) Safety monitoring clock cycle too small (p9500/p9300).

6: Limit value for SLS1 (p9531[0]/p9331[0])

7: Limit value for SLS2 (p9531[1]/p9331[1])

8: Limit value for SLS3 (p9531[2]/p9331[2])

9: Limit value for SLS4 (p9531[3]/p9331[3])

10: Standstill tol. (p9530/p9330)

11: Upper limit value for SLP1 (p9534[0]/p9334[0]).

12: Lower limit value for SLP1 (p9535[0]/p9335[0]).

13: Upper limit value for SLP2 (p9534[1]/p9334[1]).

14: Lower limit value for SLP2 (p9535[1]/p9335[1]).

31: Position tolerance (p9542/p9342) or (p9549/p9349) when actual value synchronization is enabled (p9501.3/p9301.3)

32: Position tolerance for safe referencing (p9544/p9344).

33: Time, velocity changeover (p9551/p9351)

35: Delay time, STOP A (p9556/p9356)

36: Checking time, STO (p9557/p9357)

37: Trans. time, STOP C to SOS (p9552/p9352)

38: Trans. time STOP D to SOS (p9553/p9353)

39: Trans. time, STOP E to SOS (p9554/p9354)

40: Stop response for SLS (p9561/p9361)

41: Stop response for SLP1 (p9562[0]/p9362[0])

42: Shutdown speed, STO (p9560/p9360)

43: Memory test, stop response (STOP A).

44 ... 57: General

Possible cause 1 (during commissioning or parameter modification)

The tolerance value for the monitoring function is not the same on the two monitoring channels.

Possible cause 2 (during active operation)

The limit values are based on the actual value (r9713[0/1]). If the safe actual values on the two monitoring channels do not match, the limit values, which have been set at a defined interval, will also be different (i.e. corresponding to message value 3). This can be ascertained by checking the safe actual positions.

44: Position actual value (r9713[0/1]) + limit value SLS1 (p9531[0]/p9331[0]) * safety monitoring clock cycle (p9500/p9300).

45: Position actual value (r9713[0/1]) - limit value SLS1 (p9531[0]/p9331[0]) * safety monitoring clock cycle (p9500/p9300).

46: Position actual value (r9713[0/1]) + limit value SLS2 (p9531[1]/p9331[1]) * safety monitoring clock cycle (p9500/p9300).

47: Position actual value (r9713[0/1]) - limit value SLS2 (p9531[1]/p9331[1]) * safety monitoring clock cycle (p9500/p9300).

48: Position actual value (r9713[0/1]) + limit value SLS3 (p9531[2]/p9331[2]) * safety monitoring clock cycle (p9500/p9300).

49: Position actual value (r9713[0/1]) - limit value SLS3 (p9531[2]/p9331[2]) * safety monitoring clock cycle (p9500/p9300).

50: Position actual value (r9713[0/1]) + limit value SLS4 (p9531[3]/p9331[3]) * safety monitoring clock cycle (p9500/p9300).

51: Position actual value (r9713[0/1]) - limit value SLS4 (p9531[3]/p9331[3]) * safety monitoring clock cycle (p9500/p9300).

52: Standstill position + tolerance (p9530/9330)

53: Standstill position - tolerance (p9530/9330)

54: Position actual value (r9713[0/1]) + limit value nx (p9546/p9346) * safety monitoring clock cycle (p9500/p9300) + tolerance (p9542/p9342).

55: Position actual value (r9713[0/1]) + limit value nx (p9546/p9346) * safety monitoring clock cycle (p9500/p9300).

56: Position actual value (r9713[0/1]) - limit value nx (p9546/p9346) * safety monitoring clock cycle (p9500/p9300).

57: Position actual value (r9713[0/1]) - limit value nx (p9546/p9346) * safety monitoring clock cycle (p9500/p9300) - tolerance (p9542/p9342).

58: Actual stop request.

75: Velocity limit nx (p9546, p9346).

When the function "n < nx: hysteresis and filtering" (p9501.16 = 1) is enabled, this message value is also output for a different hysteresis tolerance (p9547/p9347).

76: Stop response for SLS1 (p9563[0]/p9363[0])

77: Stop response for SLS2 (p9563[1]/p9363[1])

78: Stop response for SLS3 (p9563[2]/p9363[2])

79: Stop response for SLS4 (p9563[3]/p9363[3])

80: Modulo value for SP for rotary axes (p9505/p9305).

81: Velocity tolerance for SAM (p9548/p9348)

82: SGEs for SLS correction factor.

83: Acceptance test timer (p9558/p9358)

84: Trans. time STOP F (p9555/p9355)

85: Trans. time bus failure (p9580/p9380)

86: ID 1-encoder system (p9526/p9326).

87: Encoder assignment, second channel (p9526/p9326)

89: Encoder limit freq.

230: Filter time constant for n < nx.

231: Hysteresis tolerance for n < nx.

232: Smoothed velocity actual value.

233: Limit value nx / safety monitoring clock cycle + hysteresis tolerance.

234: Limit value nx / Safety monitoring clock cycle.

235: -Limit value nx / Safety monitoring clock cycle.

236: -Limit value nx / safety monitoring clock cycle - hysteresis tolerance.

237: SGA n < nx.

238: Speed limit value for SAM (p9568/p9368).

239: Acceleration for SBR (p9581/p9381 and p9583/p9383).

240: Inverse value of acceleration for SBR (p9581/p9381 and p9583/p9383).

241: Deceleration time for SBR (p9582/p9382).

242: Encoderless safety (p9506/p9306).

243: Function configuration (p9507/p9307).

244: Encoderless actual value sensing filter time (p9587/p9387).

245: Encoderless actual value sensing minimum current (p9588/p9388).

246: Voltage tolerance acceleration (p9589/p9389).

247: SDI tolerance (p9564/p9364).

248: SDI positive upper limit (7FFFFFFF hex).

249: Position actual value (r9713[0/1]) - SDI tolerance (p9564/p9364).

250: Position actual value (r9713[0/1]) + SDI tolerance (p9564/p9364).

251: SDI negative lower limit (80000001 hex).

252: SDI stop response (p9566/p9366).

253: SDI delay time (p9565/p9365).

254: Setting the evaluation delay for actual value sensing after pulse enable (p9586/p9386).

255: Setting, behavior during pulse suppression (p9509/p9309).

256: Status image of monitoring functions SOS, SLS, SLP, test stop, SBR, SDI (result list 1 ext) (r9710).

257: Safety functions for motion monitoring functions without selection (p9512/p9312) different.

258: Fault tolerance, actual value sensing encoderless (p9585/p9385).

259: Scaling factor for safe position via PROFIsafe (p9574/p9374) or PROFIsafe telegram (p9611/p9811) different.

260: Modulo value including scaling (p9505/p9305 and p9574/p9374) for SP with 16 bit.

261: Scaling factor for acceleration for SBR different.

262: Scaling factor for the inverse value of the acceleration for SBR different.

263: Stop response for SLP2 (p9562[1]/p9362[1])

264: Position tolerance including scaling (p9542/p9342 and p9574/p9374) for SP with 16 bit.

265: Status image of all change functions (results list 1) (r9710).

266: The switchover speed to SOS differs (p9567/p9367).

267: The transition time to SOS after standstill differs (p9569/p9369).

268: SLP delay time differs (p9577/p9377).

269: Factor to increase the position tolerance when switching over the gearbox stage (p9543/9343).

270: Screen form for SGE image: all functions, which are not supported/enabled for the actual parameterization (p9501/p9301, p9601/p9801 and p9506/p9306)..

271: Screen form for SGE image: Deselect all bits for the "Safe gearbox switchover" function

272: Activation of the increased position tolerance for the "Safe gearbox switchover" function different

1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.

1001: Initialization error of watchdog timer.

1002:

User agreement after the timer has expired different.

The user agreement is not consistent. After a time of 4 s has expired, the status of the user agreement is different in both monitoring channels.

1003:

Reference tolerance exceeded.

When the user agreement is set, the difference between the new reference point that has been determined after power up (absolute encoder) or reference point approach (distance-coded or incremental measuring system) and the safe actual position (saved value + traversing distance) is greater than the reference tolerance (p9544). In this case, the user agreement is withdrawn.

1004:

Plausibility error for user agreement.

1. If the user agreement has already been set, then setting is initiated again. In this case, the user agreement is withdrawn.

2. The user agreement was set, although the axis has still not been referenced.

1005:

- For safe motion monitoring functions without encoder: pulses already suppressed for test stop selection.

- For safe motion monitoring functions with encoder: STO already active for test stop selection.

1011: Acceptance test status between the monitoring channels differ.

1012: Plausibility violation of the actual value from the encoder.

1015: Gearbox switchover (bit 27 in PROFIsafe Telegram (takes longer than 2 min.

1020: Cyc. communication failure between the monit. cycles.

1021: Cyc. communication failure between the monit. channel and Sensor Module.

1022: Sign-of-life error for DRIVE-CLiQ encoders monitoring channel 1.

1023: Error in the effectiveness test in the DRIVE-CLiQ encoder

1024: Sign-of-life error for HTL/TTL encoders.

1032: Sign-of-life error for DRIVE-CLiQ encoders monitoring channel 2.

1033: Error checking offset between POS1 and POS2 for DRIVE-CLiQ encoder monitoring channel 1.

1034: Error checking offset between POS1 and POS2 for DRIVE-CLiQ encoder monitoring channel 2.

1039: Overflow when calculating the position.

1041: Current absolute value too low (encoderless)

1042: Current/voltage plausibility error

1043: Too many acceleration phases

1044: Actual current values plausibility error.

5000 ... 5140:

PROFIsafe message values.

For these message values, the failsafe control signals (failsafe values) are transferred to the safety functions.

5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140: An internal software error has occurred (only for internal Siemens troubleshooting).

5012: Error when initializing the PROFIsafe driver.

5013: The result of the initialization is different for the two controllers.

5022: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.

5025: The result of the F parameterization is different for the two controllers.

5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.

5065: A communications error was identified when receiving the PROFIsafe telegram.

5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.

6000 ... 6166:

PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).

For these message values, the failsafe control signals (failsafe values) are transferred to the safety functions.

The significance of the individual message values is described in safety fault F01611.

7000: Difference of the safe position is greater than the parameterized tolerance (p9542/p9342).

7001: Scaling value for the safe position in the 16 bit notation, too low (p9574/p9374).

7002: Cycle counter for transferring the safe position is different in both monitoring channels.

See also: p9555 (SI Motion transition time STOP F to STOP B (Control Unit)), r9725 (SI Motion diagnostics STOP F)

Remedy: The following generally applies:

The monitoring clock cycles in both channels and the axis types should be checked for equality and the same setting applied if necessary. If the error continues to be identified, increasing the monitoring clock cycles may resolve it.

Re message value = 0:

- no error was identified in this monitoring channel. Note the error message of the other monitoring channel (for MM: C30711).

Re message value = 3:

Commissioning phase:

- Encoder evaluation for own or second channel has been set incorrectly --> Correct the encoder evaluation.

In operation:

- Check the mechanical design and the encoder signals.

- If closed-loop control with edge modulation is parameterized (p1802[x] = 9): parameterize edge modulation for actual value sensing without encoder (p9507.5 = p9307.5 = 1).

Re message value = 4:

The monitoring clock cycles in both channels should be checked for equality and if required, set the same. In combination with message value 5 from the other monitoring channel (with MM: C30711), the monitoring clock cycle settings must be increased.

Re message value = 11 ... 14:

- the limit values in p9534/p9334 or p9535/p9335 are not equal or have been set too high. Correct the values.

Re message value = 232:

- Increase the hysteresis tolerance (p9547/p9347). Possibly set the filtering higher (p9545/p9345).

Re message value = 1 ... 999:

- if the message value is listed under cause: Check the crosswise-compared parameters to which the message value refers.

- copy the safety parameters.

- carry out a POWER ON (power off/on) for all components.

- upgrade the Motor Module software.
- upgrade the Control Unit software.
- correction of the encoder evaluation. The actual values differ as a result of mechanical faults (V belts, travel to a mechanical endstop, wear and window setting that is too narrow, encoder fault, ...).

Note:

For SINAMICS firmware version >= 4.7, the CDC list is increased when setting p9567 > 0. For a non-compatible version of SINUMERIK this can lead to an error for the crosswise data comparison (is indicated with message value >= 237). If necessary, p9567 must be set = 0, or the firmware version of SINUMERIK upgraded.

Re message value = 1000:
- investigate the signal associated with the safety-relevant input (contact problems).

Re message value = 1001:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re message value = 1002:
- Perform safe acknowledgment, set the user agreement in both monitoring channels simultaneously (within 4 s).

Re message value = 1003:
- check the mechanical system of the axis. It is possible that the axis was shifted when switched-off, and the last saved actual position no longer corresponds with the new actual position after the system has been powered up again.
- Increase the tolerance for the actual value comparison when referencing (p9544).

Then check the actual values, perform a POWER ON and set the user agreement again.

Re message value = 1004:

For 1., the following applies: Perform safe acknowledgment. Set the user agreement again.

For 2., the following applies: Perform safe acknowledgment. Only set the user agreement again if the axis has been referenced.

Re message value = 1005:
- For safe motion monitoring functions without encoder: check the conditions for pulse enable.
- For safe motion monitoring functions with encoder: check the conditions for STO deselection.

Note:

For a power module, the test stop should always be performed for pulse enable (independent of whether with encoder or without encoder).

Re message value = 1007:
- check the PLC for the correct operating state (run state, basic program).

Re message value = 1008:
- check whether incorrect or overlapping address ranges have been set in SINUMERIK machine data MD10393.

Re message value = 1011:
- for diagnostics, refer to parameter (r9571).

Re message value = 1012:
- upgrade the Sensor Module firmware to a more recent version.
- for 1-encoder systems, the following applies: check the encoder parameters for equality (p9515/p9315, p9519/p9319, p9523/p9323, p9524/p9324, p9525/p9325, p9529/p9329).
- For a 1-encoder system and 2-encoder system the following applies: in order to correctly copy the encoder parameters from p04xx, p9700 must be set to 46 and p9701 must be set to 172.
- For DQI encoders the following applies: If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.
- check the electrical cabinet design and cable routing for EMC compliance
- carry out a POWER ON (power off/on) for all components or a warm restart (p0009 = 30, p0976 = 2, 3).
- replace the hardware.

Re message value = 1020, 1021, 1024:
- check the communication link.
- increase the monitoring cycle clock settings (p9500, p9511).
- carry out a POWER ON (power off/on) for all components or a warm restart (p0009 = 30, p0976 = 2, 3).
- replace the hardware.

Re message value = 1033:
- If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.

Re message value = 1039:

- Check the conversion factors such as spindle pitch or gearbox ratios.

Re message value = 1041:

- Check whether the motor has sufficient current (>r9785[0]).

- reduce the minimum current (p9588).

- for synchronous motors increase the absolute value of p9783.

- Check whether the function "Closed-loop controlled operation with HF signal injection" is activated (p1750.5 = 1) and if required, deactivate.

Re message value = 1042:

- increase the ramp-function generator ramp-up/down time (p1120/p1121).

- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).

- reduce the dynamic response of the setpoint value.

- Check the absolute current and voltage values, and set the control behavior so that this is greater than 3% of the rated converter data in operation or in the case of a fault.

- increase the minimum current (p9588/p9388).

Re message value = 1043:

- increase the voltage tolerance (p9589).

- increase the ramp-function generator ramp-up/down time (p1120/p1121).

- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).

- reduce the dynamic response of the setpoint value.

Re message value = 5000, 5014, 5023, 5024, 5030, 5031, 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:

- carry out a POWER ON (power off/on) for all components.

- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

- upgrade firmware to later version.

- contact the Hotline.

- replace the Control Unit.

Re message value = 5012:

- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810). It is not permissible for the PROFIsafe address to be 0 or FFFF!

Re message value = 5013, 5025:

- carry out a POWER ON (power off/on) for all components.

- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).

- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re message value = 5022:

- check the setting of the values of the F parameters at the PROFIsafe slave (F_SIL, F_CRC_Length, F_Par_Version, F_Source_Add, F_Dest_add, F_WD_Time).

Re message value = 5026:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and update.

Re message value = 5065:

- check the configuration and communication at the PROFIsafe slave (cons. No. / CRC).

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re message value = 5066:

- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

- evaluate diagnostic information in the F host.

- check PROFIsafe connection.

Re message value = 6000 ... 6999:

Refer to the description of the message values in safety fault F01611.

Re message value = 7000:

- Increase the position tolerance (p9542/p9342).

- Determine the actual position of CU (r9713[0] and the second channel r9713[1], and check the difference for plausibility.

- Reduce the difference of the actual position from CU (r9713[0] and the second channel r9713[1] for a 2-encoder system.

Re message value = 7001:

- Increase the scaling value for the safe position in the 16 bit notation (p9574/p9374).

- If required, reduce the traversing range.

Re message value = 7002:

- carry out a POWER ON (power off/on) for all components.

- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe

- motion monitoring functions with SINUMERIK: Via the machine control panel

See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C01712 SI Motion P1 (CU): Defect in F-IO processing

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.

The safety message C01711 with message value 0 is also displayed due to initiation of STOP F.

If at least one monitoring function is active, the safety message C01701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired.

Message value (r9749, interpret decimal):

Number of the cross-compared data that resulted in this message.

1: SI discrepancy monitoring time inputs (p10002, p10102).

2: SI acknowledgement internal event input terminal (p10006, p10106).

3: SI STO input terminal (p10022, p10122).

4: SI SS1 input terminal (p10023, p10123).

5: SI SS2 input terminal (p10024, p10124).

6: SI SOS input terminal (p10025, p10125).

7: SI SLS input terminal (p10026, p10126).

8: SI SLS_Limit(1) input terminal (p10027, p10127).

9: SI SLS_Limit(2) input terminal (p10028, p10128).

10: SI Safe State signal selection (p10039, p10139).

11 SI F-DI input mode (p10040, p10140).

12: SI F-DO 0 signal sources (p10042, p10142).

13: Different states for static inactive signal sources (p10006, p10022 ... p10031).

14: SI discrepancy monitoring time outputs (p10002, p10102).

15: SI acknowledgment internal event (p10006, p10106).

16: SI test sensor feedback signal test mode selected for test stop (p10046, p10146, p10047, p10147).

17: SI delay time for test stop at DOs (p10001).

18 ... 25: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of internal readback signal, generated from the selected test stop mode.

26 ... 33: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of external readback signal, generated from the selected test stop mode.

34 ... 41: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of second internal readback signal, generated from the selected test stop mode.

42: Internal data for processing the second internal readback signal, generated from the selected test stop mode (p10047, p10147).

43: Internal data for processing the internal readback signal, generated from the selected test stop mode (p10047, p10147).
44: Internal data for processing the external readback signal, generated from the selected test stop mode (p10047, p10147).
45: Internal data for initialization state of test stop mode, dependent upon test stop parameters.
46: SI digital inputs debounce time (p10017, p10117)
47: Selection F-DI for PROFIsafe (p10050, p10150)
48: Screen form of the F-DIs used (p10006, p10022 ... p10031).
49: SI SDI positive input terminal (p10030, p10130).
50: SI SDI negative input terminal (p10031, p10131).
51: SI SLP input terminal (p10032, p10132).
52: SI SLP select input terminal (p10033, p10133).
53: Internal data for retraction logic (p10009, p100109).
54: SI F-DI for retraction SLP (p10009, p100109).

Remedy: - check parameterization in the parameters involved and correct if required.
- ensure equality by copying the SI data to the second channel and then carry out an acceptance test.
- check monitoring clock cycle in p9500 and p9300 for equality.
Note:
This message can be acknowledged via F-DI or PROFIsafe.
See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C01714 SI Motion P1 (CU): Safely-Limited Speed exceeded

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive has moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563).
Message value (r9749, interpret decimal):
100: SLS1 exceeded.
200: SLS2 exceeded.
300: SLS3 exceeded.
400: SLS4 exceeded.
1000: Encoder limit frequency exceeded.

Remedy: - check the traversing/motion program in the control.
- check limits for SLS and if required adapt accordingly (p9531).
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9531 (SI Motion SLS (SG) limit values (Control Unit)), p9563 (SI Motion SLS (SG)-specific stop response (Control Unit))

C01715 SI Motion P1 (CU): Safely-Limited Position exceeded

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The axis has moved past a parameterized position that is monitored by the "SLP" function.

	Message value (r9749, interpret decimal):
	10: SLP1 violated.
	20: SLP2 violated.
Remedy:	- check the traversing/motion program in the control.
	- check the limits for "SLP" function and if required, adapt (p9534, p9535).
	This message can be acknowledged as follows:
	- motion monitoring functions with SINUMERIK: Via the machine control panel
	Note:
	SI: Safety Integrated
	SLP: Safely-Limited Position / SE: Safe software limit switches
	See also: p9534 (SI Motion SLP (SE) upper limit values (Control Unit)), p9535 (SI Motion SLP (SE) lower limit values (Control Unit))

C01716 SI Motion P1 (CU): Tolerance for safe motion direction exceeded

Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9566).
	Message value (r9749, interpret decimal):
	0: Tolerance for the "safe motion direction positive" function exceeded.
	1: Tolerance for the "safe motion direction negative" function exceeded.
Remedy:	- check the traversing/motion program in the control.
	- check the tolerance for "SDI" function and if required, adapt (p9564).
	This message can be acknowledged as follows:
	- Deselect the "SDI" function and select again.
	- Perform a safe acknowledgment via F-DI or PROFIsafe.
	Note:
	SDI: Safe Direction (safe motion direction)
	SI: Safety Integrated
	See also: p9564 (SI Motion SDI tolerance (Control Unit)), p9565 (SI Motion SDI delay time (Control Unit)), p9566 (SI Motion SDI stop response (Control Unit))

C01730 SI Motion P1 (CU): Reference block for dynamic safely limited speed invalid

Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The reference block transferred via PROFIsafe is negative.
	A reference block is used to generate a referred velocity limit value based on the reference quantity "Velocity limit value SLS1" (p9531[0]).
	The drive is stopped as a result of the configured stop response (p9563[0]).
	Message value (r9749, interpret decimal):
	requested, invalid reference block.
Remedy:	In the PROFIsafe telegram, input data S_SLS_LIMIT_IST must be corrected.
	This message can be acknowledged as follows:
	- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
	- motion monitoring functions with SINUMERIK: Via the machine control panel
	Note:
	SI: Safety Integrated
	SLS: Safely-Limited Speed / SG: Safely reduced speed

C01745 **SI Motion P1 (CU): Checking braking torque for the brake test**

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: POWER ON (IMMEDIATELY)
Cause: The scaling of the brake torque for the brake test can be changed using parameter p2003.
An acceptance test must be carried out again for the braking test. This determines whether the braking test is still carried out with the correct braking torque.
Remedy: - carry out a POWER ON (power off/on) for all components.
- repeat the acceptance test for the safe brake test if the brake test is used.
See also: p2003 (Reference torque)

C01750 **SI Motion P1 (CU): Hardware fault safety-relevant encoder**

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The encoder that is used for the safety-relevant motion monitoring functions signals a hardware fault.
Message value (r9749, interpret decimal):
Encoder status word 1, encoder status word 2 that resulted in the message.
Remedy: - check the encoder connection.
- replace encoder.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.
Note regarding encoder replacement for a third-party motor:
The serial number of the encoder must be copied in order to acknowledge this safety message.
This can be realized using p0440 = 1 or p1990 = 1.

C01751 **SI Motion P1 (CU): Effectivity test fault safety-relevant encoder**

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The DRIVE-CLiQ encoder for safe motion monitoring signals an error for the effectivity tests.
Message value (r9749, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check the encoder connection.
- replace encoder.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel

C01752 **SI Motion P1 (CU): reference position invalid**

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The transferred reference position is invalid.

	Message value (r9749, interpret decimal):
	1: It is not possible to directly transfer the reference position (p9573=89).
	2: It is not possible to transfer the reference into the motion.
Remedy:	- unpark axis/encoder.
	- acknowledge encoder fault
	- de-activate gearbox stage switchover.
	- when referencing via the Safety Control Channel (SCC), enable the function "Referencing via SCC" (p9501.27/9301.27).
	This message can be acknowledged as follows:
	- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe

C01770 SI Motion P1 (CU): Discrepancy error of the fail-safe inputs/outputs

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The fail-safe digital inputs/digital outputs (F-DI/F-DO) show a different state longer than that parameterized in p10002 / p10102.

Fault value (r0949, interpret bitwise binary):

yyyyxxxx bin

xxxx: Discrepancy error for fail-safe digital inputs (F-DI).

Bit 0: Discrepancy error for F-DI 0

Bit 1: Discrepancy error for F-DI 1

...

yyyy: Discrepancy error for fail-safe digital outputs (F-DO).

Bit 0: Discrepancy error for F-DO 0

...

Note:

If several discrepancy errors occur consecutively, then this message is only signaled for the first error that occurs.

Remedy: - check the wiring of the F-DI (contact problems).

Note:

This message can be acknowledged via F-DI or PROFIsafe.

Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.

For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency.

If the period of a cyclic switching pulse corresponds to twice the value of p10002, then the following formulas should be checked:

- p10002 < (tp / 2) - td (discrepancy time must be less than half the period minus the actual discrepancy time)

- p10002 >= p9500 (discrepancy time must be no less than p9500)

- p10002 > td (discrepancy time must be greater than the switch discrepancy time which may actually apply)

td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI monitoring cycle (see p9500).

tp = period for a switching operation in ms.

When debounce p10017 is active, the discrepancy time is directly specified by the debounce time.

If the period of a cyclic switching pulse corresponds to twice the debounce time, then the following formulas should be checked.

- p10002 < p10017 + 1 ms - td

- p10002 > td

- p10002 >= p9500

Example:

For a 12 ms SI monitoring cycle and a switching frequency of 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows:

p10002 <= (110/2 ms) - 12 ms = 43 ms

Rounded-off, p10002 <= 36 ms is obtained (since the discrepancy time can only be accepted as a whole SI monitoring cycle, the value will need to be rounded up or down to a whole SI monitoring cycle if the result is not an exact multiple of an SI monitoring cycle).

Note:

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

A01772 SI Motion P1 (CU): Test stop failsafe inputs/outputs active

Message value: -

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The test stop for the fail-safe digital inputs (F-DI) and/or fail-safe digital outputs (F-DO) is presently being performed.

Note:

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

Remedy: The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.

F01773 SI Motion P1 (CU): Test stop error

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: A fault has occurred on the CU side during the test stop for the fail-safe outputs.

Fault value (r0949, interpret hexadecimal):

RRRVWXYZ hex:

R: Reserved.

V: Actual state of the DO channel concerned (see X) on the CU (corresponds to the states read back from the hardware, bit 0 = DO 0, bit 1 = DO 1, etc.).

W: Required state of the DO channel concerned (see X, bit 0 = DO 0, bit 1 = DO 1, etc.).

X: DO channels involved, which indicate an error (bit 0 = DO 0, bit 1 = DO 1, etc.).

Y: Reason for the test stop fault.

Z: State of the test stop in which the fault has occurred.

Y: Reason for the test stop fault

Y = 1: MM side in incorrect test stop state (internal fault).

Y = 2: Expected states of the DOs were not fulfilled (CU305: readback via DI 22 / CU240 readback DI 5).

Y = 3: Incorrect timer state on CU side (internal fault)

Y = 4: Expected states of the diag DOs were not fulfilled (CU305: internal readback on MM channel).

Y = 5: Expected states of the second diag DOs were not fulfilled (CU305: internal readback on CU channel).

X and V indicate the DI or Diag-DO state dependent upon the reason for the fault (2, 4 or 5).

In the event of multiple test stop faults, the first one that occurred is shown.

Z: Test stop state and associated test actions

Z = 0 ... 3: Synchronization phase of test stop between CU and Motor Module no switching operations

Z = 4: DO + OFF and DO - OFF

Z = 5: Check to see if states are as expected

Z = 6: DO + ON and DO - ON

Z = 7: Check to see if states are as expected

Z = 8: DO + OFF and DO - ON
Z = 9: Check to see if states are as expected
Z = 10: DO + ON and DO - OFF
Z = 11: Check to see if states are as expected
Z = 12: DO + OFF and DO - OFF
Z = 13: Check to see if states are as expected
Z = 14: End of test stop

Diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: 0/-/-/1
7: 0/-/-/0
9: 0/-/-/0
11: 1/-/-/1
13: 0/-/-/1
Second diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/-/-/1
7: -/-/-/0
9: -/-/-/1
11: -/-/-/0
13: -/-/-/1
DI expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/1/1/-
7: -/0/0/-
9: -/0/1/-
11: -/0/1/-
13: -/1/1/-

Example:
Fault F01773 (CU) is signaled with fault value = 0001_0127 and fault F30773 (MM) is signaled with fault value 0000_0127.
This means that in state 7 (Z = 7) the state of the external readback signal was not set correctly (Y = 2) after DO-0 (X = 1) was switched to ON/ON.
Fault value 0001_0127 indicates that 0 was expected (W = 0) and 1 (V = 1) was read back from the hardware.
Fault value 0000_0127 on the MM indicates that the states were as expected.
In the case of fault F30773, W and V are always identical; a value of 0 always means that 0 was expected at the readback input but was not present on the other channel (CU).

Remedy: Check the wiring of the F-DOs and restart the test stop.
Note:
The fault is withdrawn if the test stop is successfully completed.
In the event of multiple test stop faults, the first one that occurred is shown.
Once the test stop has been restarted the next queued test stop fault will be signaled (if there is one).

A01774 SI Motion P1 (CU): Test stop necessary

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: - after powering up the drive, a test stop has still not been carried out.
- a new test stop is required after commissioning.
- the time to carry out the forced checking procedure (test stop) has expired (p10003).

Note:

- The test must be performed within a defined, maximum time interval (p10003, maximum of 8760 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning.

Remedy: Initiate test stop (BI: p10007).

A01780 SBT When selected, the brake is closed

Message value: Following brakes are closed: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: When selecting the brake test or starting the brake test, not all of the brakes were open.

Alarm value (r2124, interpret binary):

Bit 0 = 1:

The internal brake is closed.

Bit 1 = 1:

The external brake is closed (p10230.5, p10235.5, p10202).

Note:

The alarm is also issued, if a brake has not been configured in p10202.

SBT: Safe Brake Test

See also: p10202 (SI Motion SBT brake selection), p10230 (SI Motion SBT control word), p10235 (SI Safety Control Channel control word S_STW3B)

Remedy: Open all brakes and reselect the brake test (p10230.0, p10235.0).

A01781 SBT brake opening time exceeded

Message value: Fault cause: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The maximum time (11 s) to open the brake during the brake test was exceeded.

Possible causes:

- during the brake test the drive went into a fault condition, and therefore the brake was closed by the drive.
- for an external brake, the feedback signal "Brake closed" was signaled too long (p10230.5, p10235).

Alarm value (r2124, interpret binary):

Bit 0 = 1:

Internal brake was not able to be opened.

Bit 1 = 1:

External brake was not able to be opened.

Note:

SBT: Safe Brake Test

Remedy: - Carry out a safe acknowledgment.

- restart the brake test (p10230.1, p10235.1).

See also: p10230 (SI Motion SBT control word), p10235 (SI Safety Control Channel control word S_STW3B)

A01782 SBT brake test incorrect control

Message value: Fault cause: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The brake test was canceled as a result of incorrect control.

Alarm value (r2124, evaluate binary):
Alarm value 0:
The brake test was canceled as a result of a fault (brake opening time or brake closing time exceeded).
Bit 0:
The safe brake test was canceled by resetting the brake test selection.
Bit 1:
The safe brake test was canceled by resetting the brake test start.
Bit 2:
The brake, which was selected at the start of the brake test, has not been configured in p10202.
When starting the brake test, as a result of the test top selection, brake 1 is not configured as internal brake.
There is a brake test configuration error. In this case, alarm A01785 is also output.
Note:
SBT: Safe Brake Test
See also: p10202 (SI Motion SBT brake selection)

Remedy:
- Check parameterization of the brake test (p10202).
- Check as to whether alarm A01785 is present, and if so, evaluate.
- Carry out a safe acknowledgment.
- If required, restart the brake test.

A01783 SBT brake closing time exceeded

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The maximum time (11 s) to close the brake during the brake test was exceeded.
Alarm value (r2124, interpret binary):
Bit 0 = 1:
Internal brake was not able to be closed.
Bit 1 = 1:
External brake was not able to be closed.
Note:
SBT: Safe Brake Test

Remedy:
- When using an external brake, check that the feedback signal "brake closed" is correctly interconnected with the control word of the brake test (p10230.5, p10235.5).
- When using an internal brake with external feedback signal, check whether the feedback signal is correctly interconnected with the extended brake control.
- Carry out a safe acknowledgment.
- restart the brake test (p10230.1, p10235.1).

A01784 SBT brake test canceled with fault

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The safe brake test was canceled as a result of a fault.
Alarm value (r2124, interpret binary):
Bit 17 = 1: fault in the brake test sequence (cause, see bits 0 ... 10).
Bit 18 = 1: the internal brake is closed. It must be open when the external brake is tested (p10202).
Bit 19 = 1: the external brake is closed. It must be open when the internal brake is tested (p10202).
Bit 20 = 1: not all brakes are open (p10202).
Bit 21 = 1: axis position during the brake test not valid due to parking axis.
Bit 22 = 1: internal software error.
Bit 23 = 1: the permissible position range of the axis was violated with the brake closed (p10212/ p10222).
Bit 24 = 1: the tested internal brake was opened while the brake test was active.

Bit 25 = 1: the tested external brake was opened while the brake test was active.
Bit 26 = 1: during the active brake test, the test torque left its tolerance bandwidth (20 %).
Cause for alarm value bit 17:
Bit 0 = 1: operation when selecting the brake test not enabled (r0899.2 = 0).
Bit 1 = 1: external fault occurred (e.g. the brake test that has already started is canceled by the user).
Bit 2 = 1: when selecting the brake test a brake is closed.
Bit 3 = 1: when determining the load torque a brake is closed.
Bit 4 = 1: a fault with a stop response has occurred (e.g.. OFF1, OFF2 or OFF3).
Bit 5 = 1: when selecting the brake test the axis speed setpoint is too high.
Bit 6 = 1: the actual speed (r0063) of the axis is too high (e.g. brake does not hold during the brake test).
Bit 7 = 1: incorrect speed controller mode (e.g. encoderless speed control or U/f operation).
Bit 8 = 1: closed-loop control not enabled or function generator active.
Bit 9 = 1: control does not switch over to the brake test (e.g. because PI speed control has not been parameterized).
Bit 10 = 1: torque limit reached (r1407.7, r1408.8).
Note:
SBT: Safe Brake Test

Remedy: - Remove the fault cause.
- Carry out a safe acknowledgment.
- If required, restart the brake test.
Re bit 17 = 1 with bit 6 = 1 or bit 23 = 1:
If the brake closing time of the motor holding brake (p1217) has been set too low, then at the start of the brake test, the brake is closed too late. The brake closing time should be adapted (p1217).

A01785 SBT brake test configuration error

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Error when parameterizing the brake test.
In this configuration, the brake test cannot be started or cannot be started without error.
Alarm value (r2124, interpret decimal):
1:
No motion monitoring functions have been enabled.
2:
Two internal brakes were configured (p10202).
4:
No internal brakes were configured (p10202).
8:
The brake test is configured for an internal brake, however the safety brake control is not enabled (p9602/p9802).
16:
The safe brake test and Safety without encoder are simultaneously enabled (p9306/p9506). This is not permissible.
32:
The safe brake test and vector u/f control have been enabled. The safe brake test is not possible in this control mode.
Note:
SBT: Safe Brake Test

Remedy: Check parameterization of the brake test.

F01786 SCC signal source changed

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The signal source in p10235 or p10250 was changed.

The new signal source is effective immediately.
Note:
SCC: Safety Control Channel
See also: p10235 (SI Safety Control Channel control word S_STW3B), p10250 (SI Safety Control Channel control word S_STW1B)

Remedy: Acknowledge fault.

F01787 SBT motor type different

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The motor type set for the safe brake test (p10204) does not match the motor type set via the function module (r0108.12).
Remedy: Adapt the motor type set for the safe brake test.
Note:
All of the parameters for the brake test, whose unit depends on the motor type, should be checked.
See also: p10204 (SI Motion SBT motor type), p10209 (SI Motion SBT brake holding torque)

A01788 Automatic test stop: wait for STO deselection via SMM

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The STO function is selected via Safety Extended Functions or a safety message is present, which results in STO.
The automatic test stop was not able to be carried out since the power up.
The automatic test stop is performed after deselecting STO.
Remedy: Deselect STO via Safety Extended Functions.
Remove the cause of the safety message and acknowledge the fault.

A01789 Automatic test stop and brake test not permitted when test stop is selected

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The parameterization of the automatic test stop (p9507.6/p9307.6) and the brake test when a test stop is selected (p10203 = 2) is not permissible.
The test stop is not automatically carried out when the powering up.
Remedy: - correct the parameter assignment.
- set p10203 not equal to 2 or deactivate the automatic test stop.
Note:
A warm restart or POWER ON is required to carry out the automatic test stop.

A01794 (N) SI MOTION: check modulo value for safe position via PROFIsafe

Message value: -
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When parameterizing the modulo value for safe position via PROFIsafe (p9505) the position actual value can jump when the range that can be represented overflows.

	Range that can be represented:
	- 32-bit value: +/- 2048 revolutions
	- 16-bit value: +/- 2048 revolutions (depending on p9574)
Remedy:	Correct the parameter assignment.
	Set p9505 to 2^n revolutions - and to complete revolutions (i.e. a multiple of 360 °).
	Note:
	This alarm can be hidden for the case that the possible position actual value jump can be tolerated for the particular application, or does not represent a problem; for example because the parameterized modulo range fits "almost as integer number" in the range of +/- 2048 revolutions that can be represented.
	To re-parameterize the alarm to "NO REPORT", it is not permissible that the alarm is present. As a consequence, the following sequence is required for the re-parameterization:
	- correct p9505 to "2^n".
	- re-parameterize the alarm using p2118 and p2119.
	- set p9505 back to the required value.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A01795 SI Motion P1 (CU): Wait time after exiting the safe pulse cancellation expired

Message value:	-
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	After exiting safe pulse cancellation, within the wait time of 5 seconds, encoderless actual value sensing was not able to be activated for the extended functions without selection.
	A change is again made into the "safe pulse cancellation" state.
Remedy:	- Check missing enable signals, which prevent the drive control from being commissioned (r0046).
	- Evaluate possible fault messages of the encoderless actual value sensing and remove.

A01796 (F, N) SI P1 (CU): Wait for communication

Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive waits for communication to be established to execute the safety-relevant motion monitoring functions.
	Note:
	STO is active in this state.
	Alarm value (r2124, interpret decimal):
	1: Wait for communication to be established to SINUMERIK.
	2: Wait for communication to be established to TM54F.
	3: Wait for communication to be established to PROFIsafe F-Host.
Remedy:	If, after a longer period of time, the message is not automatically withdrawn, the following checks have to be made as appropriate:
	For communication with SINUMERIK, the following applies:
	- check any other PROFIBUS messages/signals present and remove their cause.
	- check that assignment of the axes on the higher-level control to the drives in the drive unit is correct.
	- check enable signal of the safety-relevant motion monitoring functions for the corresponding axis on the higher-level control and if required, set it.
	For communication with TM54F, the following applies:
	- check any other messages/signals present for DRIVE-CLiQ communication with the TM54F and remove their cause.
	- check the setting of p10010. All the drive objects controlled by the TM54F must be listed.

For communication with PROFIsafe F-Host, the following applies:

- Check any other PROFIsafe communication messages/signals present and evaluate them.
- check the operating state of the F-Host.
- Check the communication connection to the F Host.
- Check the communication connection to the Motor Module/Hydraulic Module. It must be ensured that when the Control Unit powers up, the Motor Module/Hydraulic Module is connected and at the latest is also switched-on with the Control Unit. Otherwise, if the Motor Module/Hydraulic Module is subsequently inserted or switched-on, a POWER ON must be performed at the Control Unit.

See also: p9601 (SI enable functions integrated in the drive (Control Unit)), p9801 (SI enable functions integrated in the drive (Motor Module)), p10010 (SI TM54F drive object assignment)

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

C01797 SI Motion P1 (CU): Axis not safely referenced

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The standstill position saved before powering down does not match the actual position determined at power-up.

Message value (r9749, interpret decimal):

1: Axis not safely referenced.

2: User agreement missing.

Remedy: If safe automatic referencing is not possible the user must issue a user agreement for the new position using the softkey. This mean that this position is then designated as safety-relevant.

Note:

SI: Safety Integrated

C01798 SI Motion P1 (CU): Test stop running

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The test stop is active.
Remedy: Not necessary.

The message is withdrawn when the test stop is finished.

Note:

SI: Safety Integrated

C01799 SI Motion P1 (CU): Acceptance test mode active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The acceptance test mode is active.

This means the following:

- the setpoint velocity limiting is deactivated (r9733).
- the standard limit switches are deactivated during the acceptance test for function SLP (SE) (for EPOS internal, otherwise via r10234).
- for safety functions with SINUMERIK, the following applies: The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the acknowledgement functions of the higher-level control.

Remedy: Not necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches

F01800 DRIVE-CLiQ: Hardware/configuration error

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A DRIVE-CLiQ connection fault has occurred.
Fault value (r0949, interpret decimal):
100 ... 107:
Communication via DRIVE-CLiQ socket X100 ... X107 has not been switched to cyclic operation. The cause may be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause may be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated faults when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.
Remedy: Re fault value = 100 ... 107:
- ensure that the DRIVE-CLiQ components have the same firmware versions.
- avoid longer topologies for short current controller clock cycles.
For fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.
For fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance
For fault value = 12:
- replace the component involved.

A01839 DRIVE-CLiQ diagnostics: cable fault to the component

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The fault counter (r9936[0...199]) to monitor the DRIVE-CLiQ connections/cables has been incremented.
Alarm value (r2124, interpret decimal):
Component number.
Note:
The component number specifies the component whose feeder cable from the direction of the Control Unit is faulted.
The alarm automatically disappears after 5 seconds, assuming that no other data transfer error has occurred.
See also: r9936 (DRIVE-CLiQ diagnostic error counter connection)
Remedy: - check the corresponding DRIVE-CLiQ cables.
- check the electrical cabinet design and cable routing for EMC compliance

A01840	**SMI: Component found without motor data**
Message value:	Component number: %1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An SMI/DQI without motor data has been found (e.g. SMI installed as replacement part). Alarm value (r2124, interpret decimal): Component number from target topology.
Remedy:	1. Download the SMI/DQI data (motor/encoder data) from the data backup again (p4690, p4691). 2. Carry out a POWER ON (power off/on) for this component. Note: DQI: DRIVE-CLiQ Sensor Integrated SMI: SINAMICS Sensor Module Integrated See also: p4690 (SMI spare part component number), p4691 (SMI spare part save/download data)

A01900 (F)	**PB/PN: Configuration telegram error**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A controller attempts to establish a connection using an incorrect configuring telegram. Alarm value (r2124, interpret decimal): 1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978. 2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051. 3: Uneven number of bytes for input or output. 4: Setting data for synchronization not accepted. For more information, see A01902. 211: Unknown parameterizing block. 223: Clock synchronization for the PZD interface set in p8815[0] is not permissible. More than one PZD interface is operated in clock synchronism. 253: PN Shared Device: Illegal mixed configuration of PROFIsafe and PZD. 254: PN Shared Device: Illegal double assignment of a slot/subslot. 255: PN: Configured drive object and existing drive object do not match. 500: Illegal PROFIsafe configuration for the interface set in p8815[1]. More than one PZD interface is operated with PROFIsafe. 501: PROFIsafe parameter error (e.g. F_dest). 502: PROFIsafe telegram does not match. 503: PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).

	Additional values:
	Only for internal Siemens troubleshooting.
Remedy:	Check the bus configuration on the master and the slave sides.
	Re alarm value = 1, 2:
	- Check the list of the drive objects with process data exchange (p0978).
	Note:
	With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
	Re alarm value = 2:
	- Check the number of data words for output and input to a drive object.
	Re alarm value = 211:
	- Ensure offline version <= online version.
	Re alarm value = 223, 500:
	- Check the setting in p8839 and p8815.
	- Check for inserted but not configured CBE20.
	- Ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.
	Re alarm value = 255:
	- Check configured drive objects.
	Re alarm value = 501:
	- Check the set PROFIsafe address (p9610).
	Re alarm value = 502:
	- Check the set PROFIsafe telegram (p60022, p9611).
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY

A01902 PB/PN clock cycle synchronous operation parameterization not permissible

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Parameterization for isochronous operation is not permissible.
	Alarm value (r2124, interpret decimal):
	0: Bus cycle time Tdp < 0.5 ms.
	1: Bus cycle time Tdp > 32 ms.
	2: Bus cycle time Tdp is not an integer multiple of the current controller sampling time.
	3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.
	4: Instant of the actual value sensing Ti is not an integer multiple of the current controller sampling time.
	5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.
	6: Instant of the setpoint acceptance To is not an integer multiple of the current controller sampling time.
	7: Master application cycle time Tmapc is not an integer multiple of the speed controller sampling time.
	8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller sampling times.
	10: Instant of the setpoint acceptance To <= data exchange time Tdx + current controller sampling time
	11: Master application cycle time Tmapc > 14 x Tdp or Tmapc = 0.
	12: PLL tolerance window Tpll_w > Tpll_w_max.
	13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].
	16: For COMM BOARD, the instant in time for the actual value sensing Ti is less than two current controller sampling times.
Remedy:	- Adapt the bus parameterization Tdp, Ti, To.
	- adapt the sampling time for the current controller or speed controller.
	Re alarm value = 10:
	- Reduce Tdx by using fewer bus participants or shorter telegrams.
	Note:
	PB: PROFIBUS
	PN: PROFINET

F01910 (N, A) **Fieldbus: setpoint timeout**

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: Vector: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the fieldbus interface (onboard, PROFIBUS/PROFINET/USS) has been interrupted.
- bus connection interrupted.
- controller switched off.
- controller set into the STOP state.
See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)
Remedy: Restore the bus connection and set the controller to RUN.
Note regarding PROFIBUS slave redundancy:
For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01911 (N, A) **PB/PN clock cycle synchronous operation clock cycle failure**

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: Vector: OFF1 (OFF3)
Infeed: OFF1
Acknowledge: IMMEDIATELY
Cause: The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).
Remedy: - check the physical bus configuration (cable, connector, terminating resistor, shielding, etc.).
- check whether communication was briefly or permanently interrupted.
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).
PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01912 (N, A) **PB/PN clock cycle synchronous operation sign-of-life failure**

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF1 (OFF3)
Infeed: OFF1
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of errors in the controller sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
Remedy: - physically check the bus (cables, connectors, terminating resistor, shielding, etc.).
- correct the interconnection of the controller sign-of-life (p2045).
- check whether the controller correctly sends the sign-of-life (e.g. create a trace with STW2.12 ... STW2.15 and trigger signal ZSW1.3).
- check the permissible telegram failure rate (p0925).
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).

	Note:
	PB: PROFIBUS
	PN: PROFINET
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A01920 (F)	**PROFIBUS: Interruption cyclic connection**
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cyclic connection to the PROFIBUS master is interrupted.
Remedy:	Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode. Note: If there is no communication to a higher-level control system, then p2030 should be set = 0 to suppress this message. See also: p2030 (Field bus int protocol selection)
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY

A01921 (F)	**PROFIBUS: Receive setpoints after To**
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.
Remedy:	- check bus configuration. - check parameters for clock cycle synchronization (ensure To > Tdx). Note: To: Time of setpoint acceptance Tdx: Data exchange time
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY

A01930	**PB/PN current controller sampling time clock cycle synch. not equal**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The current controller sampling time of all drives must be set the same for the clock cycle synchronous operation. Alarm value (r2124, interpret decimal): Number of the drive object with different current controller sampling time.
Remedy:	Set current controller sampling time to identical values (p0115[0]). Note: PB: PROFIBUS PN: PROFINET See also: p0115

A01931 PB/PN speed controller sampling time clock cycle synch. not equal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The speed controller sampling time of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with the different speed controller sampling time.
Remedy: Set the speed controller sampling times to identical values (p0115[1]).
Note:
PB: PROFIBUS
PN: PROFINET
See also: p0115

A01932 PB/PN clock cycle synchronization missing for DSC

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: There is no clock synchronization or clock synchronous sign of life and DSC is selected.
Note:
DSC: Dynamic Servo Control
See also: p0922 (IF1 PROFIdrive PZD telegram selection)
Remedy: Set clock synchronization across the bus configuration and transfer clock synchronous sign-of-life.
See also: r2064 (PB/PN diagnostics clock cycle synchronism)

A01940 PB/PN clock cycle synchronism not reached

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.
- the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
- at least one drive object has a pulse enable (not controlled from PROFIBUS/PROFINET either).

Remedy:
- check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
- check that no drive object has a pulse enable. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.

Note:
PB: PROFIBUS
PN: PROFINET

A01941	PB/PN clock cycle signal missing when establishing bus communication
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.
Remedy:	Check the master application and bus configuration. Note: PB: PROFIBUS PN: PROFINET

A01943	PB/PN clock cycle signal error when establishing bus communication
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is being irregularly received. -.the master is sending an irregular global control telegram. - the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
Remedy:	- check the master application and bus configuration. - check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master. Note: PB: PROFIBUS PN: PROFINET

A01944	PB/PN sign-of-life synchronism not reached
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. Synchronization with the master sign-of-life (STW2.12 ... STW2.15) could not be completed because the sign-of-life is changing differently to how it was configured in the Tmapc time grid.
Remedy:	- ensure that the master correctly increments the sign-of-life in the master application clock cycle Tmapc. - correct the interconnection of the master sign-of-life (p2045). Note: PB: PROFIBUS PN: PROFINET

A01945	PROFIBUS: Connection to the Publisher failed
Message value:	Fault cause: %1 bin
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.

	Alarm value (r2124, interpret binary):
	Bit 0 = 1: Publisher with address in r2077[0], connection failed.
	...
	Bit 15 = 1: Publisher with address in r2077[15], connection failed.
Remedy:	- check the PROFIBUS cables. - carry out a first commissioning of the Publisher that has the failed connection. See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

F01946 (A) PROFIBUS: Connection to the Publisher aborted

Message value:	Fault cause: %1 bin
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	Vector: OFF1 (NONE, OFF2, OFF3) Infeed: OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted. Fault value (r0949, interpret binary): Bit 0 = 1: Publisher with address in r2077[0], connection aborted. ... Bit 15 = 1: Publisher with address in r2077[15], connection aborted.
Remedy:	- check the PROFIBUS cables. - check the state of the Publisher that has the aborted connection. See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01950 (N, A) PB/PN clock cycle synchronous operation synchronization unsuccessful

Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	OFF1 (NONE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.
Remedy:	Only for internal Siemens troubleshooting. Note: PB: PROFIBUS PN: PROFINET
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01951 CU SYNC: Synchronization application clock cycle missing

Message value:	%1
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	If DRIVE-CLiQ components with different application clock cycle are operated on a DRIVE-CLiQ port, this requires synchronization with the Control Unit. This synchronization routine was unsuccessful. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade the software of the DRIVE-CLiQ components.
- upgrade the Control Unit software.
Note:
If a Controller Extension is being used (e.g. CX32, NX10), then the following applies:
Check whether the Controller Extension is issuing error messages, and if required, remove these.

F01952 CU DRIVE-CLiQ: Synchronization of component not supported

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing system configuration requires that the connected DRIVE-CLiQ components support the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and the application clock cycle.
However, not all DRIVE-CLiQ components have this functionality.
Fault value (r0949, interpret decimal):
Component number of the first faulty DRIVE-CLiQ component.
Remedy: Upgrade the firmware of the component specified in the fault value.
Note:
If required, also upgrade additional components in the DRIVE-CLiQ line.

A01953 CU SYNC: Synchronization not completed

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: After the drive system is powered up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON (power off/on) for all components.
If the error occurs after the drive sampling times were changed, and if a Terminal Module 31 (TM31) is being used, the sampling times (p0115, p4099) should be set as integer multiples to the drive clock cycles (p0115).

F01954 CU DRIVE-CLiQ: Synchronization unsuccessful

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started and was not able to be successfully completed (e.g. after switch-on).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: 1. Remove the cause of a possible DRIVE-CLiQ fault.
2. Initiate a new synchronization, e.g. as follows:
- remove the PROFIBUS master and re-insert again.
- restart the PROFIBUS master.
- switch-off the Control Unit and switch-on again.
- carry out a Control Unit hardware reset (RESET button, p0972).
- carry out a parameter reset and download the saved parameters (p0009 = 30, p0976 = 2, 3).

A01955 CU DRIVE-CLiQ: Synchronization DO not completed

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: After the drive system is powered up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.

Alarm value (r2124, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy: Carry out a POWER ON (power off/on) for all components of the DO.

A01980 PN: Interruption cyclic connection

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic connection to a PROFINET controller is interrupted.

Alarm value (r2124, interpret decimal):

Number of the interrupted connection.

See also: r8936 (PN state cyclic connections)

Remedy: Establish the PROFINET connection and activate the PROFINET controller in the cyclic mode.

A01981 PN: Maximum number of controllers exceeded

Message value: Info. 1: %1, info. 2: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A controller attempts to establish a connection to the drive, and as a consequence exceeds the permitted number of PROFINET connections.

The alarm disappears automatically after approx. 30 seconds.

Alarm value (r2124, interpret hexadecimal):

yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2

Info 1 = 0: number of RT connections exceeded

Info 1 > 0: number of IRT connections exceeded

Info 2: permitted number of connections

Remedy: Check the configuration of the PROFINET controllers as well as the p8929 setting.

See also: p8929 (PN remote controller number)

A01982 PROFINET: Second controller missing

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The PROFINET function "Shared Device" has been activated (p8929 = 2). However, only the connection to a PROFINET controller is present.

Remedy: Check the configuration of the PROFINET controllers as well as the p8929 setting.

See also: p8929 (PN remote controller number)

A01989 PROFINET: Internal cyclic data transfer error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic actual values and/or setpoints were not transferred within the specified times.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: Correctly set T_io_input or T_io_output.

A01990 (F) USS: PZD configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The configuration of the process data (PZD) for the USS protocol is incorrect.
Alarm value (r2124, interpret decimal):
2: PZD amount (p2022) too great for the first drive object (p978[0]).
The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051.
Remedy: Re alarm value = 2:
Check the amount of USS PZD (p2022) and the maximum PZD amount (r2050/p2051) for the first drive object (p0978[0]).
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A02000 Function generator: Start not possible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The function generator has already been started.
Remedy: Stop the function generator and restart again if necessary.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02005 Function generator: Drive does not exist

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection does not exist.
See also: p4815 (Function generator drive number)
Remedy: Use the existing drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

A02006	**Function generator: No drive specified for connection**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	No drive specified for connection in p4815. See also: p4815 (Function generator drive number)
Remedy:	At least one drive to be connected must be specified in p4815. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. See also: p4815 (Function generator drive number)

A02007	**Function generator: Drive not SERVO / VECTOR / DC_CTRL**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive object specified for connection is not a SERVO / VECTOR or DC_CTRL. See also: p4815 (Function generator drive number)
Remedy:	Use a SERVO / VECTOR / DC_CTRL drive object with the corresponding number. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.

A02008	**Function generator: Drive specified a multiple number of times**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive object specified for connection is already specified. Alarm value (r2124, interpret decimal): Drive object number of the drive object that is specified a multiple number of times.
Remedy:	Specify a different drive object. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.

A02009	**Function generator: Illegal mode**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The set operating mode (p1300) of the drive object is not permissible when using the function generator. Alarm value (r2124, interpret decimal): Number of the drive object involved.
Remedy:	Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).

Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02010	**Function generator: Speed setpoint from the drive is not zero**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy:	For all of the drives specified for connection, set the speed setpoints to zero. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.

A02011	**Function generator: The actual drive speed is not zero**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy:	Set the relevant drives to zero speed before starting the function generator. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.

A02015	**Function generator: Drive enable signals missing**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The master control and/or enable signals are missing to connect to the specified drive. See also: p4815 (Function generator drive number)
Remedy:	Fetch the master control to the specified drive object and set all enable signals. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.

A02016	**Function generator: Magnetizing running**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE

Cause: Magnetizing has not yet been completed on a drive object specified for connection.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
See also: p4815 (Function generator drive number)

Remedy: Wait for magnetizing of the motor (r0056.4).
Note:
The alarm is reset as follows:
- restart the function generator.
See also: r0056 (Status word, closed-loop control)

A02020 Function generator: Parameter cannot be changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This parameter setting cannot be changed when the function generator is active (p4800 = 1).
See also: p4810, p4812, p4813, p4815, p4820, p4821, p4822, p4823, p4824, p4825, p4826, p4827, p4828, p4829
Remedy: - stop the function generator before parameterizing (p4800 = 0).
- if required, start the function generator (p4800 = 1).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02025 Function generator: Period too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the period is too short.
See also: p4821 (Function generator period)
Remedy: Check and adapt the value for the period.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period)

A02026 Function generator: Pulse width too high

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pulse width is too high.
The pulse width must be less than the period duration.
See also: p4822 (Function generator pulse width)

Remedy: Reduce pulse width.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period), p4822 (Function generator pulse width)

A02030 Function generator: Physical address equals zero

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified physical address is zero.
See also: p4812 (Function generator physical address)
Remedy: Set a physical address with a value other than zero.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4812 (Function generator physical address)

A02040 Function generator: Illegal value for offset

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
See also: p4826 (Function generator offset)
Remedy: Adjust the offset value accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

A02041 Function generator: Illegal value for bandwidth

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
Depending on the time slice clock cycle, the bandwidth is defined as follows:
Bandwidth_max = 1 / (2 x time slice clock cycle)
Bandwidth_min = Bandwidth_max / 100000
Example:
Assumption: p4830 = 125 µs
--> Bandwidth_max = 1 / (2 x 125 µs) = 4000 Hz
--> Bandwidth_min = 4000 Hz / 100000 = 0.04 Hz
Note:
p4823: Function generator bandwidth
p4830: Function generator time slice clock cycle
See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)

Remedy: Check the value for the bandwidth and adapt accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02047 Function generator: Time slice clock cycle invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4830 (Function generator time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: r7901 (Sampling times)

A02050 Trace: Start not possible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace has already been started.
See also: p4700 (Trace control)
Remedy: Stop the trace and, if necessary, start again.

A02051 Trace: recording not possible as a result of know-how protection

Message value: involves %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: TRACE recording is not possible as at least one signal or trigger signal being used is under know-how protection.
Alarm value (r2124, interpret decimal):
1: Recorder 0
2: Recorder 1
3: Recorders 0 and 1
See also: p4700, p4711, p4730, p4731, p4732, p4733, p4734, p4735, p4736, p4737
Remedy: - Temporarily activate or deactivate know-how protection (p7766).
- Include the signal in the OEM exception list (p7763, p7764).
- Where relevant do not record of the signal.
See also: p7763 (KHP OEM exception list number of indices for p7764), p7764 (KHP OEM exception list)

A02055 Trace: Recording time too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace duration is too short.
The minimum is twice the value of the trace clock cycle.
See also: p4721 (Trace recording time)
Remedy: Check the selected recording time and, if necessary, adjust.

A02056 Trace: Recording cycle too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).
See also: p4720 (Trace recording cycle)
Remedy: Increase the value for the trace cycle.

A02057 Trace: Time slice clock cycle invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4723 (Trace time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02058 Trace: Time slice clock cycle for endless trace not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Trace time slice cycle)
Remedy: Enter the clock cycle of an existing time slice with a cycle time >= 2 ms for up to 4 recording channels or >= 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for more than 4 recording channels.
See also: p4723 (Trace time slice cycle)

Remedy: Enter the clock cycle of an existing time slice with a cycle time >= 4 ms or reduce the number of recording channels to 4 per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02060 Trace: Signal to be traced missing

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - a signal to be traced was not specified.
- the specified signals are not valid.
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02061 Trace: Invalid signal

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - the specified signal does not exist.
- the specified signal can no longer be traced (recorded).
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02062 Trace: Invalid trigger signal

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - a trigger signal was not specified.
- the specified signal does not exist.
- the specified signal is not a fixed-point signal.
- the specified signal cannot be used as a trigger signal for the trace.
See also: p4711 (Trace trigger signal)
Remedy: Specify a valid trigger signal.

A02063 Trace: Invalid data type

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified data type to select a signal using a physical address is invalid.
See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: Use a valid data type.

A02070	**Trace: Parameter cannot be changed**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The trace parameter settings cannot be changed when the trace is active. See also: p4700, p4710, p4711, p4712, p4713, p4714, p4715, p4716, p4720, p4721, p4722, p4730, p4731, p4732, p4733, p4780, p4781, p4782, p4783, p4789, p4795
Remedy:	- stop the trace before parameterization. - if required, start the trace.

A02075	**Trace: Pretrigger time too long**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected pretrigger time must be shorter than the trace time. See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
Remedy:	Check the pretrigger time setting and change if necessary.

F02080	**Trace: Parameterization deleted due to unit changeover**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
Remedy:	Restart trace.

A02095	**MTrace 0: multiple trace cannot be activated**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 0): - measuring function - long-time trace - trigger condition "immediate recording start" (IMMEDIATE) - trigger condition "start with function generator" (FG_START)
Remedy:	- if required, deactivate the multiple trace (p4840[0] = 0). - deactivate function or setting that is not permissible See also: p4840 (MTrace cycle number setting)

A02096	**MTrace 0: cannot be saved**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 0). A multiple trace is not started or is canceled.

Alarm value (r2124, interpret decimal):
1: Memory card cannot be accessed.
- card is not inserted or is blocked by a mounted USB drive.
3: data save operation to slow.
- a second trace has been completed before the measurement results of the first trace were able to be saved.
- writing the measurement result files to the card is blocked by the parameter save.
4: Data save operation canceled.
- for instance, the file required for the data save operation was not able to be found.
See also: p4840 (MTrace cycle number setting)

Remedy:
- insert or remove the memory card.
- use a larger memory card.
- configure a longer trace time or use an endless trace.
- avoid saving parameters while a multiple trace is running.
- check whether other functions are presently accessing measurement result files.

A02097 MTrace 1: multiple trace cannot be activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 1):
- measuring function
- long-time trace
- trigger condition "immediate recording start" (IMMEDIATE)
- trigger condition "start with function generator" (FG_START)

Remedy:
- if required, deactivate the multiple trace (p4840[1] = 0).
- deactivate function or setting that is not permissible
See also: p4840 (MTrace cycle number setting)

A02098 MTrace 1: cannot be saved

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 1).
A multiple trace is not started or is canceled.
Alarm value (r2124, interpret decimal):
1: Memory card cannot be accessed.
- card is not inserted or is blocked by a mounted USB drive.
3: data save operation to slow.
- a second trace has been completed before the measurement results of the first trace were able to be saved.
- writing the measurement result files to the card is blocked by the parameter save.
4: Data save operation canceled.
- for instance, the file required for the data save operation was not able to be found.
See also: p4840 (MTrace cycle number setting)

Remedy:
- insert or remove the memory card.
- use a larger memory card.
- configure a longer trace time or use an endless trace.
- avoid saving parameters while a multiple trace is running.
- check whether other functions are presently accessing measurement result files.

A02099 Trace: Insufficient Control Unit memory

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The memory space still available on the Control Unit is no longer sufficient for the trace function.
Remedy: Reduce the memory required, e.g. as follows:
- reduce the trace time.
- increase the trace clock cycle.
- reduce the number of signals to be traced.

See also: r4708 (Trace memory space required), r4799 (Trace memory location free)

A02100 Drive: Computing dead time current controller too short

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The value in p0118 produces a dead time of one clock cycle because it is prior to setpoint availability.
Possible causes:
- A parameter backup with a version higher than 4.3 was loaded to a version less than or equal to 4.3.
- The system properties after replacing a component no longer match the parameter assignment.

Alarm value (r2134, floating point):
Minimum value for p0118 where dead time no longer occurs.
Remedy:
- set p0118 to zero.
- set p0118 to a value greater than or equal to the alarm value (for p1810.11 = 1)
- set p0117 (from the device) to an automatic setting (p0117 = 1).
- check the firmware versions of the components involved.

See also: p0117 (Current controller computing dead time mode), p0118 (Current controller computing dead time)

A02150 OA: Application cannot be loaded

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The system was not able to load an OA application.
Alarm value (r2124, interpret hexadecimal):
16:
The interface version in the DCB user library is not compatible to the DCC standard library that has been loaded.
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

Re alarm value = 16:
Load a compatible DCB user library (compatible to the interface of the DCC standard library).
Note:
OA: Open Architecture
See also: r4950, r4955, p4956, r4957

F02151 (A) OA: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error has occurred within an OA application.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.
Note:
OA: Open Architecture
See also: r4950, r4955, p4956, r4957
Reaction upon A: NONE
Acknowl. upon A: NONE

F02152 (A) OA: Insufficient memory

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
- use an additional Control Unit.
Note:
OA: Open Architecture
Reaction upon A: NONE
Acknowl. upon A: NONE

F03000 NVRAM fault on action

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault occurred during execution of action p7770 = 1 or 2 for the NVRAM data.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = fault cause, xx = application ID
yy = 1:
The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.
yy = 2:
The data length of the specified application is not the same in the NVRAM and the backup.
yy = 3:
The data checksum in p7774 is not correct.

	yy = 4:
	No data available to load.
	See also: p7770 (NVRAM action)
Remedy:	- Perform the remedy according to the results of the troubleshooting.
	- If necessary, start the action again.

F03001 NVRAM checksum incorrect

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.
	The NVRAM data affected was deleted.
Remedy:	Carry out a POWER ON (power off/on) for all components.

F03500 (A) TM: Initialization

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When initializing the Terminal Modules, the terminals of the Control Unit or the Terminal Board 30, an internal software error has occurred.
	Fault value (r0949, interpret decimal):
	yxxx dex
	y = Only for internal Siemens troubleshooting
	xxx = component number (p0151)
Remedy:	- power down/power up the power supply for the Control Unit.
	- check the DRIVE-CLiQ connection.
	- if required, replace the Terminal Module.
	The Terminal Module should be directly connected to a DRIVE-CLiQ socket of the Control Unit.
	If the fault occurs again, replace the Terminal Module.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A03501 TM: Sampling time change

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The sampling times of the inputs/outputs were changed.
	This change only becomes valid after the next boot.
Remedy:	Carry out a POWER ON.

F03505 (N, A) Analog input wire breakage

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
	The input current of the analog input has exceeded the threshold value parameterized in p0761[0].
	p0756[0]: analog input 0 (X131.7/X131.8)

	Fault value (r0949, interpret decimal):
	Note:
	For the following analog input type, the wire breakage monitoring is active:
	p0756[0] = 3 (4 ... 20 mA with monitoring)
Remedy:	- Check the wiring to the signal source for interruptions.
	- Check the magnitude of the injected current - it is possible that the infed signal is too low.
	- Check the load resistor (250 Ohm).
	Note:
	The input current measured by the analog input can be read in r0752[0].
	For p756[0] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
	A current less than 4 mA is not displayed in r752[0] - but instead r752[0] = 4 mA is output.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F03505 (N, A) Analog input wire breakage

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, ENC, HUB, VECTOR_G
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
Remedy:	Check the wiring for interruptions.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F03505 (N, A) TB: Analog input wire breakage

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	TB30
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
Remedy:	Check the wiring for interruptions.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F03505 (N, A) TM: Analog input wire breakage

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	TM31
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
	The input current of the analog input has exceeded the threshold value parameterized in p4061[x].
	Index x = 0: Analog input 0 (X521.1/X521.2)
	Index x = 1: Analog input 1 (X521.3/X521.4)

	Fault value (r0949, interpret decimal):
	yxxx dec
	y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
	xxx = component number (p0151)
	Note:
	For the following analog input type, the wire breakage monitoring is active:
	p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)
Remedy:	- check the wiring for interruptions.
	- Check the magnitude of the injected current - it is possible that the infed signal is too low.
	- Check the load resistor (250 Ohm).
	Note:
	The input current measured by the Terminal Module can be read out from r4052[x].
	For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
	A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F03505 (N, A) Analog input wire breakage

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	TM150, TM54F_MA, TM54F_SL
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The wire-break monitoring for an analog input has responded.
	The input current of the analog input has exceeded the threshold value parameterized in p4061[x].
	Index x = 0: Analog input 0 (X521.1/X521.2)
	Index x = 1: Analog input 1 (X521.3/X521.4)
	Fault value (r0949, interpret decimal):
	yxxx dec
	y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
	xxx = component number (p0151)
	Note:
	For the following analog input type, the wire breakage monitoring is active:
	p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)
Remedy:	- check the wiring for interruptions.
	- Check the magnitude of the injected current - it is possible that the infed signal is too low.
	- Check the load resistor (250 Ohm).
	Note:
	The input current measured by the Terminal Module can be read out from r4052[x].
	For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
	A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A03506 (F, N) 24 V power supply missing

Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply for the digital outputs (X124) is missing.

Remedy: Check the terminals for the power supply voltage (X124, L1+, M).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03507 (F, N) Digital output not set

Message value: %1
Message class: General drive fault (19)
Drive object: CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL
Reaction: NONE
Acknowledge: NONE
Cause: Despite specification by the signal source the digital output has not been set.
Possible causes:
- power supply missing.
- the digital output is in current limiting (e.g. due to short-circuit).
- The digital output is being used for Safety Extended Functions.
- The control has authority to access the digital output by means of direct access (see also r0729).
Alarm value (r2124, interpret bitwise binary):
Digital output involved (structured the same as r0747).
Remedy: - check the 24 V power supply (e.g. X130.6 for CU310-2, ground is X130.5).
- check the output terminals for short-circuits.
- reset the signal source of the digital output for use by Safety Extended functions.
- carry out a POWER ON (power off/on).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03507 (F, N) Digital output not set

Message value: %1
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Despite specification by the signal source the digital output has not been set.
Possible causes:
- power supply missing.
- the digital output is in current limiting (e.g. due to short-circuit).
- The digital output is being used for Safety Extended Functions.
- The control has authority to access the digital output by means of direct access (see also r0729).
Alarm value (r2124, interpret bitwise binary):
Digital output involved (structured the same as r0747).
Remedy: - check the 24 V power supply (e.g. X131.7 for CU305, ground is X131.8).
- check the output terminals for short-circuits.
- reset the signal source of the digital output for use by Safety Extended functions.
- carry out a POWER ON (power off/on).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03510 (F, N)	**Calibration data not plausible**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, CU_G130_DP, CU_G130_PN, CU_G150_DP, CU_G150_PN, ENC, HUB, TB30, TM54F_MA, TM54F_SL
Reaction:	NONE
Acknowledge:	NONE
Cause:	During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility. At least one calibration data point was determined to be invalid. Alarm value (r2124, interpret binary): Bit 1: 10 V value, analog input 0 invalid. Bit 3: 10 V value, analog input 1 invalid. Bit 4: Offset, analog output 0 invalid. Bit 5: 10 V value, analog output 0 invalid. Bit 6: Offset, analog output 1 invalid. Bit 7: 10 V value, analog input 1 invalid.
Remedy:	- power down/power up the power supply for the Control Unit. - check the DRIVE-CLiQ wiring. Note: If it reoccurs, then replace the module. In principle, operation could continue. The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A03510 (F, N)	**Calibration data not plausible**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	During booting, the calibration data for the analog inputs is read and checked with respect to plausibility. At least one calibration data point was determined to be invalid.
Remedy:	- power down/power up the power supply for the Control Unit. - check the DRIVE-CLiQ wiring. Note: If it reoccurs, then replace the module. In principle, operation could continue. The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A03510 (F, N)	**TM: Calibration data not plausible**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	TM150, TM31
Reaction:	NONE
Acknowledge:	NONE
Cause:	During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility. At least one calibration data point was determined to be invalid. Alarm value (r2124, interpret binary): Bit 1: 10 V value, analog input 0 invalid.

Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.

Remedy: - power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ wiring.
Note:
If it reoccurs, then replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03550 TM: Speed setpoint filter natural frequency > Shannon frequency

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The natural filter frequency of the speed setpoint filter (p1417) is greater than or equal to the Shannon frequency.
The Shannon frequency is calculated according to the following formula:
0.5 / p4099[3]
Remedy: Reduce the natural frequency of the speed setpoint filter (PT2 low pass) (p1417).

F03590 (N, A) TM: Module not ready

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Terminal Module involved does not send a ready signal and no valid cyclic data.
Fault value (r0949, interpret decimal):
Drive object number of the Terminal Module involved.
Remedy: - check the 24 V power supply.
- check the DRIVE-CLiQ wiring.
- check whether the sampling time of the drive object involved is not equal to zero (p4099[0]).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A05000 (N) Power unit: Overtemperature heat sink AC inverter

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290.
If the temperature of the heat sink increases by an additional 5 K, then fault F30004 is initiated.

Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the cooling failed?

Reaction upon N: NONE
Acknowl. upon N: NONE

A05001 (N) Power unit: Overtemperature depletion layer chip

Message value: -
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached.
Note:
- The response is set using p0290.
- If the depletion layer temperature increases by an additional 15 K, then fault F30025 is triggered.

Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the cooling failed?
- pulse frequency too high?

Note:
If the alarm occurs after reducing the current controller sampling time (p0115[0]) during the motor data identification (standstill measurement), then it is recommended that this is initially performed using the standard sampling time and then the sampling time should be subsequently changed over.
See also: r0037, p0290 (Power unit overload response)

Reaction upon N: NONE
Acknowl. upon N: NONE

A05001 (N) Power unit: Overtemperature depletion layer chip

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached.
Note:
- The response is set using p0290.
- If the depletion layer temperature increases by an additional 15 K, then fault F30025 is triggered.

Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the cooling failed?
- pulse frequency too high?

See also: r0037, p0290 (Power unit overload response)

Reaction upon N: NONE
Acknowl. upon N: NONE

A05002 (N) Power unit: Air intake overtemperature

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (hysteresis 2 K). The response is set using p0290.
If the air intake temperature increases by an additional 13 K, then fault F30035 is output.
Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- has the fan failed? Check the direction of rotation.

Reaction upon N: NONE
Acknowl. upon N: NONE

A05003 (N) Power unit: Internal overtemperature

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for internal overtemperature has been reached.
If the temperature inside the power unit increases by an additional 5 K, then fault F30036 is triggered.
Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- has the fan failed? Check the direction of rotation.

Reaction upon N: NONE
Acknowl. upon N: NONE

A05004 (N) Power unit: Rectifier overtemperature

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290.
If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is triggered.
Remedy: Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the fan failed? Check the direction of rotation.
- has a phase of the line supply failed?
- is an arm of the supply (incoming) rectifier defective?

Reaction upon N: NONE
Acknowl. upon N: NONE

A05005 Cooling unit: Cooling medium flow rate too low

Message value: %1
Message class: Auxiliary unit faulted (20)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Cooling unit: Alarm - flow rate has fallen below the alarm value
Remedy: - Check the feedback signals and parameter assignment (p0260 ... p0267).
- Check the coolant feed.

A05006 (N)	**Power unit: Overtemperature thermal model**
Message value:	-
Message class:	Power electronics faulted (5)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only). Depending on p0290, an appropriate overload response is initiated. See also: r0037
Remedy:	Not necessary. The alarm disappears automatically once the limit value is undershot. Note: If the alarm does not disappear automatically and the temperature continues to rise, this can result in fault F30024. See also: p0290 (Power unit overload response)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

N05007 (A)	**Power unit: Overtemperature thermal model (chassis PU)**
Message value:	-
Message class:	Power electronics faulted (5)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature difference between the chip and heat sink has exceeded the permissible limit value (r0293) (chassis power units only). Depending on p0290, an appropriate overload response is initiated. See also: r0037, r0293 (Power unit alarm threshold model temperature)
Remedy:	Not necessary. The alarm disappears automatically once the limit value is undershot. See also: p0290 (Power unit overload response)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F05050	**Parallel circuit: Pulse enable in spite of pulse inhibit**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: OFF2 (NONE, OFF1, OFF3, STOP2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A power unit signals that the pulses are enabled although the pulses are inhibited. Fault value (r0949, interpret decimal): Number of the power unit involved.
Remedy:	The power unit is defective and must be replaced.

F05051	**Parallel circuit: Power unit pulse enable missing**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: OFF2 (NONE, OFF1, OFF3, STOP2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	For one or several power units, the pulses were not able to be enabled.

	Fault value (r0949, interpret decimal):
	Number of the power unit involved.
Remedy:	- acknowledge power unit faults that are still present.
	- inhibit the pulses of the power unit involved (p7001).

A05052 (F) Parallel circuit: Illegal current dissymmetry

Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The deviation of the individual currents of the power units exceeds the alarm threshold specified in p7010.
	Alarm value (r2124, interpret decimal):
	1: Phase U.
	2: Phase V.
	3: Phase W.
Remedy:	- inhibit the pulses of the faulted power unit (p7001).
	- check the connecting cables. Loose contacts can cause current spikes.
	- the motor reactors are non-symmetrical or faulty and must be replaced.
	- the CTs must be calibrated or replaced.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A05053 (F) Parallel circuit: Inadmissible DC link voltage dissymmetry

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The deviation of the DC link voltage measured values exceeds the alarm threshold specified in p7011.
Remedy:	- inhibit the pulses of the faulted power unit (p7001).
	- check the DC link connecting cables.
	- the DC link voltage measurement is incorrect and must be calibrated or renewed.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A05054 Parallel circuit: Power unit de-activated

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the drive object involved, fewer power units connected in parallel are active than exist in the target topology. Operation is only possible at reduced power (power derating).
Remedy:	Re-activate the de-activated power units if required.
	See also: p0125 (Activate/de-activate power unit components), p0895 (Activate/de-activate power unit components), p0897 (Parking axis selection)

F05055	**Parallel connection: Power units with illegal code numbers**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The code numbers of the power units do not match. Fault value (r0949, interpret decimal): Parameter in which the first different power unit code number was detected.
Remedy:	Use power units with the same code number. For parallel circuit configurations, only power units with identical power unit data may be used.

F05055	**Parallel connection: Power units with illegal code numbers**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The code numbers of the power units are not permissible. For parallel circuit configurations, only power units with identical power unit data may be used. Possible causes: - The code numbers of the power units do not match. For booksize drive units, the following additionally applies: - a parallel connection is not possible for the power units being used. - there are too many power units being used in the parallel connection. Fault value (r0949, interpret decimal): Parameter in which the inadmissible power unit code number was detected.
Remedy:	- Use power units with the same code number. For booksize drive units, the following additionally applies: - use power units which are permitted for a parallel connection. - reduce the number of power units being used in the parallel connection.

F05056	**Parallel circuit: Power unit EEPROM versions differ**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The EEPROM versions of the power units do not match. Fault value (r0949, interpret decimal): Parameter in which the first different version number was detected.
Remedy:	Use power units with the same EEPROM version. Note: For parallel circuit configurations, only power units with identical EEPROM versions may be used.

F05057	**Parallel circuit: Power unit firmware versions differ**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	The firmware versions of the power units connected in parallel do not match. Fault value (r0949, interpret decimal): Parameter in which the first different version number was detected.

Remedy: Use power units with the same firmware version.
For parallel circuit configurations, only power units with identical firmware versions may be used.

F05058 Parallel circuit: VSM EEPROM versions differ

Message value: Parameter: %1
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The EEPROM versions of the Voltage Sensing Modules (VSM) do not match.
Fault value (r0949, interpret decimal):
Parameter in which the first different version number was detected.
Remedy: For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical EEPROM versions may be used.

F05059 Parallel circuit: VSM firmware versions differ

Message value: Parameter: %1
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The firmware versions of the Voltage Sensing Module (VSM) do not match.
Fault value (r0949, interpret decimal):
Parameter in which the first different version number was detected.
Remedy: For parallel circuit configurations, only Voltage Sensing Modules (VSM) with identical firmware versions may be used.

F05060 Parallel circuit: Power unit firmware version does not match

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Firmware from version V02.30.01.00 is required when connecting the power units in parallel.
Remedy: Update the firmware of the power units (at least V02.30.01.00).

F05061 Infeed VSM count

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The number of active Voltage Sensing Modules (VSM) for the drive object infeed with chassis power units is not correct.
For A_Infeed, each active power unit must be assigned an active VSM also for a parallel circuit configuration.
For S_Infeed, the active drive object, must be assigned at least one active VSM.
Fault value (r0949, interpret decimal):
Number of VSMs that are currently assigned to the drive object.
Remedy: Adapts the number of active Voltage Sensing Modules (VSM).

F05064 Parallel connection: Pulse synchronization error

Message value: -
Message class: General drive fault (19)
Drive object: VECTOR_G
Reaction: OFF2 (OFF1, OFF3)
Acknowledge: POWER ON (IMMEDIATELY)
Cause: The pulse synchronization of at least one of the power units connected in parallel is incorrect.
Remedy: Restart the drive system.

A05065 (F, N) Voltage measured values not plausible

Message value: %1
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The voltage measurement does not supply any plausible values and is not used.
Alarm value (r2124, interpret bitwise binary):
Bit 1: Phase U
Bit 2: Phase V
Bit 3: Phase W
Remedy: The following parameterization must be made in order to deactivate the alarm:
- Deactivate voltage measurement (p0247.0 = 0).
- Deactivate flying restart with voltage measurement (p0247.5 = 0) and deactivate fast flying restart (p1780.11 = 0).

Reaction upon F: NONE (OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F05118 (A) Pre-charging contactor simultaneity monitoring time exceeded

Message value: fault cause: %1, additional information: %2
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A feedback signal for the pre-charging contactor (ALM, SLM, BLM diode) or the line contactor (BLM thyristor) interconnected and the simultaneity monitoring (p0255[4, 6]) activated.
After opening or closing a contactor of the parallel connection, after a monitoring time has elapsed, not all of the contactors have assumed the same state.
Fault value (r0949, interpret binary):
Bit 0 = 1: simultaneity error when closing the contactors.
Bit 1 = 1: simultaneity error when opening the contactors.
Bit 16 = 1: PDS0 contactor is closed.
Bit 17 = 1: PDS1 contactor is closed.
Bit 18 = 1: PDS2 contactor is closed.
Bit 19 = 1: PDS3 contactor is closed.
Bit 20 = 1: PDS4 contactor is closed.
Bit 21 = 1: PDS5 contactor is closed.
Bit 22 = 1: PDS6 contactor is closed.
Bit 23 = 1: PDS7 contactor is closed.
Note:
PDS: Power unit Data Set
Remedy:
- check the monitoring time setting (p0255[4, 6]).
- check the contactor wiring and activation.
- if required, replace the contactor.

See also: p0255 (Power unit contactor monitoring time)

Reaction upon A: NONE
Acknowl. upon A: NONE

F05119 (A) Bypass contactor simultaneity monitoring time exceeded

Message value: fault cause: %1, additional information: %2
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A feedback signal for the bypass contactor is interconnected and the simultaneity monitoring (p0255[5, 7]) activated.

After opening or closing a contactor of the parallel connection, after a monitoring time has elapsed, not all of the contactors have assumed the same state.

Fault value (r0949, interpret binary):

Bit 0 = 1: simultaneity error when closing the contactors.

Bit 1 = 1: simultaneity error when opening the contactors.

Bit 16 = 1: PDS0 contactor is closed.

Bit 17 = 1: PDS1 contactor is closed.

Bit 18 = 1: PDS2 contactor is closed.

Bit 19 = 1: PDS3 contactor is closed.

Bit 20 = 1: PDS4 contactor is closed.

Bit 21 = 1: PDS5 contactor is closed.

Bit 22 = 1: PDS6 contactor is closed.

Bit 23 = 1: PDS7 contactor is closed.

Note:

PDS: Power unit Data Set

Remedy: - check the monitoring time setting (p0255[5, 7]).

- check the wiring and control of the contactor.

- if required, replace the contactor.

See also: p0255 (Power unit contactor monitoring time)

Reaction upon A: NONE
Acknowl. upon A: NONE

F06000 Infeed: Precharging monitoring time expired

Message value: -
Message class: Infeed faulted (13)
Drive object: B_INF
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: After the line contactor closes the power unit does not signal the READY state within the monitoring time (p0857).

The end of the DC link pre-charging was not able to be completed for one of the following reasons:

1) There is no line supply voltage connected.

2) The line contactor/line side switch has not been closed.

3) The line supply voltage is too low.

4) Line supply voltage incorrectly set (p0210).

5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit.

6) The pre-charging resistors are overheated as the DC link capacitance is too high.

7) The pre-charging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link.

8) The pre-charging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module.

9) The DC link has either a ground fault or a short-circuit.

10) The pre-charging circuit is possibly defective (only for chassis units).

See also: p0210 (Drive unit line supply voltage), p0857 (Power unit monitoring time)

Remedy: In general:

- check the line supply voltage at the connecting terminals.
- check the line supply voltage setting (p0210).
- check the monitoring time and, if required, increase (p0857).
- where relevant, observe additional power unit messages/signals (e.g. F30027).
- the following applies to booksize units: Wait (approx. 8 min.) until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.

Re 5):

- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).

Re 6):

- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC-link capacitance if necessary (refer to the appropriate Equipment Manual)

Re 7):

- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link

Re 8):

- check the connections of the external line contactor. The line contactor must be open during DC-link fast discharge.

Re 9):

- check the DC link for ground faults or short circuits.

F06010 Infeed: Power unit EP 24 V missing in operation

Message value: -

Message class: Infeed faulted (13)

Drive object: B_INF

Reaction: OFF2 (OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: In operation, the pulse enable via terminal EP at the Line Module (X21.3, X21.4) was withdrawn.

Note:

EP: Enable Pulses (pulse enable)

Remedy: - do not open the line side switch in operation - only when the pulses are inhibited.

- check the wiring of terminal EP (X21.3, X21.4) at the Line Module to exclude any poor contacts.

F06100 Infeed: Shutdown due to line supply undervoltage condition

Message value: %1

Message class: Network fault (2)

Drive object: B_INF

Reaction: OFF2 (OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The filtered (steady-state) value of the line supply voltage is less than the fault threshold (p0283).

Fault condition: Vrms < p0283 * p0210

Fault value (r0949, floating point):

Actual steady-state line supply voltage.

Note:

The occurrence of this fault is delayed by the time in p3492. If the fault is removed during this design time, then the power unit is not tripped (shut down).

Remedy: - check the line supply.

- check the line supply voltage (p0210).
- check the threshold value (p0283).

A06105 (F) Infeed: Line supply undervoltage

Message value: %1
Message class: Network fault (2)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The filtered (steady-state) value of line supply voltage is lower than the alarm threshold (p0282).
Alarm condition: Vrms < p0282 * p0210
Alarm value (r2124, floating point):
Actual steady-state line supply voltage.
Remedy: - check the line supply.
- check the line supply voltage (p0210).
- check the alarm threshold (p0282).
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F06211 Infeed: Summation current impermissibly high

Message value: %1
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The smoothed sum of the phase currents (i1 + i2 + i3) is impermissibly high. The summed current has exceeded the parameterized threshold for the ground fault monitoring (p0287).
Possible causes:
- there is a ground fault that results in a high summation current (r0069.6). The DC component in the line currents can damage/destroy the power unit, reactor, filter or motor!
- the current measurement in the power unit is defective.
Fault value (r0949, floating point):
Smoothed total of the phase currents.
Remedy: - check the line supply for ground faults and remove any that are present.
- check the set threshold for the ground fault monitoring (p0287).
- if required, replace the power unit.
See also: p0287 (Ground fault monitoring thresholds)

A06301 (F) Infeed: Line supply overvoltage

Message value: Line supply voltage: %1
Message class: Network fault (2)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The filtered (steady-state) value of the rms line supply voltage Vrms is higher than the alarm threshold (p0281).
Alarm condition: Vrms > p0281 * p0210.
Alarm value (r2124, floating point):
Actual steady-state line supply voltage.
Remedy: - check the line supply.
- check the line supply voltage (p0210).
- check the alarm threshold (p0281).
See also: p0210 (Drive unit line supply voltage)
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F06310 (A)	Supply voltage (p0210) incorrectly parameterized
Message value:	-
Message class:	Network fault (2)
Drive object:	VECTOR_G
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For AC/AC drive units, the measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: 1.16 * p0210 < r0070 < 1.6 * p0210 Note: The fault can only be acknowledged when the drive is powered down. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F06310 (A)	Infeed: Supply voltage (p0210) incorrectly parameterized
Message value:	Line supply voltage: %1
Message class:	Network fault (2)
Drive object:	B_INF
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	After pre-charging was completed, the line supply voltage Vrms was calculated using the measured DC link voltage. This voltage Vrms is not within the tolerance range of the supply voltage. The following applies for the tolerance range: 85 % * p0210 < Vrms < 110 % * p0210 Fault value (r0949, floating point): Line supply voltage Vrms present. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F06311	Infeed: Supply voltage (p0210) incorrect
Message value:	Line supply voltage: %1
Message class:	Network fault (2)
Drive object:	B_INF
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The line voltage nominal value indicated in p0210 is outside the nominal voltage range of the power unit. After pre-charging was completed, the actual line supply voltage Vrms was calculated using the measured DC link voltage. This voltage Vrms does not lie within the extended tolerance range of the supply voltage set in p0210. The following applies for the extended tolerance range: 75 % * p0210 < Vrms < 120 % * p0210 Alarm value (r2124, floating point): Line supply voltage Vrms present. See also: p0210 (Drive unit line supply voltage)
Remedy:	- check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)

F06700 (A) Infeed: Switch line contactor for load condition

Message value: -
Message class: Infeed faulted (13)
Drive object: B_INF
Reaction: NONE (OFF2)
Acknowledge: IMMEDIATELY
Cause: For an ON command, the infeed line contactor should be switched under load.
Remedy: - do not load the DC link if the infeed has not issued an operating signal (r0863.0 = 1).
- after the infeed has been powered down, all power units connected to the DC link should be powered down. To realize this, the operating signal of the infeed (r0863.0) must be suitably interconnected.
Reaction upon A: NONE
Acknowl. upon A: NONE

A06810 (F) Infeed: DC link voltage alarm threshold

Message value: -
Message class: Infeed faulted (13)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: In operation, the DC link voltage has dropped to below the alarm threshold. The alarm threshold is obtained from the sum of p0279 and r0296.
Possible causes include:
- line supply voltage dip or another line supply fault.
- overload of the infeed.
- for Active Line Module: Controller incorrectly parameterized.
See also: p0279 (DC link voltage offset alarm threshold), r0296 (DC link voltage undervoltage threshold)
Remedy: - check the line voltage and line supply quality.
- reduce the power drawn, avoid step-like load changes
- for Active Line Module: Adapt the controller parameterization (e.g. automatic line supply identification (p3410 = 4, 5)).
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A06900 (F) Braking Module: Fault (1 -> 0)

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The Braking Module signals a fault (1 -> 0) via X21.4 ("booksize" format) or X21.5 ("chassis" format).
This signal is wired to a system digital input and correspondingly interconnected using binector input p3866[0...7].
Possible causes:
- Wiring of the signal or BICO interconnection of the signal source incorrect.
- Overtemperature
- Electronics power supply missing.
- Ground fault/short-circuit.
- Internal component fault.
See also: p3866 (Braking Module fault)
Remedy: - check binector input p3866[0...7] and the wiring from terminal X21.4 ("booksize" format) or X21.5 ("chassis" format).
- reduce the number of braking operations.
- Check the 24 V power supply of the component.
- Check for a ground fault or short circuit.
- Replace the component if necessary.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY

A06901 Braking Module: Pre-alarm I2t shutdown

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The Braking Module "Booksize" format signals "Pre-alarm I2t shutdown" via terminal X21.3.
This signal is wired to a system digital input and correspondingly interconnected using binector input p3865[0...7].
Note:
This function is not supported for the "chassis" format.
Remedy: - reduce the number of braking operations.
- check binector input p3865[0...7] and the wiring from terminal X21.3 of the particular Braking Module.

A06904 (N) Braking Module internal is inhibited

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The internal Braking Module was inhibited via binector input p3680 = 1 signal.
In the inhibited state, energy cannot be dissipated using the braking resistor.
See also: p3680 (Braking Module internal inhibit)
Remedy: Release the internal Braking Module (BI: p3680 = 0 signal).
Reaction upon N: NONE
Acknowl. upon N: NONE

A06905 Braking Module internal I2t shutdown alarm

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The internal Braking Module outputs an alarm due to the high I2t value.
80% of the maximum switch-on duration of the braking resistor has been reached.
Note:
This message is also displayed via BO: p3685.
See also: r3685 (Digital Braking Module: Pre-alarm I2t shutdown)
Remedy: Reduce the number of braking operations.

F06906 (A) Braking Module internal fault

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The internal Braking Module outputs a fault due to overcurrent or an excessively high I2t value and is therefore inhibited.
Note:
This message is also displayed via BO: p3686.
Fault value (r0949, interpret bitwise binary):
Bit 0 = 1: I2t exceeded
Bit 1 = 1: overcurrent
See also: r3686 (Digital Braking Module Fault)
Remedy: Reduce the number of braking operations.

Reaction upon A: NONE
Acknowl. upon A: NONE

F06907 Braking Module internal overtemperature

Message value: -
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The temperature sensor connected to the braking resistor signals an overtemperature.

The Braking Module is still active. If the overtemperature persists for more than 60 s, fault F06908 is output, and the braking module is switched off.

See also: r3687 (Digital Braking Module pre-alarm overtemperature)

Remedy:
- reduce the temperature at the sensor.
- check the temperature sensor connection.

F06908 Braking Module internal overtemperature shutdown

Message value: -
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: Braking module shut down due to overtemperature at the temperature sensor of the braking resistor.

The overtemperature is detected by the sensor for longer than 60 s.

See also: r3688 (Braking Module internal overtemperature shutdown)

Remedy:
- reduce the temperature at the sensor.
- check the temperature sensor connection.

F06909 Braking Module internal Vce fault

Message value: %1
Message class: Braking Module faulted (14)
Drive object: B_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the power semiconductor to control the braking resistor has responded.

Possible causes:
- short circuit at the braking resistor terminals
- defective power semiconductor in the braking resistor control.

Note:

Under certain circumstances, this alarm is also output if a braking resistor has not been connected and power is fed back into the Braking Module.

See also: r3689 (Digital Braking Module Uce fault)

Remedy:
- connect a braking resistor.
- check the braking resistor connection.
- check the braking resistor.
- carry out a POWER ON (power off/on).
- replace the unit.

A06921 (N) Braking resistor phase unsymmetry

Message value: -
Message class: Braking Module faulted (14)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: - the three resistors of the braking chopper are not symmetrical.

	- DC link voltage oscillations caused by fluctuating loads of the connected drives.
Remedy:	- check the feeder cables to the braking resistors. - If required, increase the value for detecting dissymmetry (p1364). See also: p1360 (Braking chopper braking resistor cold), p1362 (Braking chopper activation threshold), r1363 (Braking chopper output voltage), p1364 (Braking chopper resistor asymmetry)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F06922 Braking resistor phase failure

Message value:	%1
Message class:	Braking Module faulted (14)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A phase failure for the brake resistor was detected. Fault value (r0949, interpret decimal): 11: Phase U 12: Phase V 13: Phase W See also: p3235 (Phase failure signal motor monitoring time)
Remedy:	Check the feeder cables to the braking resistors. See also: p1360 (Braking chopper braking resistor cold), p1362 (Braking chopper activation threshold), r1363 (Braking chopper output voltage), p1364 (Braking chopper resistor asymmetry)

F07011 Drive: Motor overtemperature

Message value:	%1
Message class:	Motor overload (8)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	KTY or no sensor: The measured motor temperature or model temperature has exceeded the fault threshold (p0605) or the timer (p0606) has elapsed following the alarm threshold (p0604) being exceeded. The response parameterized in p0610 becomes active. PTC or bimetallic NC contact: The response threshold of 1650 Ohm was exceeded or the NC contact opened and the timer (p0606) has expired. The response parameterized in p0610 becomes active. Possible causes: - Motor is overloaded - the motor ambient temperature is too high. - PTC / bimetallic NC contact: Wire breakage or sensor not connected. Fault value (r0949, interpret decimal): 200: The motor temperature model 1 (I2t) signals an overtemperature (p0612.0 = 1, p0611 > 0, p0615 reached). Number of the temperature channel leading to the message (for SME/TM120 (p0601 = 10, 11)). See also: p0604, p0605, p0606, p0612, p0625, p0626, p0627, p0628
Remedy:	- Reduce the motor load. - check the ambient temperature and the motor ventilation. - check the wiring and the connection of the PTC or bimetallic NC contact. See also: p0604, p0605, p0606, p0612, p0625, p0626, p0627, p0628

A07012 (N) Drive: Motor temperature model 1/3 overtemperature

Message value: %1
Message class: Motor overload (8)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The motor temperature model 1/3 identified that the alarm threshold was exceeded.

Hysteresis:2K.

Alarm value (r2124, interpret decimal):

200:

Motor temperature model 1 (I2t): Temperature too high (p0605).

300:

Motor temperature model 3: Temperature too high (p5398).

See also: r0034 (Motor utilization thermal), p0605 (Mot_temp_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot_temp_mod activation)

Remedy: - check the motor load and if required, reduce.

- check the motor ambient temperature.
- check activation of the motor temperature model (p0612).

Motor temperature model 1 (I2t):

- check the thermal time constant (p0611).
- check the alarm threshold (p0605).

Motor temperature model 3:

- check the motor type.
- check the alarm threshold (p5398).
- check the model parameters.

See also: r0034 (Motor utilization thermal), p0605 (Mot_temp_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot_temp_mod activation), r5397 (Mot_temp_mod 3 ambient temperature image p0613)

Reaction upon N: NONE
Acknowl. upon N: NONE

A07014 (N) Drive: Motor temperature model configuration alarm

Message value: %1
Message class: Motor overload (8)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A fault has occurred in the configuration of the motor temperature model.

Alarm value (r2124, interpret decimal):

1:

All motor temperature models: It is not possible to save the model temperature

See also: p0610 (Motor overtemperature response)

Remedy: - set the response for motor overtemperature to "Alarm and fault, no reduction of I_max" (p0610 = 2).

See also: p0610 (Motor overtemperature response)

Reaction upon N: NONE
Acknowl. upon N: NONE

A07015 Drive: Motor temperature sensor alarm

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the temperature sensor set in p0600 and p0601.

With the fault, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 50 ms after alarm A07015.

Possible causes:
- wire breakage or sensor not connected (KTY: R > 1630 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Alarm value (r2124, interpret decimal):
- if SME/TM120 is selected (p0601 = 10, 11),
this is the number of the temperature channel leading to the message.

Remedy: - make sure that the sensor is connected correctly.
- check the parameterization (p0600, p0601).
See also: r0035, p0600 (Motor temperature sensor for monitoring), p0601, p0607 (Temperature sensor fault timer)

F07016 Drive: Motor temperature sensor fault

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: An error was detected when evaluating the temperature sensor set in p0600 and p0601.
Possible causes:
- wire breakage or sensor not connected (KTY: R > 1630 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Note:
If alarm A07015 is present, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 50 ms after alarm A07015.
Fault value (r0949, interpret decimal):
- if SME/TM120 is selected (p0601 = 10, 11),
this is the number of the temperature channel leading to the message.
See also: p0607 (Temperature sensor fault timer)

Remedy: - make sure that the sensor is connected correctly.
- check the parameterization (p0600, p0601).
- induction motors: De-activate temperature sensor fault (p0607 = 0).
- When TM120 and SMC/SME (p0601 = 10, 11) are being used, set the same sensor type on the drive (p4610 ... p4613) as for TM120.
See also: r0035, p0600 (Motor temperature sensor for monitoring), p0601, p0607 (Temperature sensor fault timer)

F07080 Drive: Incorrect control parameter

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0).
Fault value (r0949, interpret decimal):
The fault value includes the parameter number involved.
The following parameter numbers only occur as fault values for vector drives:
p0310, for synchronous motors: p0341, p0344, p0350, p0357
The following parameter numbers do not occur as fault values for synchronous motors:
p0354, p0358, p0360
See also: p0310, p0311, p0341, p0344, p0350, p0354, p0356, p0357, p0358, p0360, p0400, p0404, p0408, p0640, p1082, p1300

Remedy: Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).
See also: p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0400, p0404, p0408, p0640, p1082

F07082	**Macro: Execution not possible**
Message value:	Fault cause: %1, supplementary information: %2, preliminary parameter number: %3
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The macro cannot be executed. Fault value (r0949, interpret hexadecimal): ccccbbaa hex: cccc = preliminary parameter number, bb = supplementary information, aa = fault cause Fault causes for the trigger parameter itself: 19: Called file is not valid for the trigger parameter. 20: Called file is not valid for parameter 15. 21: Called file is not valid for parameter 700. 22: Called file is not valid for parameter 1000. 23: Called file is not valid for parameter 1500. 24: Data type of a TAG is incorrect (e.g. Index, number or bit is not U16). Fault causes for the parameters to be set: 25: Error level has an undefined value. 26: Mode has an undefined value. 27: A value was entered as string in the tag value that is not "DEFAULT". 31: Entered drive object type unknown. 32: A device was not able to be found for the determined drive object number. 34: A trigger parameter was recursively called. 35: It is not permissible to write to the parameter via macro. 36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect. 37: Source parameter for a BICO interconnection was not able to be determined. 38: An index was set for a non-indexed (or CDS-dependent) parameter. 39: No index was set for an indexed parameter. 41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN. 42: A value not equal to 0 or 1 was set for a BitOperation. 43: Reading the parameter to be changed by the BitOperation was unsuccessful. 51: Factory setting for DEVICE may only be executed on the DEVICE. 61: The setting of a value was unsuccessful.
Remedy:	- check the parameter involved. - check the macro file and BICO interconnection. See also: p0015, p0700, p1000, p1500

F07083	**Macro: ACX file not found**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The ACX file (macro) to be executed was not able to be found in the appropriate directory. Fault value (r0949, interpret decimal): Parameter number with which the execution was started. See also: p0015, p0700, p1000, p1500
Remedy:	- check whether the file is saved in the appropriate directory on the memory card. Example: If p0015 is set to 1501, then the selected ACX file must be located in the following directory: ... /PMACROS/DEVICE/P15/PM001501.ACX

F07084 Macro: Condition for WaitUntil not fulfilled

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.
Fault value (r0949, interpret decimal):
Parameter number for which the condition was set.
Remedy: Check and correct the conditions for the WaitUntil loop.

F07085 Drive: Open-loop/closed-loop control parameters changed

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Open-loop/closed-loop control parameters have had to be changed.
Possible causes:
1. As a result of other parameters, they have exceeded the dynamic limits.
2. They cannot be used due to the fact that the hardware detected not having certain features.
3. The value is estimated as the thermal time constant is missing.
4. Motor temperature model 1 is activated as thermal motor protection is missing.
Fault value (r0949, interpret decimal):
Changed parameter number.
340:
The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2).
611:
The time constant for thermal motor model 1 was estimated.
612:
Thermal motor model 1 was activated (p0612.0 = 1).
See also: p0640 (Current limit), p1082 (Maximum speed), p1300 (Open-loop/closed-loop control operating mode), p1800 (Pulse frequency setpoint)
Remedy: Not necessary.
It is not necessary to change the parameters as they have already been correctly limited.

F07086 Units changeover: Parameter limit violation due to reference value change

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit notation.
The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting.
Possible causes:
- the steady-state minimum limit/maximum limit or that defined in the application was violated.
Fault value (r0949, parameter):
Diagnostics parameter to display the parameters that were not able to be re-calculated.
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004
Remedy: Check the adapted parameter value and if required correct.
See also: r9450 (Reference value change parameter with unsuccessful calculation)

F07088	**Units changeover: Parameter limit violation due to units changeover**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A changeover of units was initiated. This resulted in a violation of a parameter limit Possible causes for the violation of a parameter limit: - When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated. - inaccuracies for the data type "FloatingPoint". In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down. Fault value (r0949, interpret decimal): Diagnostics parameter r9451 to display all parameters whose value had to be adapted. See also: p0100 (IEC/NEMA mot stds), p0349 (System of units motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Technological unit selection)
Remedy:	Check the adapted parameter values and if required correct. See also: r9451 (Units changeover adapted parameters)

A07089	**Changing over units: Function module activation is blocked because the units have been changed over**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An attempt was made to activate a function module. This is not permissible if the units have already been changed over. See also: p0100 (IEC/NEMA mot stds), p0349 (System of units motor equivalent circuit diagram data), p0505 (Selecting the system of units)
Remedy:	Restore units that have been changed over to the factory setting.

A07092	**Drive: moment of inertia estimator still not ready**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The moment of inertia estimator still has no valid values. The acceleration cannot be calculated. The moment of inertia estimator is ready, if the frictional values (p1563, p1564) as well as the moment of inertia value (p1493) have been determined (r1407.26 = 1).
Remedy:	Repeat the operation when the moment of inertia estimator is ready (r1407.26 = 1).

F07100	**Drive: Sampling times cannot be reset**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	When resetting drive parameter (p0976) sampling times cannot be reset using p0111, p0112, p0115. Fault value (r0949, interpret decimal): Parameter whose setting prevents the sampling times being reset. See also: r0110 (Basic sampling times)

Remedy: - continue to work with the set sampling times.
- before resetting the drive parameters, set the basic clock cycle p0110[0] to the original value.
See also: r0110 (Basic sampling times)

F07110 Drive: Sampling times and basic clock cycle do not match

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The parameterized sampling times do not match the basic clock cycle.
Fault value (r0949, interpret decimal):
The fault value specifies the parameter involved.
See also: r0110, r0111, p0115
Remedy: Enter the current controller sampling times so that they are identical to the basic clock cycle, e.g. by selecting p0112. Note which basic clock cycle is selected in p0111.
The sampling times in p0115 can only be changed manually in the sampling times pre-setting "Expert" (p0112).
See also: r0110, r0111, p0112, p0115

A07200 Drive: Master control ON command present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The ON/OFF1 command is present (no 0 signal).
The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.
Remedy: Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0.

F07220 (N, A) Drive: Master control by PLC missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3, STOP2)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: The "master control by PLC" signal was missing in operation.
- interconnection of the binector input for "master control by PLC" is incorrect (p0854).
- the higher-level control has withdrawn the "master control by PLC" signal.
- data transfer via the fieldbus (master/drive) was interrupted.
Remedy: - check the interconnection of the binector input for "master control by PLC" (p0854).
- check the "master control by PLC" signal and, if required, switch in.
- check the data transfer via the fieldbus (master/drive).
Note:
If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07300 (A)	**Drive: Line contactor feedback signal missing**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	- the line contactor was not able to be closed within the time in p0861. - the line contactor was not able to be opened within the time in p0861. - the line contactor dropped out during operation - the line contactor has closed although the drive converter is powered down.
Remedy:	- check the setting of p0860. - check the feedback circuit from the line contactor. - increase the monitoring time in p0861. See also: p0860 (Line contactor feedback signal), p0861 (Line contactor monitoring time)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07311	**Bypass motor switch**
Message value:	Fault cause: %1 bin
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault value (r0949, interpret bitwise binary): Bit 1: Switch "Closed" feedback signal missing. Bit 2: Switch "Open" feedback signal missing. Bit 3: Switch feedback signal too slow. After switching, the system waits for the positive feedback signal. If the feedback signal is received later than the specified time, then a fault trip (shutdown) is issued. Bit 6: Drive switch feedback signal not consistent with the bypass state. The drive switch is closed when switching-on or when switching-in the motor. See also: p1260 (Bypass configuration), r1261 (Bypass control/status word), p1266 (Bypass control command), p1267 (Bypass changeover source configuration), p1269 (Bypass switch feedback signal), p1274 (Bypass switch monitoring time)
Remedy:	- check the transfer of the feedback signals. - check the switch.

F07312	**Bypass LSS:**
Message value:	Fault cause: %1 bin
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault value (r0949, interpret bitwise binary): Bit 1: Switch "Closed" feedback signal missing. Bit 2: Switch "Open" feedback signal missing. Bit 3: Switch feedback signal too slow. After switching, the system waits for the positive feedback signal. If the feedback signal is received later than the specified time, then a fault trip (shutdown) is issued. Bit 6: Line Side Switch feedback signal not consistent with the bypass state. When switching-on or when switching-in the motor, the line side switch is closed without this having been requested from the bypass. See also: p1260 (Bypass configuration), r1261 (Bypass control/status word), p1266 (Bypass control command), p1267 (Bypass changeover source configuration), p1269 (Bypass switch feedback signal), p1274 (Bypass switch monitoring time)

Remedy: - check the transfer of the feedback signals.
- check the switch.

F07320 Drive: Automatic restart interrupted

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: - The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt.
- there is no active ON command.
- the monitoring time for the power unit has expired (p0857).
- when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered up again.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - increase the number of restart attempts (p1211). The actual number of starting attempts is displayed in r1214.
- increase the delay time in p1212 and/or the monitoring time in p1213.
- issue an ON command (p0840).
- either increase or disable the monitoring time of the power unit (p0857).
- Reduce the delay time for resetting the start counter p1213[1] so that fewer faults are registered in the time interval.

F07320 Drive: Automatic restart interrupted

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: B_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: - The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt.
- there is no active ON command.
- the monitoring time for the power unit has expired (p0857).
- when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered up again.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - increase the number of restart attempts (p1211). The actual number of starting attempts is displayed in r1214.
- increase the delay time in p1212 and/or the monitoring time in p1213.
- issue an ON command (p0840).
- either increase or disable the monitoring time of the power unit (p0857).

A07321 Drive: Automatic restart active

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
Remedy: - the automatic restart (AR) should, if required, be inhibited (p1210 = 0).
- an automatic restart can be directly interrupted by withdrawing the power-on command (BI: p0840).

F07330 Flying restart: Measured search current too low

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: During a flying restart, it was identified that the search current reached is too low.
It is possible that the motor is not connected.
Remedy: Check the motor feeder cables.

F07331 Flying restart: Function not supported

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: It is not possible to power up with the motor rotating (no flying restart). In the following cases, the "flying restart" function is not supported:
Permanent-magnet and separately-excited synchronous motors (PEM, FEM): Operation with U/f characteristic.
Permanent-magnet synchronous motor (PEM): Encoderless operation without a Voltage Sensing Module (VSM) being connected.
Remedy: - de-activate the "flying restart" function (p1200 = 0).
- change the open-loop/closed-loop control mode (p1300).
- connect a Voltage Sensing Module (VSM) (voltage measurement).

A07350 (F) Drive: Measuring probe parameterized to a digital output

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
Alarm value (r2124, interpret decimal):
8: DI/DO 8 (X122.9/X132.1)
9: DI/DO 9 (X122.10/X132.2)
10: DI/DO 10 (X122.12/X132.3)
11: DI/DO 11 (X122.13/X132.4)
12: DI/DO 12 (X132.9)
13: DI/DO 13 (X132.10)
14: DI/DO 14 (X132.12)
15: DI/DO 15 (X132.13)
To the terminal designation:
The first designation is valid for CU320, the second for CU305.
Remedy: - set the terminal as input (p0728).
- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07400 (N) Drive: DC link voltage maximum controller active

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The DC link voltage controller has been activated because the upper switch-in threshold has been exceeded (r1242, r1282).

The ramp-down times are automatically increased in order to maintain the DC link voltage (r0070) within the permissible limits. There is a system deviation between the setpoint and actual speeds.

When the DC link voltage controller is switched out (disabled), this is the reason that the ramp-function generator output is set to the speed actual value.

See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller or Vdc monitoring configuration), p1280 (Vdc controller or Vdc monitoring configuration (U/f))

Remedy: If the controller is not to intervene:

- increase the ramp-down times.
- switch-off the Vdc_max controller (p1240 = 0 for vector control, p1280 = 0 for U/f control).

If the ramp-down times are not to be changed:

- use a chopper or regenerative feedback unit.

Reaction upon N: NONE
Acknowl. upon N: NONE

A07401 (N) Drive: DC link voltage maximum controller de-activated

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The Vdc_max controller can no longer maintain the DC link voltage (r0070) below the limit value (r1242, r1282) and was therefore switched out (disabled).

- the line supply voltage is permanently higher than specified for the power unit.
- the motor is permanently in the regenerative mode as a result of a load that is driving the motor.

Remedy:

- check whether the input voltage is within the permissible range (if required, increase the value in p0210).
- check whether the load duty cycle and load limits are within the permissible limits.

Reaction upon N: NONE
Acknowl. upon N: NONE

A07402 (N) Drive: DC link voltage minimum controller active

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The DC link voltage controller has been activated as the lower switch-in threshold has been undershot (r1246, r1286).

The kinetic energy of the motor is used to buffer the DC link. The drive is therefore braked.

See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller or Vdc monitoring configuration), p1280 (Vdc controller or Vdc monitoring configuration (U/f))

Remedy: The alarm disappears when power supply returns.

Reaction upon N: NONE
Acknowl. upon N: NONE

F07403 (N, A)	**Drive: Lower DC link voltage threshold reached**
Message value:	-
Message class:	Infeed faulted (13)
Drive object:	VECTOR_G
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DC link voltage monitoring is active (p1240 , p1280 = 5, 6) and the lower DC link voltage threshold (r1246, r1286) was reached in the "Operation" state.
Remedy:	- check the line supply voltage. - check the infeed. - adapt the device supply voltage (p0210) or the switch-on level (p1245, p1285). - disable the DC link voltage monitoring (p1240, p1280 = 0).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07404	**Drive: Upper DC link voltage threshold reached**
Message value:	-
Message class:	DC link overvoltage (4)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	- the DC link voltage monitoring is active (p1240 , p1280 = 4, 6) and the upper DC link voltage threshold (r1242, r1282) was reached in the "Operation" state. - the monitoring of the DC link voltage p1284 has responded (only U/f control).
Remedy:	- check the line supply voltage. - check the infeed. - adapt the device supply voltage (p0210). - if necessary, deactivate the DC link voltage monitoring (p1240, p1280 = 0). - adapt the monitoring of the DC link voltage (p1284, only U/f).

F07405 (N, A)	**Drive: Kinetic buffering minimum speed not reached**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with U/f control) and the line supply did not return.
Remedy:	Check the speed threshold for the Vdc_min controller (kinetic buffering) (p1257, p1297). See also: p1257 (Vdc_min controller speed threshold), p1297 (Vdc_min controller speed threshold (U/f))
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07406 (N, A)	**Drive: Kinetic buffering maximum time exceeded**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The maximum buffer time (p1255 and p1295 for vector drives with U/f control) has been exceeded without the line supply having returned.

Remedy: Check the time threshold for Vdc-min controller (kinetic buffering) (p1255, p1295).
See also: p1255 (Vdc_min controller time threshold), p1295 (Vdc_min controller time threshold (U/f))

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07407 Drive: Vdc reduction not permissible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: For chassis power units, the reduction of the line voltage (see r0212.0) is only possible for closed-loop control of the DC link voltage.
Remedy: - Activate DC link voltage control for the motor/generator.
- de-activate line voltage reduction (p0212.0 = 0).
See also: p0212 (Power unit configuration)

A07409 Drive: U/f control, current limiting controller active

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The current limiting controller of the U/f control was activated because the current limit was exceeded.
Remedy: The alarm automatically disappears after one of the following measures:
- increase current limit (p0640).
- reduce the load.
- slow down the ramp up to the setpoint speed.

F07410 Drive: Current controller output limited

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The condition "I_act = 0 and Uq_set_1 longer than 16 ms at its limit" is present and can be caused by the following:
- motor not connected or motor contactor open.
- motor data and motor configuration (star-delta) do not match.
- no DC link voltage present.
- power unit defective.
- the "flying restart" function is not activated.
Remedy: - connect the motor or check the motor contactor.
- check the motor parameterization and the connection type (star-delta).
- check the DC link voltage (r0070).
- check the power unit.
- activate the "flying restart" function (p1200).

F07412	**Drive: Commutation angle incorrect (motor model)**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	An incorrect commutation angle was detected that can result in a positive coupling in the speed controller. Possible causes: - The phase sequence of the output phases for the motor is incorrect (e.g. the phases are interchanged). - the motor encoder is incorrectly adjusted with respect to the magnet position. - the motor encoder is damaged. - the angular commutation offset is incorrectly set (p0431). - data to calculate the motor model has been incorrectly set (p0356 (motor-stator leakage inductance) and/or p0350 (motor-stator resistance) and/or p0352 (cable resistance). - the changeover speed for the motor model is too low (p1752). The monitoring function only becomes effective above the changeover speed. - pole position identification might have calculated an incorrect value when activated (p1982 = 1). - the motor encoder speed signal is faulted. - the control loop is instable due to incorrect parameterization. Fault value (r0949, interpret decimal): SERVO: 0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 80 ° electrical). 1: - VECTOR: 0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 45 ° electrical). 1: The change in the speed signal from the motor encoder has changed by > p0492 within a current controller clock cycle.
Remedy:	- Check the phase sequence for the motor, and if required, correct (wiring, p1820). - if the encoder mounting was changed - re-adjust the encoder. - replace the defective motor encoder. - correctly set the angular commutation offset (p0431). If required, determine using p1990. - correctly set the motor stator resistance, cable resistance and motor-stator leakage inductance (p0350, p0352, p0356). Calculate the cable resistance from the cross-section and length, check the inductance and stator resistance using the motor data sheet, measure the stator resistance, e.g. using a multimeter - and if required, again identify the values using the stationary motor data identification (p1910). - increase the changeover speed for the motor model (p1752). The monitoring is completely de-activated for p1752 > p1082 (maximum speed). - with pole position identification activated (p1982 = 1) check the procedure for pole position identification (p1980) and force a new pole position identification procedure by means of de-selection followed by selection (p1982 = 0 -> 1). Note: For High Dynamic Motors (1FK7xxx-7xxx), for applications with a higher current, if necessary, the monitoring should be disabled.

F07413	**Drive: Commutation angle incorrect (pole position identification)**
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	ENCODER (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	An incorrect commutation angle was detected that can result in a positive coupling in the speed controller. Within the pole position identification routine (p1982 = 2): - a difference of > 45 ° electrical to the encoder angle was determined.

For VECTOR, within the encoder adjustment (p1990 = 2):
- a difference of > 6 ° electrical to the encoder angle was determined.

Remedy: - correctly set the angular commutation offset (p0431).
- re-adjust the motor encoder after the encoder has been replaced.
- replace the defective motor encoder.
- check the pole position identification routine. If the pole position identification routine is not suitable for this motor type, then disable the plausibility check (p1982 = 0).

A07416 Drive: Flux controller configuration

Message value: Parameter: %1, Index: %2, fault cause: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The configuration of the flux control (p1401) is contradictory.
Alarm value (r2124, interpret hexadecimal):
ccbbaaaa hex
aaaa = Parameter
bb = Index
cc = fault cause
cc = 01 hex = 1 dec:
Quick magnetizing (p1401.6) for soft start (p1401.0).
cc = 02 hex = 2 dec:
Quick magnetizing (p1401.6) for flux build-up control (p1401.2).
cc = 03 hex = 3 dec:
Quick magnetizing (p1401.6) for Rs identification after restart (p0621 = 2).

Remedy: Re fault cause = 1:
- Shut down soft start (p1401.0 = 0).
- Shut down quick magnetizing (p1401.6 = 0).
Re fault cause = 2:
- De-energize flux build-up control (p1401.2 = 0).
- Shut down quick magnetizing (p1401.6 = 0).
Re fault cause = 3:
- Re-parameterize Rs identification (p0621 = 0, 1)
- Shut down quick magnetizing (p1401.6 = 0).

F07417 Drive: Pulse technique not plausible (motor model)

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The evaluation of the test pulse response indicated incorrect values.
Fault value (r0949, interpret decimal):
0:
An impermissible pulse technique configuration was detected during ramp-up.
Possible causes:
- The pulse technique was initially selected when the system powered up (p1750.5 = 1) but the power unit component does not support the current oversampling required (see r0192.23). As a consequence, p1750.0 was de-selected automatically.
10:
The pulse response is repeatedly implausible.
Possible causes:
- Incorrect configuration of the power unit component
- The power unit component is faulty.

20:

For the specified pulse amplitude, the measured pulse response is much higher than the expected value.

Possible causes:

- Strong oscillations have occurred.
- The motor is short-circuited for high frequencies (output filter).
- The motor is damaged.

Remedy: For fault value = 0:

Once the pulse technique has been de-selected automatically (p1750.5 = 0), there are two possible options:

- acknowledge the fault and save parameter p1750.5 = 0 -> field-oriented control mode to standstill is not used and replaced by transition to open-loop control at low speeds.
- upgrade the power unit firmware (at least V4.3) -> field-oriented control mode to standstill is available.

For fault value = 10:

With active selection of the pulse technique (p1750.5 = 1):

- POWER ON (switch-off/switch-on) the Control Unit and the power unit together again.

or

- carry out a manual warm restart (p0009 = 30, p0976 = 2, 3).

If this does not solve the problem: Replace the power unit component.

For fault value = 20:

- control parameters might have been adjusted (factory setting, commissioning).
- filters must not be connected between motor and converter/inverter.
- check the motor.

F07422 Drive: Reference model natural frequency > Shannon frequency

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The natural filter frequency of the PT2 element for the reference model (p1433) is greater than the Shannon frequency.

The Shannon frequency is calculated according to the following formula: 0.5 / p0115[1]

Remedy: - reduce the natural frequency of PT2 element for reference model (p1433).

- reduce the speed controller sampling time (p0115[1]).

F07426 (A) Technology controller actual value limited

Message value: %1

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The actual value for the technology controller, interconnected via connector input p2264, has reached a limit.

Fault value (r0949, interpret decimal):

1: upper limit reached.

2: lower limit reached.

Remedy: - adapt the limits to the signal level (p2267, p2268).

- Check the actual value normalization (p0595, p0596).
- Deactivate evaluation of the limits (p2252 bit 3)

See also: p0595 (Technological unit selection), p0596 (Technological unit reference quantity), p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)

Reaction upon A: NONE

Acknowl. upon A: NONE

A07428 (N)	**Technology controller parameterizing error**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The technology controller has a parameterizing error. Alarm value (r2124, interpret decimal): 1: The upper output limit in p2291 is set lower than the lower output limit in p2292.
Remedy:	Re alarm value = 1: Set the output limit in p2291 higher than in p2292. See also: p2291 (Technology controller maximum limiting), p2292 (Technology controller minimum limiting)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07434	**Drive: It is not possible to change the direction of rotation with the pulses enabled**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A drive data set was selected - with the pulses enabled - which has a different parameterized direction of rotation (p1821). It is only possible to change the motor direction of rotation using p1821 when the pulses are inhibited.
Remedy:	- change over the drive data set with the pulses inhibited. - ensure that the changeover to a drive data set does not result in the motor direction of rotation being changed (i.e. for these drive data sets, the same value must be in p1821). See also: p1821 (Dir of rot)

F07435 (N)	**Drive: Setting the ramp-function generator for sensorless vector control**
Message value:	Parameter: %1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2 (IASC/DCBRK, NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	During operation with sensorless vector control (r1407.1) the ramp-function generator was stopped (p1141) or bypassed (p1122). An internal setting command of the ramp-function generator output caused the set setpoint speed to be frozen or was not able to be realized. The drive is switched-on with flying restart activated (p1200), and at the same time the ramp-function generator is bypassed (p1122).
Remedy:	- de-activate the holding command for the ramp-function generator (p1141). - do not bypass the ramp-function generator (p1122). - suppress the fault (p2101, p2119). This is necessary if the ramp-function generator is held using jogging and the speed setpoint is simultaneously inhibited (r0898.6). Note: For sensorless vector control it is not practical to read in the main setpoint of the speed control via p1155 or p1160 (p0922). In this case, the main setpoint should be injected before the ramp-function generator (p1070). The reason for this is that the ramp-function generator output is automatically set when transitioning from closed-loop speed controlled into open-loop speed controlled operation.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07440 EPOS: Jerk time is limited

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The calculation of the jerk time Tr = max(p2572, p2573) / p2574 resulted in an excessively high value so that the jerk time is internally limited to 1000 ms.

Note:

The alarm is also output if jerk limiting is not active.

Remedy: - increase the jerk limiting (p2574).

- reduce maximum acceleration or maximum deceleration (p2572, p2573).

A07441 LR: Save the position offset of the absolute encoder adjustment

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The status of the absolute encoder adjustment has changed.

In order to permanently save the determined position offset (p2525) and the determined number of the drive data set (p2733), they must be saved in a non-volatile fashion (p0971, p0977).

Remedy: Not necessary.

This alarm automatically disappears after the offset has been saved.

F07442 (A) LR: Multiturn does not match the modulo range

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The ratio between the multiturn resolution and the modulo range (p2576) is not an integer number.

This results in the adjustment being set back, as the position actual value cannot be reproduced after power-off/power-on.

Remedy: Make the ration between the multiturn resolution and the modulo range an integer number.

The ratio v is calculated as follows:

1. Motor encoder without position tracking

v = (p0421 * p2506 * p0433 * p2505) / (p0432 * p2504 * p2576)

2. Motor encoder with position tracking for the measuring gear

v = (p0412 * p2506 * p2505) / (p2504 * p2576)

3. Motor encoder with position tracking for the load gear

v = (p2721 * p2506 * p0433) / (p0432 * p2576)

4. Motor encoder with position tracking for the load and measuring gear

v = (p2721 * p2506) / p2576

5. Direct encoder without position tracking

v = (p0421 * p2506 * p0433) / (p0432 * p2576)

6. Direct encoder with position tracking for the measuring gear

v = (p0412 * p2506) / p2576

Note:

With position tracking, it is recommended that p0412 and p2721 are changed

See also: p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0432 (Gearbox factor encoder revolutions), p0433 (Gearbox factor motor/load revolutions), p2721 (Load gear rotary absolute encoder revolutions virtual)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07443 (A) LR: Reference point coordinate not in the permissible range

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The reference point coordinate received when adjusting the encoder via connector input p2599 lies outside the half of the encoder range and cannot be set as actual axis position.
Fault value (r0949, interpret decimal):
Maximum permissible value for the reference point coordinate.
Remedy: Set the reference point coordinate to a lower value than specified in the fault value.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07446 (A) Load gear: Position tracking cannot be reset

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking cannot be reset.
Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).

Then acknowledge the fault and, if necessary, re-adjust the absolute encoder (p2507).
Reaction upon A: NONE
Acknowl. upon A: NONE

F07447 Load gear: Position tracking, maximum actual value exceeded

Message value: Component number: %1, encoder data set: %2, drive data set: %3
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.
Maximum value: p0408 * p2721 * 2^p0419
Fault value (r0949, interpret hexadecimal):
ccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
See also: p0408 (Rotary encoder pulse number), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)
Remedy:
- reduce the fine resolution (p0419).
- reduce the multiturn resolution (p2721).

See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)

F07448 (A)	Load gear: Position tracking, linear axis has exceeded the maximum range
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: OFF1 (NONE, OFF2, OFF3) Infeed: NONE
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range. For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. It should be read in p2721 and interpreted as the number of load revolutions. Note: Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].
Remedy:	The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset position tracking, position (p2720.2 = 1). - de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07449 (A)	Load gear: Position tracking actual position outside tolerance window
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: OFF1 (NONE, OFF2, OFF3) Infeed: NONE
Acknowledge:	IMMEDIATELY
Cause:	When powered down, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder. Note: Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x]. Fault value (r0949, interpret decimal): Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction. Note: The deviation (difference) found is also displayed in r2724. See also: p2722 (Load gear position tracking tolerance window), r2724 (Load gear position difference)
Remedy:	Reset the position tracking as follows: - select encoder commissioning (p0010 = 4). - reset position tracking, position (p2720.2 = 1). - de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507). See also: p0010
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07450 (A)	**LR: Standstill monitoring has responded**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	After the standstill monitoring time (p2543) expired, the drive left the standstill window (p2542). - position actual value inversion incorrectly set (p0410). - standstill window set too small (p2542). - standstill monitoring time set too low (p2543). - position loop gain too low (p2538). - position loop gain too high (instability/oscillation, p2538). - mechanical overload. - Connecting cable, motor/drive converter incorrect (phase missing, interchanged). - when selecting motor identification, select tracking mode (BI: p2655[0] = 1 signal). - when selecting function generator, select tracking mode (BI: p2655[0] = 1 signal) and de-activate position control (BI:p2550 = 0 signal).
Remedy:	Check the causes and resolve.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07451 (A)	**LR: Position monitoring has responded**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When the position monitoring time (p2545) expired, the drive had still not reached the positioning window (p2544). - positioning window parameterized too small (p2544). - position monitoring time parameterized too short (p2545). - position loop gain too low (p2538). - position loop gain too high (instability/oscillation, p2538). - drive mechanically locked.
Remedy:	Check the causes and resolve.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07452 (A)	**LR: Following error too high**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The difference between the position setpoint position actual value (following error dynamic model, r2563) is higher than the tolerance (p2546). - the drive torque or accelerating capacity exceeded. - position measuring system fault. - position control sense incorrect. - mechanical system locked. - excessively high traversing velocity or excessively high position reference value (setpoint) differences
Remedy:	Check the causes and resolve.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07453 LR: Position actual value preprocessing error

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.

A07454 LR: Position actual value preprocessing does not have a valid encoder

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: One of the following problems has occurred with the position actual value preprocessing:

- an encoder is not assigned for the position actual value preprocessing (p2502 = 0).
- an encoder is assigned, but no encoder data set (p0187 = 99 or p0188 = 99 or p0189 = 99).
- an encoder an an encoder data set have been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).

Remedy: Check the drive data sets, encoder data sets and encoder assignment.

See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Encoder type selection)

A07455 EPOS: Maximum velocity limited

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The maximum velocity (p2571) is too high to correctly calculate the modulo correction.

Within the sampling time for positioning (p0115[5]), with the maximum velocity, a maximum of the half modulo length must be moved through. p2571 was limited to this value.

Remedy:

- reduce the maximum velocity (p2571).
- increase the sampling time for positioning (p0115[5]).

A07456 EPOS: Setpoint velocity limited

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The actual setpoint velocity is greater than the parameterized maximum velocity (p2571) and is therefore limited.
Remedy:

- check the entered setpoint velocity.
- reduce the velocity override (CI: p2646).
- increase the maximum velocity (p2571).
- check the signal source for the externally limited velocity (CI: p2594).

A07457 EPOS: Combination of input signals illegal

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An illegal combination of input signals that are simultaneously set was identified.

	Alarm value (r2124, interpret decimal):
	0: Jog 1 and jog 2 (p2589, p2590).
	1: Jog 1 or jog 2 and direct setpoint input/MDI (p2589, p2590, p2647).
	2: Jog 1 or jog 2 and start referencing (p2589, p2590, p2595).
	3: Jog 1 or jog 2 and activate traversing task (p2589, p2590, p2631).
	4: Direct setpoint input/MDI and starting referencing (p2647, p2595).
	5: Direct setpoint input/MDI and activate traversing task (p2647, p2631).
	6: Start referencing and activate traversing task (p2595, p2631).
Remedy:	Check the appropriate input signals and correct.

F07458 EPOS: Reference cam not found

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	After starting the search for reference, the axis moved through the maximum permissible distance to search for the reference cam without actually finding the reference cam.
Remedy:	- check the "reference cam" binector input (BI: p2612). - check the maximum permissible distance to the reference cam (p2606). - if axis does not have any reference cam, then set p2607 to 0.

F07459 EPOS: No zero mark

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	After leaving the reference cam, the axis has traversed the maximum permissible distance between the reference cam and zero mark without finding the zero mark.
Remedy:	- check the encoder regarding the zero mark - check the maximum permissible distance between the reference cam and zero mark (p2609). - use an external encoder zero mark (equivalent zero mark) (p0495). See also: p0495 (Equivalent zero mark input terminal)

F07460 EPOS: End of reference cam not found

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	During the search for reference, when the axis reached the zero mark it also reached the end of the traversing range without detecting an edge at the binector input "reference cam" (BI: p2612). Maximum traversing range: -2147483648 [LU] ... -2147483647 [LU]
Remedy:	- check the "reference cam" binector input (BI: p2612). - repeat the search for reference.

A07461 EPOS: Reference point not set

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When starting a traversing block/direct setpoint input, a reference point is not set (r2684.11 = 0).
Remedy:	Reference the system (search for reference, flying referencing, set reference point).

A07462 EPOS: Selected traversing block number does not exist

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A traversing block selected via binector input p2625 ... p2630 was started via binector input p2631 = 0/1 edge "Activate traversing task".
- the number of the started traversing block is not contained in p2616[0...n].
- the started traversing block is suppressed.
Alarm value (r2124, interpret decimal):
Number of the selected traversing block that is also not available.
Remedy:
- correct the traversing program.
- select an available traversing block number.

A07463 (F) EPOS: External block change not requested in the traversing block

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For a traversing block with the block change enable CONTINUE_EXTERNAL_ALARM, the external block change was not requested.
Alarm value (r2124, interpret decimal):
Number of the traversing block.
Remedy: Resolve the reason as to why the edge is missing at binector input (BI: p2632).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

F07464 EPOS: Traversing block is inconsistent

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The traversing block does not contain valid information.
Alarm value (r2124, interpret decimal):
Number of the traversing block with invalid information.
Remedy: Check the traversing block and where relevant, take into consideration alarms that are present.

A07465 EPOS: Traversing block does not have a subsequent block

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: There is no subsequent block in the traversing block.
Alarm value (r2124, interpret decimal):
Number of the traversing block with the missing subsequent block.
Remedy:
- parameterize this traversing block with the block change enable END.
- parameterize additional traversing blocks with a higher block number and for the last block, using the block change enable END.

A07466 EPOS: Traversing block number assigned a multiple number of times

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The same traversing block number was assigned a multiple number of times.
Alarm value (r2124, interpret decimal):
Number of the traversing block that was assigned a multiple number of times.
Remedy: Correct the traversing blocks.

A07467 EPOS: Traversing block has illegal task parameters

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The task parameter in the traversing block contains an illegal value.
Alarm value (r2124, interpret decimal):
Number of the traversing block with an illegal task parameter.
Remedy: Correct the task parameter in the traversing block.

A07468 EPOS: Traversing block jump destination does not exist

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In a traversing block, a jump was programmed to a non-existent block.
Alarm value (r2124, interpret decimal):
Number of the traversing block with a jump destination that does not exist.
Remedy: - correct the traversing block.
- add the missing traversing block.

A07469 EPOS: Traversing block < target position < software limit switch minus

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the traversing block the specified absolute target position lies outside the range limited by the software limit switch minus.
Alarm value (r2124, interpret decimal):
Number of the traversing block with illegal target position.
Remedy: - correct the traversing block.
- change software limit switch minus (CI: p2578, p2580).

A07470 EPOS: Traversing block> target position > software limit switch plus

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the traversing block the specified absolute target position lies outside the range limited by the software limit switch plus.

	Alarm value (r2124, interpret decimal):
	Number of the traversing block with illegal target position.
Remedy:	- correct the traversing block.
	- change software limit switch plus (CI: p2579, p2581).

A07471	**EPOS: Traversing block target position outside the modulo range**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the target position lies outside the modulo range.
	Alarm value (r2124, interpret decimal):
	Number of the traversing block with illegal target position.
Remedy:	- in the traversing block, correct the target position.
	- change the modulo range (p2576).

A07472	**EPOS: Traversing block ABS_POS/ABS_NEG not possible**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the positioning mode ABS_POS or ABS_NEG were parameterized with the modulo correction not activated.
	Alarm value (r2124, interpret decimal):
	Number of the traversing block with the illegal positioning mode.
Remedy:	Correct the traversing block.

A07473 (F)	**EPOS: Beginning of traversing range reached**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the positive direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07474 (F)	**EPOS: End of traversing range reached**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the negative direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F07475 (A) EPOS: Target position < start of traversing range

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The target position for relative traversing lies outside the traversing range.
Remedy: Correct the target position.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07476 (A) EPOS: Target position > end of the traversing range

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The target position for relative traversing lies outside the traversing range.
Remedy: Correct the target position.
Reaction upon A: NONE
Acknowl. upon A: NONE

A07477 (F) EPOS: Target position < software limit switch minus

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the actual traversing operation, the target position is less than the software limit switch minus.
Remedy: - correct the target position.
- change software limit switch minus (CI: p2578, p2580).
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07478 (F) EPOS: Target position > software limit switch plus

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the actual traversing operation, the target position is greater than the software limit switch plus.
Remedy: - correct the target position.
- change software limit switch plus (CI: p2579, p2581).
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07479 EPOS: Software limit switch minus reached

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The axis is at the position of the software limit switch minus. An active traversing block was interrupted.
Remedy: - correct the target position.
- change software limit switch minus (CI: p2578, p2580).

A07480 EPOS: Software limit switch plus reached

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The axis is at the position of the software limit switch plus. An active traversing block was interrupted.
Remedy: - correct the target position.
- change software limit switch plus (CI: p2579, p2581).

F07481 (A) EPOS: Axis position < software limit switch minus

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The actual position of the axis is less than the position of the software limit switch minus.
Remedy: - correct the target position.
- change software limit switch minus (CI: p2578, p2580).
Reaction upon A: NONE
Acknowl. upon A: NONE

F07482 (A) EPOS: Axis position > software limit switch plus

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The actual position of the axis is greater than the position of the software limit switch plus.
Remedy: - correct the target position.
- change software limit switch plus (CI: p2579, p2581).
Reaction upon A: NONE
Acknowl. upon A: NONE

A07483 EPOS: Travel to fixed stop clamping torque not reached

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The fixed stop in the traversing block was reached without the clamping torque/clamping force having been achieved.
Remedy: - Check the maximum torque-generating current (r1533).
- check the torque limits (p1520, p1521).
- check the power limits (p1530, p1531).
- check the BICO interconnections of the torque limits (p1522, p1523, p1528, p1529).

F07484 EPOS: Fixed stop outside the monitoring window

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF3 (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: In the "fixed stop reached" state, the axis has moved outside the defined monitoring window (p2635).
Remedy: - check the monitoring window (p2635).
- check the mechanical system.

F07485 (A)	EPOS: Fixed stop not reached
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	In a traversing block with the task FIXED STOP, the end position was reached without detecting a fixed stop.
Remedy:	- check the traversing block and locate the target position further into the workpiece. - check the "fixed stop reached" control signal (p2637). - if required, reduce the maximum following error window to detect the fixed stop (p2634).
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A07486	EPOS: Intermediate stop missing
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "no intermediate stop/intermediate stop" (BI: p2640) did not have a 1 signal.
Remedy:	Connect a 1 signal to the binector input "no intermediate stop/intermediate stop" (BI: p2640) and re-start motion.

A07487	EPOS: Reject traversing task missing
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "do not reject traversing task/reject traversing task" (BI: p2641) does not have a 1 signal.
Remedy:	Connect a 1 signal to the binector input "do not reject traversing task/reject traversing task" (BI: p2641) and restart motion.

F07488	EPOS: Relative positioning not possible
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	In the mode "direct setpoint input/MDI", for continuous transfer (p2649 = 1) relative positioning was selected (BI: p2648 = 0 signal).
Remedy:	Check the control.

A07489	EPOS: Reference point correction outside the window
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the function "flying referencing" the difference between the measured position at the measuring probe and the reference point coordinate lies outside the parameterized window.
Remedy:	- check the mechanical system. - check the parameterization of the window (p2602).

F07490 (N)	**EPOS: Enable signal withdrawn while traversing**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	- for a standard assignment, another fault may have occurred as a result of withdrawing the enable signals. - the drive is in the "switching on inhibited" state (for a standard assignment).
Remedy:	- set the enable signals or check the cause of the fault that first occurred and then result (for a standard assignment). - check the assignment to enable the basic positioning function.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07491 (A)	**EPOS: STOP cam minus reached**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	A 0 signal was detected at binector input BI: p2569, i.e. the STOP cam minus was reached. For a positive traversing direction, the STOP cam minus was reached - i.e. the wiring of the STOP cam is incorrect.
Remedy:	- leave the STOP cam minus in the positive traversing direction and return the axis to the valid traversing range. - check the wiring of the STOP cam.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07492 (A)	**EPOS: STOP cam plus reached**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	A 0 signal was detected at binector input BI: p2570, i.e. the STOP cam plus was reached. For a negative traversing direction, the STOP cam plus was reached - i.e. the wiring of the STOP cam is incorrect.
Remedy:	- leave the STOP cam plus in the negative traversing direction and return the axis to the valid traversing range. - check the wiring of the STOP cam.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07493	**LR: Overflow of the value range for position actual value**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset. Fault value (r0949, interpret decimal): 1: The position actual value (r2521) has exceeded the value range. 2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range. 3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.

	Note: For a linear encoder, the following must be maintained: - p0407 * p2503 / (2^p0418*10^7) < 1 - p0407 * p2503 / (2^p0419*10^7) < 1
Remedy:	If required, reduce the traversing range or position resolution (p2506). Increase the fine resolution of absolute position actual value (p0419). Note for fault value = 3: If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow. For rotary encoders, the maximum possible absolute position (LU) is calculated as follows: 1. Motor encoder without position tracking p2506 * p0433 * p2505 / (p0432 * p2504) p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders 2. Motor encoder with position tracking for measuring gear: p2506 * p0412 * p2505 / p2504 3. Motor encoder with position tracking for load gear p2506 * p2721 * p0433 / p0432 4. Motor encoder with position tracking for load and measuring gear p2506 * p2721 5. Direct encoder without position tracking p2506 * p0433 / p0432 p2506 * p0433 * p0421 / p0432 for multiturn encoders 6. Direct encoder with position tracking for measuring gear p2506 * p0412

F07494 LR: Drive Data Set changeover in operation

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships (p2503 ... 2506), direction of rotation (p1821) or the encoder assignment (p2502) was requested in operation. Note: DDS: Drive Data Set
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.

A07495 (F) LR: Reference function interrupted

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. Possible causes: - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	- check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07496	**EPOS: Enable not possible**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	It is not possible to enable the basic positioner because at least one signal is missing. Alarm value (r2124, interpret decimal): 1: EPOS enable missing (BI: p2656). 2: Position actual value, valid feedback signal missing (BI: p2658).
Remedy:	Check the appropriate binector inputs and signals.

A07497 (N)	**LR: Position setting value activated**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy:	Not necessary. The alarm automatically disappears with BI: p2514 = 0 signal.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07498 (F)	**LR: Measuring probe evaluation not possible**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the measuring probe, an error occurred. Alarm value (r2124, interpret decimal): 6: The input terminal for the measuring probe is not set. 4098: Error when initializing the measuring probe. 4100: The measuring pulse frequency is too high. > 50000: The measuring clock cycle is not a multiple integer of the position controller clock cycle.
Remedy:	De-activate the measuring probe evaluation (BI: p2509 = 0 signal). Re alarm value = 6: Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518). Re alarm value = 4098: Check the Control Unit hardware. Re alarm value = 4100: Reduce the frequency of the measuring pulses at the measuring probe. Re alarm value > 50000: Set the clock cycle ratio of the measuring clock cycle to the position controller clock cycle to an integer multiple. To do this, the currently effective measuring clock cycle can be determined from the alarm value as follows: Tmeas [125 µs] = alarm value - 50000 With PROFIBUS, the measuring clock cycle corresponds to the PROFIBUS clock cycle (r2064[1]). Without PROFIBUS, the measuring clock cycle is an internal cycle time that cannot be influenced.

Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

F07499 (A) EPOS: Reversing cam approached with the incorrect traversing direction

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF3
Acknowledge: IMMEDIATELY
Cause: The reversing cam MINUS was approached in the positive traversing direction or the reversing cam PLUS was approached in the negative traversing direction.
Remedy: - check the wiring of the reversing cam (BI: p2613, BI: p2614).
- check the traversing direction to approach the reversing cam.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07500 Drive: Power unit data set PDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Only for controlled line supply infeed/regenerative feedback units:
The power unit data set was not configured - this means that a data set number was not entered into the drive data set.
Fault value (r0949, interpret decimal):
Drive data set number of p0185.
Remedy: The index of the power unit data set associated with the drive data set should be entered into p0185.

F07501 Drive: Motor Data Set MDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Only for power units:
The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0186.
Remedy: The index of the motor data set associated with the drive data set should be entered into p0186.
See also: p0186 (Motor Data Sets (MDS) number)

F07502 Drive: Encoder Data Set EDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Only for power units:
The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0187, p0188 and p0189.
The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).

Remedy: The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

F07503 EPOS: STOP cam approached with the incorrect traversing direction

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The STOP cam MINUS was approached in the positive traversing direction or the STOP cam PLUS was approached in the negative traversing direction.
Remedy: - check the wiring of the STOP cam (BI: p2569, BI: p2570).
- check the traversing direction to approach the STOP cam.

A07504 Drive: Motor data set is not assigned to a drive data set

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A motor data set is not assigned to a drive object.
All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]). There must be at least as many drive data sets as motor data sets.
Alarm value (r2124, interpret decimal):
Number of the motor data set that has not been assigned.
Remedy: In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).
- check whether all of the motor data sets are assigned to drive data sets.
- if required, delete superfluous motor data sets.
- if required, set up new drive data sets and assign to the corresponding motor data sets.
See also: p0186 (Motor Data Sets (MDS) number)

A07505 EPOS: Task fixed stop not possible in the U/f/SLVC mode

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the U/f/SLVC mode, an attempt was made to execute a traversing block with the "fixed stop" task. This is not possible.
Alarm value (r2124, interpret decimal):
Number of the traversing block with an illegal task parameter.
Remedy: - Check the traversing block and change the task.
- change the open-loop/closed-loop control mode (p1300).
See also: p1300 (Open-loop/closed-loop control operating mode)

F07509 Drive: Component assignment missing

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.

Alarm value (r2124, interpret decimal):

nnmmmxxyyy

nn: Number of the MDS/EDS.

mmm: Parameter number of the missing component number.

xx: Number of the DDS that is assigned to the MDS/EDS.

yyy: Parameter number that references the MDS/EDS.

Example:

p0186[7] = 5: DDS 7 is assigned MDS 5.

p0131[5] = 0: There is no component number set in MDS 5.

Alarm value = 0513107186

Remedy: In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.

See also: p0131, p0141, p0142, p0186, p0187, p0188, p0189

F07510 Drive: Identical encoder in the drive data set

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: More than one encoder with identical component number is assigned to a single drive data set. In one drive data set, it is not permissible that identical encoders are operated together.

Fault value (r0949, interpret decimal):

1000 * first identical encoder + 100 * second identical encoder + drive data set.

Example:

Fault value = 1203 means:

In drive data set 3, the first (p0187[3]) and second encoder (p0188[3]) are identical.

Remedy: Assign the drive data set to different encoders.

See also: p0141 (Encoder interface (Sensor Module) component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)

F07511 Drive: Encoder used a multiple number of times

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.

Fault value (r0949, interpret decimal):

The two parameters in coded form, that refer to the same component number.

First parameter:

Index: First and second decimal place (99 for EDS, not assigned DDS)

Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)

Drive number: Fourth and fifth decimal place

Second parameter:

Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)

Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)

Drive number: Ninth and tenth decimal place

See also: p0141 (Encoder interface (Sensor Module) component number)

Remedy: Correct the double use of a component number using the two parameters coded in the fault value.

F07512	**Drive: Encoder data set changeover cannot be parameterized**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Using p0141, a changeover of the encoder data set is prepared that is illegal. In this firmware release, an encoder data set changeover is only permitted for the components in the actual topology. Alarm value (r2124, interpret decimal): Incorrect EDS data set number. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number)
Remedy:	Every encoder data set must be assigned its own dedicated DRIVE-CLiQ socket. The component numbers of the encoder interfaces (p0141) must have different values within a drive object. The following must apply: p0141[0] not equal to p0141[1] not equal to ... not equal to p0141[n]

A07514 (N)	**Drive: Data structure does not correspond to the interface module**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The interface mode "SIMODRIVE 611 universal" was set (p2038 = 1) and the data structure does not correspond to this mode. The following settings are possible, depending on the number of data sets: Number of DDS/MDS (p0180/p0130): p0186 1/1: p0186[0] = 0 2/2: p0186[0] = 0, p0186[1] = 1 4/4: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2, p0186[3] = 3 8/8: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 ... p0186[7] = 7 16/16: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 ... p0186[15] = 15 32/32: p0186[0] = 0, p0186[1] = 1, p0186[2] = 2 ... p0186[31] = 31 2/1: p0186[0, 1] = 0 4/2: p0186[0, 1] = 0, p0186[1, 2] = 1 8/4: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2, p0186[5, 6] = 3 16/8: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2 ... p0186[14, 15] = 7 32/16: p0186[0, 1] = 0, p0186[1, 2] = 1, p0186[3, 4] = 2 ... p0186[30, 31] = 15 4/1: p0186[0, 1, 2, 3] = 0 8/2: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1 16/4: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1, p0186[8, 9, 10, 11] = 2, p0186[12, 13, 14, 15] = 3 32/8: p0186[0, 1, 2, 3] = 0, p0186[4, 5, 6, 7] = 1, p0186[8, 9, 10, 11] = 2 ... p0186[28, 29, 30, 31] = 7 8/1: p0186[0...7] = 0 16/2: p0186[0...7] = 0, p0186[8...15] = 1 32/4: p0186[0...7] = 0, p0186[8...15] = 1, p0186[16...23] = 2, p0186[24...31] = 3 16/1: p0186[0...15] = 0 32/2: p0186[0...15] = 0, p0186[16...31] = 1 32/1: p0186[0...31] = 0 9/2: p0186[0...7] = 0, p0186[8] = 1 10/2: p0186[0...7] = 0, p0186[8, 9] = 1 12/2: p0186[0...7] = 0, p0186[8...11] = 1 See also: p0180 (Number of Drive Data Sets (DDS)), p0186 (Motor Data Sets (MDS) number), p2038 (IF1 PROFIdrive STW/ZSW interface mode)
Remedy:	- Check the data structure according to the possible settings mentioned in the cause. - check the interface mode (p2038).

Reaction upon N: NONE
Acknowl. upon N: NONE

F07515 Drive: Power unit and motor incorrectly connected

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology. It is possible that a motor has not been assigned to the power unit (p0131).

Fault value (r0949, interpret decimal):

Number of the incorrectly parameterized drive data set.

Remedy: - assign the drive data set to a combination of motor and power unit permitted by the target topology.

- adapt the target topology.

- If required, for a missing motor, recreate the component (drive Wizard).

See also: p0121 (Power unit component number), p0131 (Motor component number), p0186 (Motor Data Sets (MDS) number)

F07516 Drive: Re-commission the data set

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned.

Fault value (r0949, interpret decimal):

Drive data set to be re-commissioned.

Remedy: Commission the drive data set specified in the fault value (r0949).

F07517 Drive: Encoder data set changeover incorrectly parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An MDS cannot have different motor encoders in two different DDS.

The following parameterization therefore results results in an error:

p0186[0] = 0, p0187[0] = 0

p0186[0] = 0, p0187[0] = 1

Alarm value (r2124, interpret decimal):

The lower 16 bits indicate the first DDS and the upper 16 bits indicate the second DDS.

Remedy: If you wish to operate a motor once with one motor encoder and then another time with the other motor encoder, then you must set up two different MDSs, in which the motor data are the same.

Example:

p0186[0] = 0, p0187[0] = 0

p0186[0] = 1, p0187[0] = 1

F07518 Drive: Motor data set changeover incorrectly parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The system has identified that two motor data sets were incorrectly parameterized.

Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors.

It is not possible to toggle between motor data sets.

Alarm value (r2124, interpret hexadecimal):

xxxxyyyy:

xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS

Remedy: Correct the parameterization of the motor data sets.

A07519 Drive: Motor changeover incorrectly parameterized

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: With the setting p0833.0 = 1, a motor changeover via the application is selected. This is the reason that p0827 must have different values in the appropriate motor data set.

Alarm value (r2124, interpret hexadecimal):

xxxxyyyy:

xxxx: First MDS, yyyy: Second MDS

Remedy: - parameterize the appropriate motor data sets differently (p0827).

- select the setting p0833.0 = 0 (motor changeover via the drive).

A07520 Drive: Motor cannot be changed over

Message value: %1

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The motor cannot be changed over.

Alarm value (r2124, interpret decimal):

1:

The contactor for the motor that is presently active cannot be opened, because for a synchronous motor, the speed (r0063) is greater than the speed at the start of field weakening (p0348). As long as r0063 > p0348, the current in the motor does not decay in spite of the pulses being suppressed.

2:

The "contactor opened" feedback signal was not detected within 1 s.

3:

The "contactor closed" feedback signal was not detected within 1 s.

Remedy: Re alarm value = 1:

Set the speed lower than the speed at the start of field weakening (r0063 < p0348).

Re alarm value = 2, 3:

Check the feedback signals of the contactor involved.

A07530 Drive: Drive Data Set DDS not present

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The selected drive data set is not available (p0837 > p0180). The drive data set was not changed over.

See also: p0180, p0820, p0821, p0822, p0823, p0824, r0837

Remedy: - select the existing drive data set.

- set up additional drive data sets.

A07531	**Drive: Command Data Set CDS not present**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected command data set is not available (p0836 > p0170). The command data set was not changed over. See also: p0810 (Command data set selection CDS bit 0), p0811 (Command data set selection CDS bit 1), r0836 (Command Data Set CDS selected)
Remedy:	- select the existing command data set. - set up additional command data sets.

A07541	**Drive: Data set changeover not possible**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out. For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348). See also: r0063 (Speed actual value)
Remedy:	Reduce the speed to below the speed at the start of field weakening (r0063 < p0348).

A07550 (F, N)	**Drive: Not possible to reset encoder parameters**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ. Alarm value (r2124, interpret decimal): Component number of the encoder involved.
Remedy:	- repeat the operation. - check the DRIVE-CLiQ connection.
Reaction upon F:	Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F07551	**Drive encoder: No commutation angle information**
Message value:	Fault cause: %1, drive data set: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2 (IASC/DCBRK)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control) Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = fault cause, xxxx = drive data set yyyy = 1 dec: The motor encoder used does not supply an absolute commutation angle. yyyy = 2 dec: The selected ratio of the measuring gear does not match the motor pole pair number.

Remedy: Re fault cause = 1:

- check the encoder parameterization (p0404).
- use an encoder with track C/D, EnDat interface of Hall sensors.
- use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) is an integer multiple of the encoder pulse number (p0408).
- activate the pole position identification routine (p1982 = 1) for motor encoders without absolute position information. Then, using an encoder adjustment (p1990), the angular commutation offset should be determined.

Re fault cause = 2:

- the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: (p0314 * p0433) / p0432.

Note:

For operation with track C/D, this quotient must be less than 8.

See also: p0402 (Gearbox type selection), p0404 (Encoder configuration effective), p0432 (Gearbox factor encoder revolutions), p0433 (Gearbox factor motor/load revolutions)

F07552 (A) Drive encoder: Encoder configuration not supported

Message value: Fault cause: %1, component number: %2, encoder data set: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.

Fault value (r0949, interpret decimal):

ccccbbaa hex: cccc = fault cause, bb = component number, aa = encoder data set

cccc = 1: encoder sin/cos with absolute track (is supported by SME25).

cccc = 3: Squarewave encoder (this is supported by SMC30).

cccc = 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).

cccc = 10: DRIVE-CLiQ encoder (is supported by DQI).

cccc = 12: sin/cos encoder with reference mark (this is supported by SME20).

cccc = 15: Commutation with zero mark for separately-excited synchronous motors with VECTORMV.

cccc = 23: Resolver (this is supported by SMC10, SMI10).

cccc = 65535: Other function (compare r0456 and p0404).

See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)

Remedy: - check the encoder parameterization (p0400, p0404).

- use the matching encoder evaluation (r0456).

Reaction upon A: NONE

Acknowl. upon A: NONE

F07553 (A) Drive encoder: Sensor Module configuration not supported

Message value: Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The Sensor Module does not support the requested configuration.

For incorrect p0430 (cc = 0), the following applies:

- In p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28, 29, 30, 31).
- p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).

For incorrect p0437 (cc = 1), the following applies:

- In p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).

	Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa: encoder data set number bb: first incorrect bit cc: incorrect parameter cc = 0: incorrect parameter is p0430 cc = 1: incorrect parameter is p0437 cc = 2: incorrect parameter is r0459 dd: reserved (always 0)
Remedy:	- check the encoder parameterization (p0430, p0437). - check the pole position identification routine (p1982). - use the matching encoder evaluation (r0458, r0459). See also: p0430, p0437, r0458, r0459, p1982
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07555 (A) Drive encoder: Configuration position tracking

Message value:	Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For position tracking, the configuration is not supported. Position tracking can only be activated for absolute encoders. For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears. Fault value (r0949, interpret hexadecimal): ddccbbaa hex aa = encoder data set bb = component number cc = drive data set dd = fault cause dd = 00 hex = 0 dec An absolute encoder is not being used. dd = 01 hex = 1 dec Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM. dd = 02 hex = 2 dec For a linear axis, the position tracking was activated for the load and measuring gear. dd = 03 hex = 3 dec Position tracking cannot be activated because position tracking with another gear ratio, axis type or tolerance window has already been detected for this encoder data set. dd = 04 hex = 4 dec A linear encoder is being used. See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration)
Remedy:	For fault value 0: - use an absolute encoder. For fault value 1: - use a Control Unit with sufficient NVRAM. Re fault value = 2, 4: - if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear). For fault value 3: - Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type (p2720.1) and tolerance window (p2722) are also the same. These parameters must be the same in all drive data sets, which use the same motor encoder (p187).

Reaction upon A: NONE
Acknowl. upon A: NONE

F07556 Measuring gear: Position tracking, maximum actual value exceeded

Message value: Component number: %1, encoder data set: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When the position tracking of the measuring gear is configured, the drive/encoder identifies a maximum possible absolute position actual value (r0483) that cannot be represented within 32 bits.

Maximum value: p0408 * p0412 * 2^p0419

Fault value (r0949, interpret decimal):

aaaayyxx hex: yy = component number, xx = encoder data set

See also: p0408 (Rotary encoder pulse number), p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

Remedy: - reduce the fine resolution (p0419).

- reduce the multiturn resolution (p0412).

See also: p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

A07557 (F) Encoder 1: Reference point coordinate not in the permissible range

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. The maximum permissible value is displayed in the supplementary information.
Remedy: Set the reference point coordinate less than the value from the supplementary information.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07558 (F) Encoder 2: Reference point coordinate not in the permissible range

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. The maximum permissible value is displayed in the supplementary information.
Remedy: Set the reference point coordinate less than the value from the supplementary information.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A07559 (F) Encoder 3: Reference point coordinate not in the permissible range

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. The maximum permissible value is displayed in the supplementary information.
Remedy: Set the reference point coordinate less than the value from the supplementary information.

Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F07560 Drive encoder: Number of pulses is not to the power of two

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For rotary absolute encoders, the pulse number in p0408 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.
Remedy: - check the parameterization (p0408, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

F07561 Drive encoder: Number of multiturn pulses is not to the power of two

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The multiturn resolution in p0421 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.
Remedy: - check the parameterization (p0421, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

F07562 (A) Drive, encoder: Position tracking, incremental encoder not possible

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The requested position tracking for incremental encoders is not supported.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex
aa = encoder data set
bb = component number
cccc = fault cause
cccc = 00 hex = 0 dec
The encoder type does not support the "Position tracking incremental encoder" function.
cccc = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
cccc = 04 hex = 4 dec
A linear encoder is used that does not support the "position tracking" function.
See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration), r0456 (Encoder configuration supported)
Remedy: - check the encoder parameterization (p0400, p0404).
- use a Control Unit with sufficient NVRAM.
- if required, de-select position tracking for the incremental encoder (p0411.3 = 0).
Reaction upon A: NONE
Acknowl. upon A: NONE

F07563 (A) **Drive encoder: XIST1_ERW configuration incorrect**

Message value: Fault cause: %1, encoder data set: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An incorrect configuration was identified for the "Absolute position for incremental encoder" function.
Fault value (r0949, interpret decimal):
Fault cause:
1 (= 01 hex):
The "Absolute value for incremental encoder" function is not supported (r0459.13 = 0).
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
yyxx dec: yy = fault cause, xx = encoder data set
See also: r0459 (Sensor Module properties extended), p4652 (XIST1_ERW reset mode)
Remedy: For fault value = 1:
- upgrade the Sensor Module firmware version.
- check the mode (p4652 = 1, 3 requires the property r0459.13 = 1).
Reaction upon A: NONE
Acknowl. upon A: NONE

A07565 (F, N) **Drive: Encoder error in PROFIdrive encoder interface 1**

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G1_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[0] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07566 (F, N) **Drive: Encoder error in PROFIdrive encoder interface 2**

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G2_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[1] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE
Acknowl. upon N: NONE

A07567 (F, N) Drive: Encoder error in PROFIdrive encoder interface 3

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 3 via the PROFIdrive encoder interface (G3_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G3_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[2] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G3_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07569 (F) Enc identification active

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: During encoder identification (waiting) with p0400 = 10100, the encoder could still not be identified.
Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected.
Note:
Encoder identification must be supported by the encoder and is possible in the following cases:
- Encoder with EnDat interface.
- Encoder with SSI interface.
- Motor with DRIVE-CLiQ.
Remedy: - check and, if necessary, connect the encoder / encoder cable.
- check and, if necessary, establish the DRIVE-CLiQ connection.
- for SSI encoders, carry out the required operator actions (see the Function Manual).
- in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), enter the correct encoder type in p0400.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

N07570 (F) Encoder identification data transfer running

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: NONE
Cause: The encoder type was automatically determined using p0400 = 10100.
This fault causes the pulses to be suppressed - this is necessary to transfer the encoder parameterization to p0400ff.
See also: p0400 (Encoder type selection)
Remedy: The fault can be acknowledged without any additional measures.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F07575 Drive: Motor encoder not ready

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (ENCODER)
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: The motor encoder signals that it is not ready.
- initialization of encoder 1 (motor encoder) was unsuccessful.
- the function "parking encoder" is active (encoder control word G1_STW.14 = 1).
- the encoder interface (Sensor Module) is de-activated (p0145).
- the Sensor Module is defective.

Remedy: Evaluate other queued faults via encoder 1.

A07576 Drive: Encoderless operation due to a fault active

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Encoderless operation is active due to a fault (r1407.13 = 1).
Note:
The behavior for faults has been set to ENCODER fault response in p0491.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- remove the cause of a possible encoder fault.
- carry out a POWER ON (power off/on) for all components.

A07577 (F) Encoder 1: Measuring probe evaluation not possible

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.
Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07578 (F)	**Encoder 2: Measuring probe evaluation not possible**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the measuring probe, an error occurred. Alarm value (r2124, interpret decimal): 6: The input terminal for the measuring probe is not set. 4098: Error when initializing the measuring probe. 4100: The measuring pulse frequency is too high. 4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.
Remedy:	De-activate the measuring probe evaluation (BI: p2509 = 0 signal). Re alarm value = 6: Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518). Re alarm value = 4098: Check the Control Unit hardware. Re alarm value = 4100: Reduce the frequency of the measuring pulses at the measuring probe. Re alarm value = 4200: Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F:	OFF1
Acknowl. upon F:	IMMEDIATELY

A07579 (F)	**Encoder 3: Measuring probe evaluation not possible**
Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the measuring probe, an error occurred. Alarm value (r2124, interpret decimal): 6: The input terminal for the measuring probe is not set. 4098: Error when initializing the measuring probe. 4100: The measuring pulse frequency is too high. 4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.
Remedy:	De-activate the measuring probe evaluation (BI: p2509 = 0 signal). Re alarm value = 6: Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518). Re alarm value = 4098: Check the Control Unit hardware. Re alarm value = 4100: Reduce the frequency of the measuring pulses at the measuring probe. Re alarm value = 4200: Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
Reaction upon F:	OFF1
Acknowl. upon F:	IMMEDIATELY

A07580 (F, N)	Drive: No Sensor Module with matching component number
Message value:	Encoder data set: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Sensor Module with the component number specified in p0141 was not found. Alarm value (r2124, interpret decimal): Encoder data set involved (index of p0141).
Remedy:	Correct parameter p0141.
Reaction upon F:	Vector: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) Infeed: OFF1 (NONE, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07581 (F)	Encoder 1: Position actual value preprocessing error
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred during the position actual value preprocessing.
Remedy:	Check the encoder for the position actual value preprocessing.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07582 (F)	Encoder 2: Position actual value preprocessing error
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred during the position actual value preprocessing.
Remedy:	Check the encoder for the position actual value preprocessing.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07583 (F)	Encoder 3: Position actual value preprocessing error
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred during the position actual value preprocessing.
Remedy:	Check the encoder for the position actual value preprocessing.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07584 Encoder 1: Position setting value activated

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy: Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

A07585 Encoder 2: Position setting value activated

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy: Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

A07586 Encoder 3: Position setting value activated

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy: Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

A07587 Encoder 1: Position actual value preprocessing does not have a valid encoder

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The following problem has occurred during the position actual value preprocessing.
- an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy: Check the drive data sets, encoder data sets.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Encoder type selection)

A07588 Encoder 2: Position actual value preprocessing does not have a valid encoder

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The following problem has occurred during the position actual value preprocessing.
- an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).

Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Encoder type selection)

A07589 Encoder 3: Position actual value preprocessing does not have a valid encoder

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following problem has occurred during the position actual value preprocessing. - an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0189 (Encoder 3 encoder data set number), p0400 (Encoder type selection)

A07590 (F) Encoder 1: Drive Data Set changeover in operation

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07591 (F) Encoder 2: Drive Data Set changeover in operation

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07592 (F) Encoder 3: Drive Data Set changeover in operation

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07593 (F, N) Encoder 1: Value range for position actual value exceeded

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "absolute encoder adjusted" status is reset.
Fault value (r0949, interpret decimal):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value multiplied by the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
Remedy: If required, reduce the traversing range or position resolution.
Re alarm value = 3:
Reducing the position resolution and conversion factor:
- reduce the length unit (LU) per load revolution for rotary encoders (p2506).
- increase the fine resolution of absolute position actual values (p0419).
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07594 (F, N) Encoder 2: Value range for position actual value exceeded

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "absolute encoder adjusted" status is reset.
Fault value (r0949, interpret decimal):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
Remedy: If required, reduce the traversing range or position resolution.
Re alarm value = 3:
Reducing the position resolution and conversion factor:
- reduce the length unit (LU) per load revolution for rotary encoders (p2506).
- increase the fine resolution of absolute position actual values (p0419).
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07595 (F, N) Encoder 3: Value range for position actual value exceeded

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.

	When the overflow occurs, the "referenced" or "absolute encoder adjusted" status is reset. Fault value (r0949, interpret decimal): 1: The position actual value (r2521) has exceeded the value range. 2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range. 3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
Remedy:	If required, reduce the traversing range or position resolution. Re alarm value = 3: Reducing the position resolution and conversion factor: - reduce the length unit (LU) per load revolution for rotary encoders (p2506). - increase the fine resolution of absolute position actual values (p0419).
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07596 (F) Encoder 1: Reference function interrupted

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	- check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07597 (F) Encoder 2: Reference function interrupted

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	- check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07598 (F)	**Encoder 3: Reference function interrupted**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An activated reference function (reference mark search or measuring probe evaluation) was interrupted. - an encoder fault has occurred (Gn_ZSW.15 = 1). - position actual value was set during an activated reference function. - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal). - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy:	- check the causes and resolve. - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F07599 (A)	**Encoder 1: Adjustment not possible**
Message value:	Drive data set: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.
Remedy:	If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow. For rotary encoders, the maximum possible absolute position (LU) is calculated as follows: 1. Motor encoder without position tracking: p2506 * p0433 * p2505 / (p0432 * p2504) p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders 2. Motor encoder with position tracking for measuring gear: p2506 * p0412 * p2505 / p2504 3. Motor encoder with position tracking for load gear: p2506 * p2721 * p0433 / p0432 4. Motor encoder with position tracking for load and measuring gear: p2506 * p2721 5. Direct encoder without position tracking: p2506 * p0433 / p0432 p2506 * p0433 * p0421 / p0432 for multiturn encoders 6. Direct encoder with position tracking for measuring gear: p2506 * p0412 For a linear encoder, the following must be maintained: - p0407 * p2503 / (2^p0419 * 10^7) <= 1.0
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07600 (A) Encoder 2: Adjustment not possible

Message value: Drive data set: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.

Remedy: If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.

For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:

1. Motor encoder without position tracking:

p2506 * p0433 * p2505 / (p0432 * p2504)

p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders

2. Motor encoder with position tracking for measuring gear:

p2506 * p0412 * p2505 / p2504

3. Motor encoder with position tracking for load gear:

p2506 * p2721 * p0433 / p0432

4. Motor encoder with position tracking for load and measuring gear:

p2506 * p2721

5. Direct encoder without position tracking:

p2506 * p0433 / p0432

p2506 * p0433 * p0421 / p0432 for multiturn encoders

6. Direct encoder with position tracking for measuring gear:

p2506 * p0412

For a linear encoder, the following must be maintained:

- p0407 * p2503 / (2^p0419 * 10^7) <= 1.0

Reaction upon A: NONE

Acknowl. upon A: NONE

F07601 (A) Encoder 3: Adjustment not possible

Message value: Drive data set: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.

Remedy: If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.

For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:

1. Motor encoder without position tracking:

p2506 * p0433 * p2505 / (p0432 * p2504)

p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders

2. Motor encoder with position tracking for measuring gear:

p2506 * p0412 * p2505 / p2504

3. Motor encoder with position tracking for load gear:

p2506 * p2721 * p0433 / p0432

4. Motor encoder with position tracking for load and measuring gear:

p2506 * p2721

5. Direct encoder without position tracking:

p2506 * p0433 / p0432

p2506 * p0433 * p0421 / p0432 for multiturn encoders

6. Direct encoder with position tracking for measuring gear:
p2506 * p0412
For a linear encoder, the following must be maintained:
- p0407 * p2503 / (2^p0419 * 10^7) <= 1.0

Reaction upon A: NONE
Acknowl. upon A: NONE

F07754 Drive: Incorrect shutoff valve configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An incorrect shutoff valve configuration was detected.
Fault value (r0949, interpret decimal):
100:
Enable Safety Integrated (p9601/p9801), but p0218.0 = 0 (shutoff valve not available).
101:
The manipulated variable inhibit time is set less than the wait time to evaluate the feedback signal contacts when switching on the shutoff valve (p0230 < p9625[0]/p9825[0]).
102:
The manipulated variable inhibit time is set less than the wait time to evaluate the feedback signal contacts when switching off the shutoff valve (p0230 < p9625[1]/p9825[1]).
Remedy: For fault value = 100:
Check the enable of Safety Integrated and the shutoff valve (p9601/p9801, p0218.0).
For fault value = 101:
Set the manipulated variable inhibit time higher than the wait time to evaluate the feedback signal contacts when switching on the shutoff valve (p0230 > p9625[0]/p9825[0]).
For fault value = 102:
Set the manipulated variable inhibit time higher than the wait time to evaluate the feedback signal contacts when switching off the shutoff valve (p0230 > p9625[1]/p9825[1]).
See also: p0230 (Drive filter type motor side)

F07800 Drive: No power unit present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The power unit parameters cannot be read or no parameters are stored in the power unit.
It is possible that the DRIVE-CLiQ cable between the Control Unit and power unit is interrupted or defective.
Note:
This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded to the Control Unit.
See also: r0200 (Power unit code number actual)
Remedy: - carry out a POWER ON (power off/on) for all components.
- check the DRIVE-CLiQ cable between the Control Unit and power unit.
- Check the power unit and replace if necessary.
- check the Control Unit, and if required replace it.
- after correcting the topology, the parameters must be again downloaded using the commissioning software.

F07801 Drive: Motor overcurrent

Message value: -
Message class: Motor overload (8)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The permissible motor limit current was exceeded.
- effective current limit set too low.
- current controller not correctly set.
- U/f operation: Up ramp was set too short or the load is too high.
- U/f operation: Short-circuit in the motor cable or ground fault.
- U/f operation: Motor current does not match current of power unit.
- Switch to rotating motor without flying restart function (p1200).

Note:
Limit current = 2 x minimum (p0640, 4 x p0305 x p0306) >= 2 x p0305 x p0306

Remedy:
- check the current limits (p0640).
- vector control: Check the current controller (p1715, p1717).
- U/f control: Check the current limiting controller (p1340 ... p1346).
- increase the up ramp (p1120) or reduce the load.
- check the motor and motor cables for short-circuit and ground fault.
- check the motor for the star-delta configuration and rating plate parameterization.
- check the power unit and motor combination.
- Choose "flying restart" function (p1200) if switched to rotating motor.

F07802 Drive: Infeed or power unit not ready

Message value: -
Message class: Infeed faulted (13)
Drive object: VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: After an internal power-on command, the infeed or drive does not signal ready.
- monitoring time is too short.
- DC link voltage is not present.
- associated infeed or drive of the signaling component is defective.
- supply voltage incorrectly set.

Remedy:
- increase the monitoring time (p0857).
- ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.
- replace the associated infeed or drive of the signaling component.
- check the line supply voltage setting (p0210).

See also: p0857 (Power unit monitoring time)

A07805 (N) Drive: Power unit overload I2t

Message value: -
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Alarm threshold for I2t overload (p0294) of the power unit exceeded.
The response parameterized in p0290 becomes active.
See also: p0290 (Power unit overload response)

Remedy:
- reduce the continuous load.
- adapt the load duty cycle.
- check the assignment of the rated currents of the motor and Motor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE

A07805 (N) Infeed: Power unit overload I2t

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: Alarm threshold for I2t overload (p0294) of the power unit exceeded.
Remedy: - reduce the continuous load.
- adapt the load duty cycle.

Reaction upon N: NONE
Acknowl. upon N: NONE

F07807 Drive: Short-circuit/ground fault detected

Message value: %1
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: A phase-phase short-circuit or ground fault was detected at the motor-side output terminals of the converter.
Fault value (r0949, interpret decimal):
1: Short-circuit, phases U-V
2: Short-circuit, phases U-W
3: Short-circuit, phases V-W
4: Ground fault with overcurrent
1xxxx: Ground fault with current in phase U detected (xxxx = component of the current in phase V in per mille)
2xxxx: Ground fault with current in phase V detected (xxxx = component of the current in phase U in per mille)
Note:
Also when interchanging the line and motor cables is identified as a motor-side short circuit.
Connecting to a motor that is either not de-energized or partially de-energized is possibly detected as ground fault.
Remedy: - check the motor-side converter connection for a phase-phase short-circuit.
- rule-out interchanged line and motor cables.
- check for a ground fault.
For a ground fault:
- do not enable the pulses when connecting to a rotating motor without the "Flying restart" function activated (p1200).
- increase the de-energization time (p0347).
- If required, deactivate the monitoring (p1901).

F07808 (A) HF damping module: damping not ready

Message value: New message: %1
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: When switching on or in the switched-on state, the HF damping module does not return a ready signal.
Remedy: - Check the DRIVE-CLiQ wiring to the HF damping module.
- check the 24 V supply voltage.
- if required, replace the HF damping module.
Note:
HF Damping Module

Reaction upon A: NONE
Acknowl. upon A: NONE

F07810	**Drive: Power unit EEPROM without rated data**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	No rated data are stored in the power unit EEPROM. See also: p0205 (Power unit application), r0206 (Rated power unit power), r0207 (Rated power unit current), r0208 (Rated power unit line supply voltage), r0209 (Power unit maximum current)
Remedy:	Replace the power unit or inform Siemens Customer Service.

F07815	**Drive: Power unit has been changed**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual power unit does not match the saved number. This only occurs if the comparator in p9906 or p9908 is not at 2 (low) or 3 (minimum). Fault value (r0949, interpret decimal): Number of the incorrect parameter. See also: r0200 (Power unit code number actual), p0201 (Power unit code number)
Remedy:	- Connect the original power unit and switch on the Control Unit again (POWER ON). - Set p0201 to r0200 and exit commissioning with p0010 = 0. Note: If the power unit type was changed (see r0203) or the motor replaced, then the motor must be recommissioned (e.g. using p0010 = 1, p3900 = 3, p1900 = 1, 2). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ. If the new power unit is accepted, then if required, the current limit p0640 can be reduced by a lower maximum current of the power unit (r0209) (torque limits stay the same). If the comparison stage in p9906 is set to 2, 3, then commissioning can be exited (p0010 = 0) and the fault acknowledged. This procedure is not recommended for different power unit types. See also: r0200 (Power unit code number actual)

F07815	**Drive: Power unit has been changed**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual power unit does not match the saved number. This only occurs if the comparator in p9906 or p9908 is not at 2 (low) or 3 (minimum). Fault value (r0949, interpret decimal): Number of the incorrect parameter. See also: r0200 (Power unit code number actual), p0201 (Power unit code number)
Remedy:	Connect the original power unit and power up the Control Unit again (POWER ON) or set p0201 to r0200 and exit commissioning with p0010 = 0. For infeeds, the following applies: Line reactors or line filters must be used that are specified for the new power unit. A line supply and DC link identification routine (p3410 = 5) must then be carried out. It is not possible to change the power unit without re-commissioning the system if the type of infeed (A_Infeed, B_Infeed, S_Infeed), the type of construction/design (booksize, chassis) or the voltage class differ between the old and new power units. For inverters, the following applies: If the new power unit is accepted, then if required, the current limit (p0640) can be reduced by a lower maximum current of the power unit (r0209) (torque limits stay the same).

If not only the power unit is changed, but also the motor, then the motor must be re-commissioned (e.g. using p0010 = 1). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ.

See also: r0200 (Power unit code number actual)

A07820 Drive: Temperature sensor not connected

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The temperature sensor for monitoring the motor temperature, specified in p0600, is not available.

Alarm value (r2124, interpret decimal):

1: p0601 = 10 (SME), but in p0600 - not evaluated via encoder is selected.

2: p0600 = 10 (BICO), but the signal source (p0603) is not interconnected.

3: p0601 = 11 (BICO), but in p0600 - not evaluated via BICO interconnection is selected (20 or 21).

4: p0601 = 11 (BICO) and p4610-p4613 > 0, but the associated signal source (p0608, p0609) is not interconnected.

5: Component with sensor evaluation not present or has been removed in the meantime.

6: Evaluation via Motor Module not possible (r0192.21).

Remedy: Re alarm value = 1:

- In p0600 set an encoder with temperature sensor.

Re alarm value = 2:

- interconnect p0603 with the temperature signal.

Re alarm value = 3, 4:

- set the available temperature sensor (p0600, p0601).
- set p4610 ... p4613 = 0 (no sensor), or interconnect p0608 or p0609 with an external temperature signal.

Re alarm value = 5:

- connect the component with the temperature sensor. Check the DRIVE-CLiQ connection.

Re alarm value = 6:

- update the Motor Module firmware. Connect temperature sensor via encoder.

See also: p0600 (Motor temperature sensor for monitoring), p0601

A07825 (N) Drive: Simulation mode activated

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The simulation mode is activated.

The drive can only be powered up if the DC link voltage is less than 40 V.

Remedy: Not necessary.

The alarm automatically disappears if simulation mode is de-activated with p1272 = 0.

Reaction upon N: NONE

Acknowl. upon N: NONE

F07826 Drive: DC link voltage for simulation operation too high

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The simulation mode is activated and the DC link voltage is greater than the permissible value of 40 V.

Remedy: - switch out (disable) simulation mode (p1272 = 0) and acknowledge the fault.

- reduce the input voltage in order to reach a DC link voltage below 40 V.

F07840 Drive: Infeed operation missing

Message value: -
Message class: Infeed faulted (13)
Drive object: VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The signal "infeed operation" is not present although the enable signals for the drive have been present for longer than the parameterized monitoring time (p0857).
- infeed not operational.
- interconnection of the binector input for the ready signal is either incorrect or missing (p0864).
- infeed is presently carrying out a line supply identification routine.

Remedy:
- bring the infeed into an operational state.
- check the interconnection of the binector input for the signal "infeed operation" (p0864).
- increase the monitoring time (p0857).
- wait until the infeed has completed the line supply identification routine.

See also: p0857 (Power unit monitoring time), p0864 (Infeed operation)

F07841 (A) Drive: Infeed operation withdrawn

Message value: -
Message class: Infeed faulted (13)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The signal "infeed operation" was withdrawn in operation.
- interconnection of the binector input for the signal "infeed operation" is either incorrect or missing (p0864).
- the enable signals of the infeed were disabled.
- due to a fault, the infeed withdraws the signal "infeed operation".

Remedy:
- check the interconnection of the binector input for the "infeed operation" signal (p0864).
- check the enable signals of the infeed and if required, enable.
- remove and acknowledge an infeed fault.

Note:
If this drive is intended to back up the DC link regeneratively, then the fault response must be parameterized for NONE, OFF1 or OFF3. so that the drive can continue to operate even after the infeed fails.

Reaction upon A: NONE
Acknowl. upon A: NONE

A07850 (F) External alarm 1

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 1" is satisfied.
Note:
The "External alarm 1" is initiated by a 1/0 edge via binector input p2112.
See also: p2112 (External alarm 1)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A07851 (F) External alarm 2

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 2" is satisfied.
Note:
The "External alarm 2" is initiated by a 1/0 edge via binector input p2116.
See also: p2116 (External alarm 2)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A07852 (F) External alarm 3

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 3" is satisfied.
Note:
The "External alarm 3" is initiated by a 1/0 edge via binector input p2117.
See also: p2117 (External alarm 3)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 1" is satisfied.
Note:
The "External fault 1" is initiated by a 1/0 edge via binector input p2106.
See also: p2106 (External fault 1)
Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07861 (A) External fault 2

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 2" is satisfied.

	Note:
	The "External fault 2" is initiated by a 1/0 edge via binector input p2107.
	See also: p2107 (External fault 2)
Remedy:	- eliminate the causes of this fault.
	- acknowledge fault.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07862 (A) External fault 3

Message value:	-
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	All objects
Reaction:	Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
	Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The condition for "External fault 3" is satisfied.
	Note:
	The "External fault 3" is initiated by a 1/0 edge via the following parameters.
	- AND logic operation, binector input p2108, p3111, p3112.
	- switch-on delay p3110.
	See also: p2108, p3110, p3111, p3112
Remedy:	- eliminate the causes of this fault.
	- acknowledge fault.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07890 Internal voltage protection / internal armature short-circuit with STO active

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The internal armature short-circuit (p1231 = 4) is not possible as Safe Torque Off (STO) is enabled. The pulses cannot be enabled.
Remedy:	Switch out the internal armature short-circuit (p1231=0) or de-activate Safe Torque Off (p9501 = p9561 = 0).
	Note:
	STO: Safe Torque Off / SH: Safe standstill

F07898 Drive: flying restart unsuccessful due to excessively low flux

Message value:	-
Message class:	Motor overload (8)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	While identifying the rotor position of a separately-excited synchronous motor based on voltage measurement, after the excitation time had elapsed, the flux was too low.
Remedy:	Increase the excitation time (p0346).
	See also: p0346 (Motor excitation build-up time)

A07899 (N) Drive: Stall monitoring not possible

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Stall monitoring is not possible, because a change was made into the open-loop speed controlled mode before the wait time p2177 had expired.

This situation can only occur, if the following conditions apply:

p1300 = 20

p2177 > p1758

p1750.2 = 0

p1750.6 = 0

Remedy: - Deactivate the changeover into open-loop speed controlled operation when operating at the torque limit (p1750.6 = 0).

Condition:

No slow reversing through the open-loop speed controlled operating range p1755 within the time p1758 when operating at the torque limit.

- shorten the stall detection wait time (p2177 < p1758).

- Activate closed-loop controlled operation from standstill and higher (p1750.2 = 1).

Condition:

There is no active load, for example, a hoisting gear

- Use an operating mode with encoder (p1300 = 21).

Reaction upon N: NONE
Acknowl. upon N: NONE

F07900 (N, A) Drive: Motor blocked

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold in p2175.

This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit.

If the simulation mode is enabled (p1272 = 1) and the closed-loop control with speed encoder activated (p1300 = 21), then the inhibit signal is generated if the encoder signal is not received from a motor that is driven with the torque setpoint of the closed-loop control.

See also: p2175 (Motor blocked speed threshold), p2177 (Motor blocked delay time)

Remedy: - check that the motor can freely move.

- check the effective torque limit (r1538, r1539).

- check the parameter, message "Motor blocked" and if required, correct (p2175, p2177).

- check the inversion of the actual value (p0410).

- check the motor encoder connection.

- check the encoder pulse number (p0408).

- after de-selecting the "Basic positioner" (EPOS) function mode, check the motoring (p1528) and regenerative (p1529) torque limit and modify again.

- in the simulation mode and operation with speed encoder, the power unit to which the motor is connected must be powered up and must be supplied with the torque setpoint of the simulated closed-loop control. Otherwise, change over to encoderless control (see p1300).

- check the direction of rotation enable signals for a flying restart of the motor (p1110, p1111).

- for U/f control: check the current limits and acceleration times (p0640, p1120).

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F07901 Drive: Motor overspeed

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (IASC/DCBRK)
Acknowledge: IMMEDIATELY
Cause: The maximum permissible speed was either positively or negatively exceeded.

The maximum permissible positive speed is formed as follows: Minimum (p1082, CI: p1085) + p2162

The maximum permissible negative speed is formed as follows: Maximum (-p1082, CI: 1088) - p2162

Remedy: The following applies for a positive direction of rotation:

- check r1084 and if required, correct p1082, CI:p1085 and p2162.

The following applies for a negative direction of rotation:

- check r1087 and if required, correct p1082, CI:p1088 and p2162.

Activate pre-control of the speed limiting controller (p1401.7 = 1).

Increase the hysteresis for the overspeed signal p2162. This upper limit is dependent upon the maximum motor speed p0322 and the maximum speed p1082 of the setpoint channel.

F07902 (N, A) Drive: Motor stalled

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The system has identified that the motor has stalled for a time longer than is set in p2178.

Fault value (r0949, interpret decimal):

1: Stall detection using r1408.11 (p1744, p0492).

2: Stall detection using r1408.12 (p1745) or via the flux difference (r0083 ... r0084).

3: Stall detection using r0056.11 (only for separately excited synchronous motors).

See also: p1744 (Motor model speed threshold stall detection), p2178 (Motor stalled delay time)

Remedy: It should always be carefully ensured that the motor data identification (p1910) as well as the rotating measurement (p1960) were carried out (also refer to r3925). For synchronous motors with encoder, the encoder must have been adjusted (p1990).

For closed-loop speed and torque control with speed encoder, the following applies:

- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).

- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.

If there is no fault, then the fault tolerance (p1744 or p0492) can be increased. For resolvers with a high signal ripple, for example p0492 should be increased and the speed signal smoothed (p1441, p1442).

If the stalled motor should take place in the range of the monitor model and for speeds of less than 30 % of the rated motor speed, then a change can be made directly from the current model into the flux impression (p1401.5 = 1). We therefore recommend that the time-controlled model change is switched in (p1750.4 = 1) or the model changeover limits are significantly increased (p1752 > 0.35 x p0311; p1753 = 5 %).

- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the motor that is controlled for the data set changeover.

For closed-loop speed and torque control without speed encoder, the following applies:

- Check whether the drive stalls solely due to the load in controlled mode (r1750.0) or when the speed setpoint is still zero. If so, increase the current setpoint via p1610 or set p1750.2 = 1 (sensorless vector control to standstill for passive loads).

- If the motor excitation time (p0346) was significantly reduced and the drive stalls when it is switched on and run immediately, p0346 should be increased again or quick magnetizing selected (p1401).

- check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response was significantly reduced, then this should be increased again.

- If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.

The following generally apply for closed-loop and torque control:

- Check whether the motor cables are disconnected.
- check the current limits (p0640, r0067, r0289). If the current limits are too low, then the drive cannot be magnetized.
- If the fault occurs with fault value 2 when the motor accelerates very quickly to the field weakening range, the deviation between the flux setpoint and flux actual value can be reduced and, in turn, the message prevented, by reducing p1596 or p1553.

For separately-excited synchronous motors (closed-loop control with speed encoder), the following applies:

- check the speed signal (interrupted cable, polarity, pulse number).
- ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters).
- check the excitation equipment and the interface to the closed-loop control.
- encoder the highest possible dynamic response of the closed-loop excitation current control.
- check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.
- do not exceed the maximum speed (p2162).

If there is no fault, then the delay time can be increased (p2178).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A07903 Drive: Motor speed deviation

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The absolute value of the speed difference from the two setpoints (p2151, p2154) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).

The alarm is only enabled for p2149.0 = 1.

Possible causes could be:

- the load torque is greater than the torque setpoint.
- when accelerating, the torque/current/power limit is reached. If the limits are not sufficient, then it is possible that the drive has been dimensioned too small.
- for closed-loop torque control, the speed setpoint does not track the speed actual value.
- for active Vdc controller.

For U/f control, the overload condition is detected as the Imax controller is active.

See also: p2149 (Monitoring configuration)

Remedy:
- increase p2163 and/or p2166.
- increase the torque/current/power limits.
- for closed-loop torque control: The speed setpoint should track the speed actual value.
- de-activate alarm with p2149.0 = 0.

F07904 (N, A) External armature short-circuit: Contactor feedback signal "Closed" missing

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: When closing, the contactor feedback signal (p1235) did not issue the signal "Closed" (r1239.1 = 1) within the monitoring time (p1236).
Remedy:
- check that the contactor feedback signal is correctly connected (p1235).
- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
- increase the monitoring time (p1236).
- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F07905 (N, A) External armature short-circuit: Contactor feedback signal "Open" missing

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: When opening, the contactor feedback signal (p1235) did not issue the signal "Open" (r1239.1 = 0) within the monitoring time (p1236).
Remedy: - check that the contactor feedback signal is correctly connected (p1235).
- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
- increase the monitoring time (p1236).
- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07906 Armature short-circuit / internal voltage protection: Parameterization error

Message value: Fault cause: %1, motor data set: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The armature short-circuit is incorrectly parameterized.

Fault value (r0949, interpret decimal):

zzzzyyxx: zzzz = fault cause, xx = motor data set

zzzz = 0001 hex = 1 dec:

A permanent-magnet synchronous motor has not been selected.

zzzz = 0002 hex = 2 dec:

No induction motor selected.

zzzz = 0065 hex = 101 dec:

External armature short-circuit: Output (r1239.0) not wired.

zzzz = 0066 hex = 102 dec:

External armature short-circuit with contactor feedback signal: No feedback signal connected (BI:p1235). The feedback signal must be interconnected in all command data sets (CDS).

zzzz = 0067 hex = 103 dec:

External armature short-circuit without contactor feedback signal: Wait time when opening (p1237) is 0.

zzzz = 00C9 hex = 201 dec:

Internal voltage protection: The maximum output current of the Motor Module (r0209) is less than 1.8 x motor short-circuit current (r0331).

zzzz = 00CA hex = 202 dec:

Internal voltage protection: A Motor Module in booksize or chassis format is not being used.

zzzz = 00CB hex = 203 dec:

Internal voltage protection: The motor short-circuit current (p0320) is greater than the maximum motor current (p0323).

zzzz = 00CC hex = 204 dec:

Internal voltage protection: The activation (p1231 = 4) is not given for all motor data sets with synchronous motors (p0300 = 2xx, 4xx).

Remedy: For fault value = 1:

- an armature short-circuit / voltage protection is only permissible for permanent-magnetic synchronous motors. The highest position of the motor type in p0300 must either be 2 or 4.

For fault value = 101:

- the contactor for the external armature short-circuit configuration should be controlled using output signal r1239.0. For instance, the signal can be connected to an output terminal via binector input p0738. Before this fault can be acknowledged, p1231 must be set again.

For fault value = 102:

- if the external armature short-circuit with contactor feedback signal (p1231 = 1) is selected, this feedback signal must be connected to an input terminal (e.g. r722.x) and then connected to BI: p1235.

- alternatively, the external armature short-circuit without contactor feedback signal (p1231 = 2) can be selected.

For fault value = 103:

- if the external armature short-circuit without contactor feedback signal (p1231 = 2) is selected, then a delay time must be parameterized in p1237. This time must always be greater than the actual contactor opening time, as otherwise the Motor Module would be short-circuited!

For fault value = 201:

- a Motor Module with a higher maximum current or a motor with a lower short-circuit current must be used. The maximum Motor Module current must be higher than 1.8 x short-circuit current of the motor.

For fault value = 202:

- for internal voltage protection, use a Motor Module in booksize or chassis format.

For fault value = 203:

- for internal voltage protection, only use short-circuit proof motors.

For fault value = 204:

- The internal voltage protection must either be activated for all motor data sets with synchronous motors (p0300 = 2xx, 4xx) (p1231 = 3) or it must be de-activated for all motor data sets (p1231 not equal to 3). This therefore ensures that the protection cannot be accidentally withdrawn as a result of a data set changeover. The fault can only be acknowledged if this condition is fulfilled.

F07907 Internal armature short-circuit: Motor terminals are not at zero potential after pulse suppression

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The function "Internal voltage protection" (p1231 = 3) was activated.

The following must be observed:

- when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!

- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).

- the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289).

- the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.

- if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.

- if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.

- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).

Remedy: Not necessary.

This a note for the user.

A07908 Internal armature short-circuit active

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal armature short-circuit is selected (p1231 = 4):

Remedy: For synchronous motors, the armature short-circuit braking is activated with binector input p1230 = 1 signal.

See also: p1230 (Armature short-circuit / DC braking activation), p1231 (Armature short-circuit / DC braking configuration)

F07909 Internal voltage protection: De-activation only effective after POWER ON

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: POWER ON

Cause: The de-activation of the internal voltage protection (p1231 not equal to 3) only becomes effective after POWER ON.

The status signal r1239.6 = 1 indicates that the internal voltage protection is ready.

Remedy: Not necessary.

This a note for the user.

A07910 (N) Drive: Motor overtemperature

Message value: %1

Message class: Motor overload (8)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: KTY or no sensor:

The measured motor temperature or temperature of motor temperature model 2 has exceeded the alarm threshold (p0604, p0616). The response parameterized in p0610 becomes active.

PTC or bimetallic NC contact:

The response threshold of 1650 Ohm was exceeded or the NC contact opened.

Alarm value (r2124, interpret decimal):

- SME not selected in p0601:

11: No output current reduction.

12: Output current reduction active.

- SME or TM120 selected in p0601 (p0601 = 10, 11):

this is the number of the temperature channel leading to the message.

See also: p0604 (Mot_temp_mod 2/KTY alarm threshold), p0610 (Motor overtemperature response)

Remedy: - check the motor load.

- check the motor ambient temperature and cooling.

- check PTC or bimetallic NC contact.

- check the monitoring limits (p0604, p0605).

- activate/check the parameters of the motor temperature model (p0612, p0626 and following).

See also: p0612 (Mot_temp_mod activation), p0625 (Motor ambient temperature during commissioning), p0626 (Motor overtemperature, stator core), p0627 (Motor overtemperature, stator winding), p0628 (Motor overtemperature rotor winding)

Reaction upon N: NONE

Acknowl. upon N: NONE

F07913 Excitation current outside the tolerance range

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The difference between the excitation current actual value and setpoint has exceeded the tolerance:
abs(r1641 - r1626) > p3201 + p3202
The cause of this fault is again reset for abs(r1641 - r1626) < p3201.
Remedy: - check the parameterization (p1640, p3201, p3202).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.

F07914 Flux out of tolerance

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The difference between the flux actual value and setpoint has exceeded the tolerance:
abs(r0084 - r1598) > p3204 + p3205
The cause of this fault is again reset for abs(r0084 - r1598) < p3204.
The fault is only issued after the delay time in p3206 has expired.
Remedy: - check the parameterization (p3204, p3205).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.
- check the flux control (p1590, p1592, p1597).
- check the control for oscillation and take the appropriate counter measures (e.g. optimize the speed control loop, parameterize a bandstop filter).

A07918 (N) Three-phase setpoint generator operation selected/active

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Only for separately excited synchronous motors (p0300 = 5):
The actual open-loop/closed-loop control mode is I/f control (open-loop) with a fixed current (p1300 = 18).
The speed is entered via the setpoint channel and the current setpoint is given by the minimum current (p1620).
It must be ensured that in this mode, the control dynamic performance is very limited. This is the reason that longer ramp-up times should be set for the setpoint speed than for normal operation.
See also: p1620 (Stator current minimum)
Remedy: Select another open-loop/closed-loop control mode
See also: p1300 (Open-loop/closed-loop control operating mode)
Reaction upon N: NONE
Acknowl. upon N: NONE

A07920 Drive: Torque/speed too low

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic (too low).
See also: p2181 (Load monitoring response)

Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

A07921 Drive: Torque/speed too high

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic (too high).
Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

A07922 Drive: Torque/speed out of tolerance

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic.
Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

F07923 Drive: Torque/speed too low

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic (too low).
Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

F07924 Drive: Torque/speed too high

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic (too high).
Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

F07925 Drive: Torque/speed out of tolerance

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The torque deviates from the torque/speed envelope characteristic.
Remedy: - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

A07927 **DC braking active**

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The motor is braked with DC current. DC braking is active.

1)

A message with response DCBRK is active. The motor is braked with the braking current set in p1232 for the duration set in in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled.

2)

DC braking has been activated at binector input p1230 with the DC braking set (p1230 = 4). Braking current p1232 is injected until this binector input becomes inactive.

Remedy: Not necessary.

The alarm automatically disappears once DC braking has been executed.

F07928 **Internal voltage protection initiated**

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal voltage protection is selected (p1231 = 3).

Remedy: If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module automatically decides - using the DC link voltage - as to whether the armature short-circuit should be activated.

The armature short-circuit is activated and response OFF2 is initiated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the armature short-circuit is withdrawn.

If the motor is still in a critical speed range, the armature short-circuit is re-activated once the DC link voltage exceeds the threshold of 800 V.

If the autonomous (independent) internal voltage protection is active (r1239.5 = 1) and the line supply returns (450 V < DC link voltage < 800 V), the armature short-circuit is withdrawn after 3 minutes.

F07930 **Drive: Brake control error**

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The Control Unit has detected a brake control error.

- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.

Fault value (r0949, interpret decimal):

10, 11:

Fault in "open holding brake" operation.

- No brake connected or wire breakage (check whether brake releases for p1278 = 1).
- Ground fault in brake cable.
- S120M: brake opened via terminal X4.1 for mounting purposes (this is only permissible when the power supply voltage is switched off).

20:

Fault in "brake open" state.

- Short-circuit in brake winding.

30, 31:

Fault in "close holding brake" operation.

- No brake connected or wire breakage (check whether brake releases for p1278 = 1).
- Short-circuit in brake winding.

40:
Fault in "brake closed" state.
50:
Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
80:
When using the Safe Brake Adapter (SBA), a fault has occurred in the brake control of the Control Unit.
See also: p1278 (Brake control diagnostics evaluation)

Remedy: - check the motor holding brake connection.
- for a parallel connection, check the setting of the power unit data set to control the holding brake (p7015).
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.
Operation with Safe Brake Module:
- check the Safe Brake Module connection.
- replace the Safe Brake Module.
Operation with Safe Brake Module (SBA):
- check the SBA connection and if required, replace the SBA.
See also: p1215 (Motor holding brake configuration), p1278 (Brake control diagnostics evaluation)

A07931 (F, N) Brake does not open

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: This alarm is output for r1229.4 = 1.
See also: p1216 (Motor holding brake opening time), r1229 (Motor holding brake status word)
Remedy: - check the functionality of the motor holding brake.
- check the feedback signal (p1223).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07932 Brake does not close

Message value: -
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: This alarm is output for r1229.5 = 1.
For r1229.5 = 1, OFF1/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.
See also: p1217 (Motor holding brake closing time), r1229 (Motor holding brake status word)
Remedy: - check the functionality of the motor holding brake.
- check the feedback signal (p1222).

F07934 (N) Drive: S120 Combi motor holding brake configuration

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: A connected motor holding brake has been detected with an S120 Combi. However, this brake has not been assigned to just one Combi feed drive and, therefore, brake control is not configured (correctly).

Fault value (r0949, interpret decimal):

0: No motor holding brake is assigned (p1215 = 0 or 3 on all S120 Combi feed drives).

1: More than one motor holding brake has been assigned (p1215 = 1 or 2 on more than one S120 Combi feed drive) - or there is more than one DRIVE-CLiQ motor with motor holding brake.

2: Brake was accidentally assigned to the spindle (p1215 = 1); this is not permitted for this software release.

3: An attempt was made to enable the function "Safe brake control" (SBC, p9602 = p9802 = 1) for the spindle. This is not permitted for this software release.

Remedy: Check whether the motor holding brake has been assigned to one S120 Combi feed drive exclusively (p1215 = 1 or 2).

The fault will only be withdrawn once the motor holding brake has been assigned to just one of the S120 Combi feed drives (p1215 = 1 or 2 for this one drive). From this point, the motor holding brake will be controlled by this drive.

See also: p1215 (Motor holding brake configuration)

Reaction upon N: NONE

Acknowl. upon N: NONE

F07935 (N) Drive: Incorrect motor holding brake configuration

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: An incorrect motor holding brake configuration was detected.

Fault value (r0949, interpret decimal):

0:

A motor holding brake was detected where the brake control has not been configured (p1215 = 0).

The brake control configuration was set to "motor holding brake the same as sequence control" (p1215 = 1) (only when commissioning for the first time).

For a chassis unit with Safe Brake Adapter (SBA), the interconnection p9621 = r9872.3 was established (only when commissioning for the first time).

For a parallel connection, the power unit was set in p7015, to which the motor holding brake is connected (only when commissioning for the first time).

1:

A motor holding brake was detected where the brake control has not been configured (p1215 = 0).

The brake control configuration was left at "No motor holding brake available" (p1215 = 0).

11:

The identification had detected more than one motor holding brake for a parallel connection.

12:

For the parallel connection, in p0121 there is no valid component number for the power unit data set that is set in p7015.

13:

With the "Safe brake control" (SBC) function activated, an attempt was made to change the value in p7015.

14:

For a parallel connection, the power units set in p7015 cannot be addressed.

Remedy: For fault value = 0:

- No remedy required.

For fault value = 1:

- If required change the motor holding brake configuration (p1215 = 1, 2).

- If this fault value unexpectedly occurs, then the motor connections should be checked in order to rule out that they have been interchanged.

For fault value = 11:

For a parallel connection, only connect one motor holding brake.

For fault value = 12:

Check the setting of the power unit data set for a parallel connection (p7015).

For fault value = 13:

Before changing p7015, deactivate the "Safe brake control" function (SBC) (p9602).

For fault value = 14:

Check whether the power unit supports the brake control for a parallel connection (r9771.14).

Check whether there is a DRIVE-CLiQ communication error between the Control Unit and the power unit involved and, if required, carry out a diagnostics routine for the faults identified.

See also: p1215 (Motor holding brake configuration)

Reaction upon N: NONE

Acknowl. upon N: NONE

F07937 (N) Drive: Speed deviation between motor model and external speed

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The absolute value of the speed difference from the two actual values (r2169, r1443) exceeds the tolerance threshold (p3236) for longer than permitted (p3238).

Possible causes:

- the interconnection or scaling of the external encoder signal is incorrect (p1440, p2000).

- speed encoder for external encoder signal faulty.

- encoder signal's polarity or gain incorrect.

- smoothing time constant for model speed for monitoring too high (p2157).

- smoothing time constant or threshold values for monitoring too low (p3236, p3238).

If an external encoder signal is not being used:

- check speed signal r0061. For significant signal ripple, check the speed encoder and if required increase p0492.

See also: p2149 (Monitoring configuration)

Remedy: - check that the external speed matches the motor speed (p1440, r1443).

- check the polarity of the external speed (r1443).

- check the interconnection of the connector input and the scaling of the signal (p1440, p2000).

Reaction upon N: NONE

Acknowl. upon N: NONE

F07940 Sync-line-drive: Synchronizing error

Message value: -

Message class: Application / technological function faulted (17)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: After synchronization has been completed, the phase difference (r3808) is greater than the threshold value, phase synchronism (p3813).

OFF1 or OFF3 response, while the closed-loop phase control is active (r3819.6 = 1) or synchronism reached (r3819.2 = 1).

Enable signal withdrawn (p3802 = 0), while the closed-loop phase control was active (r3819.6 = 1).

Remedy: If required increase the threshold value phase synchronism (p3813) for synchronizing the line supply to the drive.

Before OFF1 or OFF3, complete synchronizing (r03819.0 = 0).

Before withdrawing the enable signal (p3802 = 0), reach synchronism (r3819.2 = 1).

See also: p3813 (Sync-line-drive phase synchronism threshold value)

A07941	**Sync-line-drive: Target frequency not permissible**
Message value:	Parameter: %1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The target frequency is outside the permissible value range. Alarm value (r2124, interpret decimal): 1084: Target frequency greater than the positive speed limit, f_sync > f_max (r1084). 1087: Target frequency less than the negative speed limit, f_sync < f_min (r1087).
Remedy:	Fulfill the conditions for the target frequency for line-drive synchronization. See also: r1084 (Speed limit positive effective), r1087 (Speed limit negative effective)

A07942	**Sync-line-drive: Setpoint frequency is completely different than the target frequency**
Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	There is a considerable difference between the setpoint frequency and the target frequency (f_set <> f_target). The deviation that can be tolerated is set in p3806.
Remedy:	The alarm automatically disappears after the difference that can be tolerated between the setpoint and target frequencies (p3806) is reached. See also: p3806 (Sync-line-drive frequency difference threshold value)

A07943	**Sync-line-drive: Synchronization not permitted**
Message value:	Parameter: %1
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Synchronization is not permitted. Alarm value (r2124, interpret decimal): 1300: The control mode (p1300) has not been set to encoderless closed-loop speed control or U/f characteristic. 1910: Motor data identification activated. 1960: Speed controller optimization activated. 1990: Encoder adjustment activated. 3801: Voltage Sensing Module (VSM) not found. 3845: Friction characteristic record activated.
Remedy:	Fulfill the conditions for the line-drive synchronization. Re alarm value = 1300: Set the control mode (p1300) to encoderless closed-loop speed control (p1300 = 20) or U/f characteristic (p1300 = 0 ... 19). Re alarm value = 1910: Exit the motor data identification routine (p1910). Re alarm value = 1960: Exit the speed controller optimization routine (p1960). Re alarm value = 1990: Exit the encoder adjustment (p1990). Re alarm value = 3801: Connect the Voltage Sensing Module (VSM), assign it to the synchronizing drive (see p9910, p0151) and enter the drive object number of the synchronizing drive in p3801. When connecting the VSM to a neighboring drive object, ensure that the same current controller clock cycle p0115[0] exists as the one in the synchronizing drive. Re alarm value = 3845: Exit the friction characteristic record (p3845).

F07950 (A)	**Drive: Incorrect motor parameter**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	- the motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor) - The braking resistor (p6811) has still not been parameterized - commissioning cannot be completed. Fault value (r0949, interpret decimal): Parameter number involved. 300 (CU250S-2): For this control mode, the motor type is not supported. 307: The following motor parameters could be incorrect: p0304, p0305, p0307, p0308, p0309 See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323
Remedy:	Compare the motor data with the rating plate data and if required, correct. Re fault value = 300 (CU250S-2): Operate a motor type supported by the selected control mode.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07955	**Drive: Motor has been changed**
Message value:	Parameter: %1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The code number of the actual motor with DRIVE-CLiQ does not match the saved number. Fault value (r0949, interpret decimal): Number of the incorrect parameter. See also: p0301 (Motor code number selection), r0302 (Motor code number of motor with DRIVE-CLiQ)
Remedy:	Connect the original motor, power up the Control Unit again (POWER ON) and exit quick commissioning with p0010 = 0. Or set p0300 = 10000 (load the parameters from the motor with DRIVE-CLiQ) and re-commission. Quick commissioning (p0010 = 1) is automatically exited with p3900 > 0. If quick commissioning was exited with p0010 = 0, then an automatic controller calculation (p0340 = 1) is not carried out.

F07956 (A)	**Drive: Motor code does not match the list (catalog) motor**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The motor code of the connected motor with DRIVE-CLiQ does not match the possible list motor types (see selection in p0300). The connected motor with DRIVE-CLiQ might not be supported by this firmware version. Fault value (r0949, interpret decimal): Motor code of the connected motor with DRIVE-CLiQ. Note: The first three digits of the motor code generally correspond to the list motor type.
Remedy:	Use a motor with DRIVE-CLiQ and the matching motor code.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A07960 Drive: Incorrect friction characteristic

Message value: Parameter: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The friction characteristic is incorrect.

Alarm value (r2124, interpret decimal):

1538:

The friction torque is greater than the maximum from the upper effective torque limit (p1538) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value.

1539:

The friction torque is less than the minimum from the lower effective torque limit (p1539) and zero. This is the reason that the output of the friction characteristic (r3841) is limited to this value.

3820 ... 3829:

Incorrect parameter number. The speeds entered in the parameters for the friction characteristic do not correspond to the following condition:

0.0 < p3820 < p3821 < ... < p3829 <= p0322 or p1082, if p0322 = 0

Therefore the output of the friction characteristic (r3841) is set to zero.

3830 ... 3839:

Incorrect parameter number. The torques entered in the parameters for the friction characteristic do not correspond to the following condition:

0 <= p3830, p3831 ... p3839 <= p0333

Therefore the output of the friction characteristic (r3841) is set to zero.

See also: r3840 (Friction characteristic status word)

Remedy: Fulfill the conditions for the friction characteristic.

Re alarm value = 1538:

Check the upper effective torque limit (e.g. in the field weakening range).

Re alarm value = 1539:

Check the lower effective torque limit (e.g. in the field weakening range).

Re alarm value = 3820 ... 3839:

Fulfill the conditions to set the parameters of the friction characteristic.

If the motor data (e.g. the maximum speed p0322) are changed during commissioning (p0010 = 1, 3), then the technological limits and threshold values, dependent on this, must be re-calculated by selecting p0340= 5).

A07961 Drive: Friction characteristic record activated

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The automatic friction characteristic record is activated.

The friction characteristic is recorded at the next power-on command.

When plotting the friction characteristic, it is not possible to save the parameters (p0971, p0977).

Remedy: Not necessary.

The alarm disappears automatically after the friction characteristic record has been successfully completed or the record is de-activated (p3845 = 0).

F07963 **Drive: Friction characteristic record interrupted**

Message value: Parameter: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF1

Acknowledge: IMMEDIATELY

Cause: The conditions to record the friction characteristic are not fulfilled.

Fault value (r0949, interpret decimal):

0046: Missing enable signals (r0046).

1082: The highest speed value to be approached (p3829) is greater than the maximum speed (p1082).

1084: The highest speed value to be approached (p3829) is greater than the maximum speed (r1084, p1083, p1085).

1087: The highest speed value to be approached (p3829) is greater than the maximum speed (r1087, p1086, p1088).

1110: Friction characteristic record, negative direction selected (p3845) and negative direction inhibited (p1110).

1111: Friction characteristic record, positive direction selected (p3845) and positive direction inhibited (p1111).

1198: Friction characteristic record selected (p3845 > 0) and negative (p1110) and positive directions (p1111) inhibited (r1198).

1300: The control mode (p1300) has not been set to closed-loop speed control.

1755: For encoderless closed-loop control (p1300 = 20), the lowest speed value to be approached (p3820) is less than or equal to the changeover speed, open-loop controlled operation (p1755).

1910: Motor data identification activated.

1960: Speed controller optimization activated.

3820 ... 3829: Speed (p382x) cannot be approached.

3840: Friction characteristic incorrect.

3845: Friction characteristic record de-selected.

Remedy: Fulfill the conditions to record the friction characteristic.

Re fault value = 0046:

- establish missing enable signals.

Re fault value = 1082, 1084, 1087:

- Select the highest speed value to be approached (p3829) less than or equal to the maximum speed (p1082, r1084, r1087).

- Re-calculate the speed points along the friction characteristic (p0340 = 5).

For fault value = 1110:

- Select the friction characteristic record, positive direction (p3845).

For fault value = 1111:

- Select the friction characteristic record, negative direction (p3845).

For fault value = 1198:

- Enable the permitted direction (p1110, p1111, r1198).

For fault value = 1300:

- Set the control mode (p1300) on the closed-loop speed control (p1300 = 20, 21).

For fault value = 1755:

- For encoderless closed-loop speed control (p1300 = 20) select the lowest speed value to be approached (p3820) greater than the changeover speed of open-loop controlled operation (p1755).

- Re-calculate the speed points along the friction characteristic (p0340 = 5).

For fault value = 1910:

- Exit the motor data identification routine (p1910).

For fault value = 1960:

- Exit the speed controller optimization routine (p1960).

Re fault value 3820 ... 3829:

- check the load at speed p382x.

- check the speed signal (r0063) for oscillation at speed p382x. Check the settings of the speed controller if applicable.

For fault value = 3840:

- Make the friction characteristic error-free (p3820 ... p3829, p3830 ... p3839, p3840).

For fault value = 3845:

- Activate the friction characteristic record (p3845).

F07967 **Drive: Automatic encoder adjustment/pole position identification incorrect**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A fault has occurred during the automatic encoder adjustment or the pole position identification.
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON.

F07968 **Drive: Lq-Ld measurement incorrect**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A fault has occurred during the Lq-Ld measurement.
Fault value (r0949, interpret decimal):
10: Stage 1: The ratio between the measured current and zero current is too low.
12: Stage 1: The maximum current was exceeded.
15: Second harmonic too low.
16: Drive converter too small for the measuring technique.
17: Abort due to pulse inhibit.
Remedy: For fault value = 10:
Check whether the motor is correctly connected.
Replace the power unit involved.
De-activate technique (p1909).
For fault value = 12:
Check whether motor data have been correctly entered.
De-activate technique (p1909).
For fault value = 16:
De-activate technique (p1909).
For fault value = 17:
Repeat technique.

F07969 **Drive: Incorrect pole position identification**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A fault has occurred during the pole position identification routine.
Fault value (r0949, interpret decimal):
1: Current controller limited
2: Motor shaft locked.
4: Encoder speed signal not plausible.
10: Stage 1: The ratio between the measured current and zero current is too low.
11: Stage 2: The ratio between the measured current and zero current is too low.
12: Stage 1: The maximum current was exceeded.
13: Stage 2: The maximum current was exceeded.
14: Current difference to determine the +d axis too low.
15: Second harmonic too low.
16: Drive converter too small for the measuring technique.
17: Abort due to pulse inhibit.

18: First harmonic too low.
20: Pole position identification requested with the motor shaft rotating and activated "flying restart" function.

Remedy: For fault value = 1:
Check whether the motor is correctly connected.
Check whether motor data have been correctly entered.
Replace the Motor Module involved.
For fault value = 2:
Open the motor holding brake (p1215 = 2) and bring the motor into a no-load condition.
For fault value = 4:
Check whether the encoder pulse number (p0408) and gearbox factor (p0432, p0433) are correct.
Check whether the motor pole pair number is correct (p0314).
For fault value = 10:
When selecting p1980 = 4: Increase the value for p0325.
When selecting p1980 = 1: Increase the value for p0329.
Check whether the motor is correctly connected.
Replace the Motor Module involved.
For fault value = 11:
Increase the value for p0329.
Check whether the motor is correctly connected.
Replace the Motor Module involved.
For fault value = 12:
When selecting p1980 = 4:
Reduce the value for p0325.
When selecting p1980 = 1:
Reduce the value for p0329 (minimum p0305)..
If p0329 = p0305: then reduce p0356, p0357
Check whether motor data have been correctly entered.
For fault value = 13:
Reduce the value for p0329.
Check whether motor data have been correctly entered.
For fault value = 14:
Increase the value for p0329.
Motor not sufficiently anisotropic, change the technique (p1980 = 1 or 10).
For fault value = 15:
Increase the value for p0325.
Motor not sufficiently anisotropic, change the technique (p1980 = 1 or 10).
For fault value = 16:
De-activate technique (p1982).
For fault value = 17:
Repeat technique.
For fault value = 18:
Increase the value for p0329.
Saturation not sufficient, change the technique (p1980 = 10).
For fault value = 20:
Before carrying out a pole position identification routine ensure that the motor shaft is absolutely stationary (zero speed).

F07970	**Drive: Automatic encoder adjustment incorrect**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the automatic encoder adjustment. Fault value (r0949, interpret decimal): 1: Current controller limited 2: Motor shaft locked. 4: Encoder speed signal not plausible. 5: Deselect U/f (p1300) or deactivate encoder calibration (p1990). 10: Stage 1: The ratio between the measured current and zero current is too low. 11: Stage 2: The ratio between the measured current and zero current is too low. 12: Stage 1: The maximum current was exceeded. 13: Stage 2: The maximum current was exceeded. 14: Current difference to determine the +d axis too low. 15: Second harmonic too low. 16: Drive converter too small for the measuring technique. 17: Abort due to pulse inhibit.
Remedy:	For fault value = 1: Check whether the motor is correctly connected. Check whether motor data have been correctly entered. Replace the power unit involved. For fault value = 2: Open the motor holding brake (p1215 = 2) and bring the motor into a no-load condition. For fault value = 4: Check whether the speed actual value inversion is correct (p0410.0). Check whether the motor is correctly connected. Check whether the encoder pulse number (p0408) and gearbox factor (p0432, p0433) are correct. Check whether the motor pole pair number is correct (p0314). For fault value = 5: Deselect U/f (p1300) or deactivate encoder calibration (p1990). For fault value = 10: Increase the value for p0325. Check whether the motor is correctly connected. Replace the power unit involved. For fault value = 11: Increase the value for p0329. Check whether the motor is correctly connected. Replace the power unit involved. For fault value = 12: Reduce the value for p0325. Check whether motor data have been correctly entered. For fault value = 13: Reduce the value for p0329. Check whether motor data have been correctly entered. For fault value = 14: Increase the value for p0329. For fault value = 15: Increase the value for p0325. For fault value = 16: De-activate technique (p1982).

For fault value = 17:
Repeat technique.

A07971 (N) Drive: Angular commutation offset determination activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The automatic determination of the angular commutation offset (encoder adjustment) is activated (p1990 = 1, 3).
Note:
The automatic determination is carried out at the next power-on command.
See also: p1990 (Encoder adjustment determine angular commutation offset)
Remedy: Not necessary.
The alarm automatically disappears after determination or for the setting p1990 = 0.
Reaction upon N: NONE
Acknowl. upon N: NONE

A07975 (N) Drive: Travel to the zero mark - setpoint input expected

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The zero mark must be evaluated in order to adjust the encoder.
It is expected that a speed or torque setpoint is entered.
See also: p1990 (Encoder adjustment determine angular commutation offset)
Remedy: Not necessary.
The alarm disappears once the zero mark has been detected.
Reaction upon N: NONE
Acknowl. upon N: NONE

A07976 Drive: Fine encoder calibration activated

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The alarm indicates the phases of the fine encoder calibration using the alarm value.
Alarm value (interpret decimal):
1: Fine encoder calibration active.
2: Rotating measurement started (set the setpoint speed > 40 % rated motor speed).
3: Rotating measurement lies within the speed and torque range.
4: Rotating measurement successful: pulse inhibit can be initiated to accept the values.
5: Fine encoder calibration is calculated.
10: Speed too low, rotating measurement interrupted.
12: Torque too high, rotating measurement interrupted.
See also: p1905 (Parameter tuning selection)
Remedy: Re alarm value = 10:
Increase the speed.
Re alarm value = 12:
Bring the drive into a no-load condition.

A07980	**Drive: Rotating measurement activated**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The rotating measurement (automatic speed controller optimization) is activated. The rotating measurement is carried out at the next power-on command. Note: During the rotating measurement it is not possible to save the parameters (p0971, p0977). See also: p1960 (Rotating measurement selection)
Remedy:	Not necessary. The alarm disappears automatically after the speed controller optimization has been successfully completed or for the setting p1900 = 0.

A07981	**Drive: Enable signals for the rotating measurement missing**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The rotating measurement cannot be started due to missing enable signals. For p1959.13 = 1, the following applies: - enable signals for the ramp-function generator missing (see p1140 ... p1142). - enable signals for the speed controller integrator missing (see p1476, p1477).
Remedy:	- acknowledge faults that are present. - establish missing enable signals. See also: r0002, r0046

F07982	**Drive: Rotating measurement encoder test**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (NONE, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the encoder test. Fault value (r0949, interpret decimal): 1: The speed did not reach a steady-state condition. 2: The speed setpoint was not able to be approached as the minimum limiting is active. 3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active. 4: The speed setpoint was not able to be approached as the maximum limiting is active. 5: The encoder does not supply a signal. 6: Incorrect polarity. 7: Incorrect pulse number. 8: Noise in the encoder signal or speed controller unstable. 9: Voltage Sensing Module (VSM) incorrectly connected.
Remedy:	For fault value = 1: - check the motor parameters. - carry out a motor data identification routine (p1910). - if required, reduce the dynamic factor (p1967 < 25 %). For fault value = 2: - adapt the speed setpoint (p1965) or adapt the minimum limit (p1080). For fault value = 3: - adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

For fault value = 4:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
For fault value = 5:
- check the encoder connection. If required, replace the encoder.
For fault value = 6:
- check the connection assignment of the encoder cable. Adapt the polarity (p0410).
For fault value = 7:
- adapt the pulse number (p0408).
For fault value = 8:
- check the encoder connection and encoder cable. It is possible that there is a problem associated with the ground connection.
- reduce the dynamic response of the speed controller (p1460, p1462 and p1470, p1472).
For fault value = 9:
- check the connections of the Voltage Sensing Module (VSM).
Note:
The encoder test can be switched out (disabled) using p1959.0.
See also: p1959 (Rotating measurement configuration)

F07983 Drive: Rotating measurement saturation characteristic

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: A fault has occurred while determining the saturation characteristic.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The rotor flux did not reach a steady-state condition.
3: The adaptation circuit did not reach a steady-state condition.
4: The adaptation circuit was not enabled.
5: Field weakening active.
6: The speed setpoint was not able to be approached as the minimum limiting is active.
7: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
8: The speed setpoint was not able to be approached as the maximum limiting is active.
9: Several values of the determined saturation characteristic are not plausible.
10: Saturation characteristic could not be sensibly determined because load torque too high.
Remedy: For fault value = 1:
- the total drive moment of inertia is far higher than that of the motor (p0341, p0342).
De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.
Re fault value = 1 ... 2:
- increase the measuring speed (p1961) and repeat the measurement.
Re fault value = 1 ... 4:
- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
For fault value = 5:
- the speed setpoint (p1961) is too high. Reduce the speed.
For fault value = 6:
- adapt the speed setpoint (p1961) or minimum limiting (p1080).
For fault value = 7:
- adapt the speed setpoint (p1961) or suppression (skip) bandwidths (p1091 ... p1094, p1101).
For fault value = 8:
- adapt the speed setpoint (p1961) or maximum limit (p1082, p1083 and p1086).

Re fault value = 9, 10:

- the measurement was carried out at an operating point where the load torque is too high. Select a more suitable operating point, either by changing the speed setpoint (p1961) or by reducing the load torque. The load torque may not be varied while making measurements.

Note:

The saturation characteristic identification routine can be disabled using p1959.1.

See also: p1959 (Rotating measurement configuration)

F07984 Drive: Speed controller optimization, moment of inertia

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: VECTOR_G

Reaction: OFF1 (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: A fault has occurred while identifying the moment of inertia.

Fault value (r0949, interpret decimal):

1: The speed did not reach a steady-state condition.

2: The speed setpoint was not able to be approached as the minimum limiting is active.

3. The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.

4. The speed setpoint was not able to be approached as the maximum limiting is active.

5: It is not possible to increase the speed by 10% as the minimum limiting is active.

6: It is not possible to increase the speed by 10% as the suppression (skip) bandwidth is active.

7: It is not possible to increase the speed by 10% as the maximum limiting is active.

8: The torque difference after the speed setpoint step is too low in order to be able to still reliably identify the moment of inertia.

9: Too few data to be able to reliably identify the moment of inertia.

10: After the setpoint step, the speed either changed too little or in the incorrect direction.

11: The identified moment of inertia is not plausible.

Remedy: For fault value = 1:

- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).

Re fault value = 2, 5:

- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).

Re fault value = 3, 6:

- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

Re fault value = 4, 7:

- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).

For fault value = 8:

- the total drive moment of inertia is far higher than that of the motor (refer to p0341, p0342). De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.

For fault value = 9:

- check the moment of inertia (p0341, p0342). After the change, re-calculate (p0340 = 3 or 4).

For fault value = 10:

- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.

Note:

The moment of inertia identification routine can be disabled using p1959.2.

See also: p1959 (Rotating measurement configuration)

F07985 Drive: Speed controller optimization (oscillation test)

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: A fault has occurred during the vibration test.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The speed setpoint was not able to be approached as the minimum limiting is active.
3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
4: The speed setpoint was not able to be approached as the maximum limiting is active.
5: Torque limits too low for a torque step.
6: No suitable speed controller setting was found.
Remedy: For fault value = 1:
- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
For fault value = 2:
- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).
For fault value = 3:
- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).
For fault value = 4:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
For fault value = 5:
- increase the torque limits (e.g. p1520, p1521).
For fault value = 6:
- reduce the dynamic factor (p1967).
- disable the vibration test (p1959.4 = 0) and repeat the rotating measurement.
See also: p1959 (Rotating measurement configuration)

F07986 Drive: Rotating measurement ramp-function generator

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: During the rotating measurements, problems with the ramp-function generator occurred.
Fault value (r0949, interpret decimal):
1: The positive and negative directions are inhibited.
Remedy: For fault value = 1:
Enable the direction (p1110 or p1111).

A07987 Drive: Rotating measurement, no encoder available

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: No encoder available. The rotating measurement was carried out without encoder.
Remedy: Connect encoder or select p1960 = 1, 3.

F07988 Drive: Rotating measurement, no configuration selected

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: When configuring the rotating measurement (p1959), no function was selected.
Remedy: Select at least one function for automatic optimization of the speed controller (p1959).
See also: p1959 (Rotating measurement configuration)

F07989 Drive: Rotating measurement leakage inductance (q-axis)

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: An error has occurred while measuring the dynamic leakage inductance.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The speed setpoint was not able to be approached as the minimum limiting is active.
3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
4: The speed setpoint was not able to be approached as the maximum limiting is active.
5: The 100% flux setpoint was not reached.
6: No Lq measurement possible because field weakening is active.
7: Speed actual value exceeds the maximum speed p1082 or 75% of the rated motor speed.
8: Speed actual value is below 2 % of the rated motor speed.
Remedy: For fault value = 1:
- check the motor parameters.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
For fault value = 2:
- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).
For fault value = 3:
- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).
For fault value = 4:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
For fault value = 5:
- flux setpoint p1570 = 100 % and current setpoint p1610 = 0 % kept during the Lq measurement.
For fault value = 6:
- reduce the regenerative load so that the drive does not reach field weakening when accelerating.
- reduce p1965 so that the q leakage inductance is recorded at lower speeds.
For fault value = 7:
- increase p1082 if this is technically permissible.
- reduce p1965 so that the q leakage inductance is recorded at lower speeds.
For fault value = 8:
- reduce the load when motoring so that the drive is not braked.
- increase p1965 so that the measurement may be taken at higher speeds.
Note:
The measurement of the q leakage inductance can be disabled using p1959.5. If only p1959.5 is set, then only this measurement is carried out if p1960 is set to 1, 2 and the drive is powered up.
See also: p1959 (Rotating measurement configuration)

F07990	**Drive: Incorrect motor data identification**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred during the identification routine. Fault value (r0949, interpret decimal): 1: Current limit value reached. 2: Identified stator resistance lies outside the expected range 0.1 ... 100% of Zn. 3: Identified rotor resistance lies outside the expected range 0.1 ... 100% of Zn. Separately excited synchronous motors: damping resistance outside 1.0 ...15 % of Zn. 4: Identified stator reactance lies outside the expected range 50 ... 900 % of Zn. Separately excited synchronous motors: stator reactance outside 20 ...500 % of Zn. 5: Identified magnetizing reactance lies outside the expected range 50 ... 900 % of Zn. Separately excited synchronous motors: magnetizing reactance outside 20 ...500 % of Zn. 6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s. Separately-excited synchronous motors: damping time constant outside of 5 ms ... 1 s. 7: Identified total leakage reactance lies outside the expected range 4 ... 100 % of Zn. 8: Identified stator leakage reactance lies outside the expected range 2 ... 50% of Zn. Separately excited synchronous motors: stator leakage reactance outside 2 ...40 % of Zn. 9: Identified rotor leakage reactance lies outside the expected range 2 ... 50% of Zn. Separately excited synchronous motors: damping leakage reactance outside 1.5 ...20 % of Zn. 10: Motor has been incorrectly connected. 11: Motor shaft rotates. 12: Ground fault detected. 15: Pulse inhibit occurred during motor data identification 20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V. 30: Current controller in voltage limiting. 40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies. 50: The selected sampling time is too low for the motor identification (p0115[0]). Note: Percentage values are referred to the rated motor impedance: Zn = Vmot.nom / sqrt(3) / Imot,nom
Remedy:	Re fault value = 1 ... 40: - check whether motor data have been correctly entered in p0300, p0304 ... p0311. - is there an appropriate relationship between the motor power rating and that of the Motor Module? The ratio of the Motor Module to the rated motor current should not be less than 0.5 and not be greater than 4. - check configuration (star-delta). Re fault value = 11 in addition: - Deactivate oscillation monitoring (p1909.7 = 1). For fault value = 2: - for parallel circuits, check the motor winding system in p7003. If, for power units connected in parallel, a motor is specified with a single-winding system (p7003 = 0), although a multi-winding system is being used, then a large proportion of the stator resistance is interpreted as feeder cable resistance and entered in p0352. Re fault value = 4, 7: - check whether inductances are correctly set in p0233 and p0353. - check whether motor has been correctly connected (star-delta). - Set p1909.0 = 1. For fault value = 12: - check the power cable connections. - check the motor. - check the CT. For fault value = 50: - Perform a motor data identification with a higher sampling time, and after this, change to the required higher sampling time (p0115[0]).

A07991 (N)	**Drive: Motor data identification activated**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor data identification routine is activated. The motor data identification routine is carried out at the next power-on command. If rotating measurement is selected (see p1900, p1960), it will not be possible to save the parameter assignment. Once motor data identification has been completed or de-activated, the option to save the parameter assignment will be made available again. See also: p1910 (Motor data identification selection)
Remedy:	Not necessary. The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A07994 (F, N)	**Drive: motor data identification not performed**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "vector control" mode has been selected and a motor data identification has still not been performed. The alarm is initiated when changing the drive data set (see r0051) in the following cases: - vector control is parameterized in the actual drive data set (p1300 >= 20). and - motor data identification has still not been performed in the actual drive data set (see r3925). Note: For SINAMICS G120, a check is made and an alarm is output also when exiting commissioning and when the system powers up.
Remedy:	- Perform motor data identification (see p1900). - If required, parameterize "U/f control" (p1300 < 20). - switch over to a drive data set, in which the conditions do not apply.
Reaction upon F:	NONE (OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F08000 (N, A)	**TB: +/-15 V power supply faulted**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	All objects
Reaction:	Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Terminal Board 30 detects an incorrect internal power supply voltage. Fault value (r0949, interpret decimal): 0: Error when testing the monitoring circuit. 1: Fault in normal operation.
Remedy:	- replace Terminal Board 30. - replace Control Unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F08010 (N, A) TB: Analog-digital converter

Message value:	-
Message class:	Hardware / software error (1)
Drive object:	All objects
Reaction:	Vector: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The analog/digital converter on Terminal Board 30 has not supplied any converted data.
Remedy:	- check the power supply. - replace Terminal Board 30.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F08500 (A) COMM BOARD: Monitoring time configuration expired

Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	Vector: OFF1 (OFF2, OFF3) Infeed: OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The monitoring time for the configuration has expired. Fault value (r0949, interpret decimal): 0: The transfer time of the send configuration data has been exceeded. 1: The transfer time of the receive configuration data has been exceeded.
Remedy:	Check communications link.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F08501 (N, A) PN/COMM BOARD: Setpoint timeout

Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	Vector: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2) Infeed: OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The reception of setpoints from the COMM BOARD has been interrupted. - bus connection interrupted. - controller switched off. - controller set into the STOP state. - COMM BOARD defective.
Remedy:	- Restore the bus connection and set the controller to RUN. - check the set monitoring time if the error persists (p2040). See also: p8840 (COMM BOARD monitoring time)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F08502 (A)	**PN/COMM BOARD: Monitoring time sign-of-life expired**
Message value:	-
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	Vector: OFF1 (OFF2, OFF3) Infeed: OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The monitoring time for the sign-of-life counter has expired. The connection to the COMM BOARD was interrupted.
Remedy:	- check communications link. - check COMM BOARD.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A08504 (F)	**PN/COMM BOARD: Internal cyclic data transfer error**
Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cyclic actual and/or setpoint values were not transferred within the specified times. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	Check the parameterizing telegram (Ti, To, Tdp, etc.).
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

F08510 (A)	**PN/COMM BOARD: Send configuration data invalid**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	Vector: OFF1 (OFF2, OFF3) Infeed: OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	COMM BOARD did not accept the send-configuration data. Fault value (r0949, interpret decimal): Return value of the send-configuration data check.
Remedy:	Check the send configuration data.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A08511 (F)	**PN/COMM BOARD: Receive configuration data invalid**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The drive unit did not accept the receive configuration data. Alarm value (r2124, interpret decimal): Return value of the receive configuration data check. 1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978. 2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051 for PZD IF1, and in r8850/p8851 for PZD IF2.

3: Uneven number of bytes for input or output.
4: Setting data for synchronization not accepted. For more information, see A01902.
5: Cyclic operation not active.
17: CBE20 Shared Device: Configuration of the F-CPU has been changed.
223: Illegal clock synchronization for the PZD interface set in p8815[0].
500: Illegal PROFIsafe configuration for the interface set in p8815[1].
501: PROFIsafe parameter error (e.g. F_dest).
503: PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).
Additional values:
Only for internal Siemens troubleshooting.

Remedy: Check the receive configuration data.
Re alarm value = 1, 2:
- Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
Re alarm value = 2:
- Check the number of data words for output and input to a drive object.
Re alarm value = 17:
- CBE20 Shared Device: Unplug/plug A-CPU.
Re alarm value = 223, 500:
- Check the setting in p8839 and p8815.
- Ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.
Re alarm value = 501:
- Check the set PROFIsafe address (p9610).

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A08520 (F) PN/COMM BOARD: Non-cyclic channel error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The memory or the buffer status of the non-cyclic channel has an error.
Alarm value (r2124, interpret decimal):
0: Error in the buffer status.
1: Error in the memory.
Remedy: Check communications link.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A08526 (F) PN/COMM BOARD: No cyclic connection

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: There is no cyclic connection to the control.
Remedy: Establish the cyclic connection and activate the control with cyclic operation.
For PROFINET, check the parameters "Name of Station" and "IP of Station" (r61000, r61001).
If a CBE20 is inserted and PROFIBUS is to communicate via PZD Interface 1, then this must be parameterized using the STARTER commissioning tool or directly using p8839.
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A08530 (F)	**PN/COMM BOARD: Message channel error**
Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The memory or the buffer status of the message channel has an error. Alarm value (r2124, interpret decimal): 0: Error in the buffer status. 1: Error in the memory.
Remedy:	Check communications link.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A08550	**PZD Interface Hardware assignment error**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The assignment of the hardware to the PZD interface has been incorrectly parameterized. Alarm value (r2124, interpret decimal): 1: Only one of the two indices is not equal to 99 (automatic). 2: Both PZD interfaces are assigned to the same hardware. 3: Assigned COMM BOARD missing. 4: CBC10 is assigned to interface 1. See also: p8839 (PZD interface hardware assignment)
Remedy:	Check the parameterization and if required, correct (p8839).

A08560	**IE: Syntax error in configuration file**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A syntax error has been detected in the ASCII configuration file for the Industrial Ethernet interface (X127). The saved configuration file has not been loaded. Note: IE: Industrial Ethernet
Remedy:	- Check the interface configuration (p8900 and following), correct if necessary, and activate (p8905 = 1). - Save the parameters for interface configuration (e.g. p8905 = 2) or - Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software). See also: p8905 (IE Interface configuration)

A08561	**IE: Consistency error affecting adjustable parameters**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A consistency error was detected when activating the configuration (p8905) for the Industrial Ethernet interface (X127).

Alarm value (r2124, interpret decimal):

0: general consistency error

1: error in the IP configuration (IP address, subnet mask or standard gateway).

2: Error in the station names.

5: standard gateway is also set at the PROFINET onboard interface.

6: the station name is also set at the PROFINET onboard interface.

7: IP address is located in the same subnet as the IP address of the PROFINET onboard interface.

Note:

For alarm value = 0, 1, 2, 7 the following applies: the configuration was not changed.

For alarm value = 5, 6 the following applies: The new configuration was however activated.

IE: Industrial Ethernet

See also: p8900 (IE Name of Station), p8901 (IE IP Address of Station), p8902 (IE Default Gateway of Station), p8903 (IE Subnet Mask of Station)

Remedy: - Check the required interface configuration (p8900 and following), correct if necessary, and activate (p8905).

or

- Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software).

See also: p8905 (IE Interface configuration)

A08562 PROFINET: Syntax error in configuration file

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A syntax error has been detected in the ASCII configuration file for the onboard PROFINET interface. The saved configuration file has not been loaded.

Remedy: - Check the interface configuration (p8920 and following), correct if necessary, and activate (p8925 = 1).

- Save the parameters for interface configuration (e.g. p8925 = 2).

or

- Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software).

See also: p8925 (PN interface configuration)

A08563 PROFINET: Consistency error affecting adjustable parameters

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A consistency error was detected when activating the configuration (p8925) for the PROFINET interface.

Alarm value (r2124, interpret decimal):

0: general consistency error

1: error in the IP configuration (IP address, subnet mask or standard gateway).

2: Error in the station names.

3: DHCP was not able to be activated, as a cyclic PROFINET connection already exists.

4: a cyclic PROFINET connection is not possible as DHCP is activated.

5: standard gateway is also set at the Industrial Ethernet interface (X127).

6: standard station name is also set at the Industrial Ethernet interface (X127).

7: IP address is located in the same subnet as the IP address of the Industrial Ethernet interface (X127).

Note:

For alarm value = 0, 1, 2, 3, 4, 7 the following applies: the configuration was not changed.

For alarm value = 5, 6 the following applies: The new configuration was however activated.

DHCP: Dynamic Host Configuration Protocol

See also: p8920 (PN Name of Station), p8921 (PN IP address of station), p8922 (PN Default Gateway of Station), p8923 (PN Subnet Mask of Station)

Remedy: - Check the required interface configuration (p8940 and following), correct if necessary, and activate (p8945).
or
- Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software).
See also: p8925 (PN interface configuration)

A08564 CBE20: Syntax error in configuration file

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A syntax error has been detected in the ASCII configuration file for the Communication Board Ethernet 20 (CBE20). The saved configuration file has not been loaded.
Remedy: - Check the CBE20 configuration (p8940 and following), correct if necessary, and activate (p8945 = 2).
Note:
The configuration is not applied until the next POWER ON!
- reconfigure the CBE20 (e.g. using the STARTER commissioning software)
See also: p8945 (CBE2x interface configuration)

A08565 PNCOMM BOARD : Consistency error affecting adjustable parameters

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A consistency error was detected when activating the configuration (p8945) for the Communication Board Ethernet 20 (CBE20).
Alarm value (r2124, interpret decimal):
0: general consistency error
1: error in the IP configuration (IP address, subnet mask or standard gateway).
2: Error in the station names.
3: DHCP was not able to be activated, as a cyclic PROFINET connection already exists.
4: a cyclic PROFINET connection is not possible as DHCP is activated.
Note:
For all alarm values, the following applies: currently set configuration has not been activated.
DHCP: Dynamic Host Configuration Protocol
See also: p8940 (CBE2x Name of Station), p8941 (CBE2x IP Address of Station), p8942 (CBE2x Default Gateway of Station), p8943 (CBE2x Subnet Mask of Station), p8944 (CBE2x DHCP Mode)
Remedy: - Check the required interface configuration (p8940 and following), correct if necessary, and activate (p8945).
or
- Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software).
See also: p8945 (CBE2x interface configuration)

F08700 (A) CAN: Communications error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: Vector: OFF3 (NONE, OFF1, OFF2)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A CAN communications error has occurred.
Fault value (r0949, interpret decimal):
1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller.
- bus cable short circuit.
- incorrect baud rate.

- incorrect bit timing.
2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]).
- bus cable interrupted.
- bus cable not connected.
- incorrect baud rate.
- incorrect bit timing.
- master fault.
Note:
The fault response can be set as required using p8641.
See also: p8604 (CAN life guarding), p8641 (CAN Abort Connection Option Code)

Remedy: - check the bus cable
- check the baud rate (p8622).
- check the bit timing (p8623).
- check the master.
The CAN controller must be manually restarted with p8608 = 1 after the cause of the fault has been resolved!
See also: p8608 (CAN Clear Bus Off Error), p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

Reaction upon A: NONE
Acknowl. upon A: NONE

F08701 CAN: NMT state change

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: Vector: OFF3
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped".
Fault value (r0949, interpret decimal):
1: CANopen NMT state transition from "operational" to "pre-operational".
2: CANopen NMT state transition from "operational" to "stopped".
Note:
In the NMT state "pre-operational", process data cannot be transferred and in the NMT state "stopped", no process data and no service data can be transferred.
Remedy: Not necessary.
Acknowledge the fault and continue operation.

F08702 (A) CAN: RPDO Timeout

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: Vector: OFF3 (NONE, OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The monitoring time of the CANopen RPDO telegram has expired because the bus connection was either interrupted or the CANopen Master was switched-off.
See also: p8699 (CAN: RPDO monitoring time)
Remedy: - check the bus cable
- check the master.
- If required, increase the monitoring time (p8699).

Reaction upon A: NONE
Acknowl. upon A: NONE

F08703 (A) CAN: Maximum number of drive objects exceeded

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: Vector: OFF3 (NONE, OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The maximum number of 8 drive objects with the "CAN" function module was exceeded.
Note:
In the CANopen standard only a maximum of 8 drive objects are defined for each CANopen slave.
Remedy: - New commissioning of maximum 8 drive objects with the "CAN" function module in the topology.
- For the drive objects, if required, deselect the "CAN" function module (r0108.29).
Reaction upon A: NONE
Acknowl. upon A: NONE

A08751 (N) CAN: Telegram loss

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The CAN controller has lost a receive message (telegram).
Remedy: Reduce the cycle times of the receive messages.
Reaction upon N: NONE
Acknowl. upon N: NONE

A08752 CAN: Error counter for error passive exceeded

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error counter for the send or receive telegrams has exceeded the value 127.
Remedy: - check the bus cable
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

A08753 CAN: Message buffer overflow

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A message buffer overflow.
Alarm value (r2124, interpret decimal):
1: Non-cyclic send buffer (SDO response buffer) overflow.
2: Non-cyclic receive buffer (SDO receive buffer) overflow.
3: Cyclic send buffer (PDO send buffer) overflow.
Remedy: - check the bus cable.
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).

Re alarm value = 2:

- reduce the cycle times of the SDO receive messages.
- SDO request from master only after SDO feedback for previous SDO request.

See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

A08754 CAN: Incorrect communications mode

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.
Remedy: Change to the "pre-operational" or "stopped" mode.

A08755 CAN: Obj cannot be mapped

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The CANopen object is not provided for the Process Data Object (PDO) Mapping.
Remedy: Use a CANopen object intended for the PDO mapping or enter 0.

The following objects can be mapped in the Receive Process Data Object (RPDO) or Transmit Process Data Object (TPDO):

- RPDO: 6040 hex, 6060 hex, 60FF hex, 6071 hex; 5800 hex - 580F hex; 5820 hex - 5827 hex
- TPDO: 6041 hex, 6061 hex, 6063 hex, 6069 hex, 606B hex, 606C hex, 6074 hex; 5810 hex - 581F hex; 5830 hex - 5837 hex

Only sub-index 0 of the specified objects can be mapped.

Note:

As long as A08755 is present, the COB-ID cannot be set to valid.

A08756 CAN: Number of mapped bytes exceeded

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The number of bytes of the mapped objects exceeds the telegram size for net data. A max. of 8 bytes is permissible.
Remedy: Map fewer objects or objects with a smaller data type.

See also: p8710, p8711, p8712, p8713, p8714, p8715, p8716, p8717, p8730, p8731, p8732, p8733, p8734, p8735, p8736, p8737

A08757 CAN: Set COB-ID invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For online operation, the appropriate COB-ID must be set invalid before mapping.

Example:

Mapping for RPDO 1 should be changed (p8710[0]).

--> set p8700[0] = C00006E0 hex (invalid COB-ID)

--> set p8710[0] as required.

--> p8700[0] enter a valid COB-ID

Remedy: Set the COB-ID to invalid.

A08758 CAN: Maximum number of valid PDO exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum number of valid PDO was exceeded.
Alarm value (r2124, interpret decimal):
1:
The total number of valid RPDO of all CANopen supported drive objects was exceeded.
As a result of the hardware, the limit is 25 valid RPDO.
2:
The total number of valid TPDO of all CANopen supported drive objects was exceeded.
The limit is defined by the following ratio:
CAN sampling time (p8848) / current controller sampling time (p0115[0])
Note:
RPDO: Receive Process Data Object
TPDO: Transmit Process Data Object
Remedy: Comply with the limit for the maximum number of valid RPDO or TPDO.
Apply one of the following options to delete the alarm:
- POWER ON (off/on).
- carry out a warm restart (p0009 = 30, p0976 = 2).
- execute CANopen NMT command reset node.
- change CANopen NMT state.
- delete alarm buffer [0...7] (p2111 = 0).
Note:
The remaining available RPDO or TPDO are indicated in r8742.
See also: r8742 (CAN PDO available number)

A08759 CAN: PDO COB-ID already available

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An existing PDO COB-ID was allocated.
Remedy: Select another PDO COB-ID.

A08760 CAN: maximum size of the IF PZD exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum size of the IF PZD was exceeded.
Alarm value (r2124, interpret decimal):
1: error for IF PZD receive.
2: error for IF PZD send.
Note:
IF: interface
Remedy: Map fewer process data in PDO.
Apply one of the following options to delete the alarm:
- POWER ON (off/on).
- carry out a warm restart (p0009 = 30, p0976 = 2).
- execute CANopen NMT command reset node.

- change CANopen NMT state.
- delete alarm buffer [0...7] (p2111 = 0).

A08800 PROFIenergy energy-saving mode active

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The PROFIenergy energy-saving mode is active
Alarm value (r2124, interpret decimal):
Mode ID of the active PROFIenergy energy-saving mode.
See also: r5600 (Pe energy saving mode ID)
Remedy: The alarm automatically disappears when the energy-saving mode is exited.
Note:
After receiving the PROFIenergy command "End_Pause" via PROFINET, the energy-saving mode is exited.

A08802 PROFIenergy not possible to switch off incremental encoder supply

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The incremental encoder is used for the closed-loop position control. This means that its power supply cannot be switched off during the PROFIenergy energy-saving mode, otherwise it would lose its position actual value.
Alarm value (r2124, interpret decimal):
Encoder number
Remedy: The alarm automatically disappears when the energy-saving mode is exited.
Note:
After receiving the PROFIenergy command "End_Pause" via PROFINET, the energy-saving mode is exited.

A13000 License not adequate

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - for the drive unit, the options that require a license are being used but the licenses are not sufficient.
- an error occurred when checking the existing licenses.
Alarm value (r2124, interpret decimal):
0:
The existing license is not sufficient.
1:
An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation.
2:
An adequate license was not able to be determined as there is no licensing data available on the memory card.
3:
An adequate license was not able to be determined as there is a checksum error in the license key.
4:
An internal error occurred when checking the license.
Remedy: Re alarm value = 0:
Additional licenses are required and these must be activated (p9920, p9921).
Re alarm value = 1:
With the system powered down, re-insert the memory card that matches the system.

Re alarm value = 2:
Enter and activate the license key (p9920, p9921).
Re alarm value = 3:
Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).
Re alarm value = 4:
- carry out a POWER ON.
- upgrade firmware to later version.
- contact the Hotline.

A13001 Error in license checksum

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When checking the checksum of the license key, an error was detected.
Remedy: Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).

F13009 Licensing OA application not licensed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: At least one OA application which is under license does not have a license.
Note:
Refer to r4955 and p4955 for information about the installed OA applications.
Remedy: - enter and activate the license key for OA applications under license (p9920, p9921).
- if necessary, de-activate unlicensed OA applications (p4956).
See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

F13010 Licensing function module not licensed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: At least one function module which is under license does not have a license.
Fault value (r0949, interpret hexadecimal):
Bit x = 1: The corresponding function module does not have a license.
Note:
Refer to p0108 or r0108 for the assignment between the bit number and function module.
Remedy: - enter and activate the license key for function modules under license (p9920, p9921).
- if necessary, de-activate unlicensed function modules (p0108, r0108).
See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

F13100 Know-how protection: Copy protection error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The know-how protection with copy protection for the memory card is active.
An error has occurred when checking the memory card.

	Fault value (r0949, interpret decimal):
	0: A memory card is not inserted.
	2: An invalid memory card is inserted.
	3: The memory card is being used in another Control Unit.
	12: An invalid memory card is inserted (OEM input incorrect, p7769).
	13: The memory card is being used in another Control Unit (OEM input incorrect, p7759).
	See also: p7765 (KHP configuration)
Remedy:	For fault value = 0:
	- Insert the correct memory card and carry out POWER ON.
	Re fault value = 2, 3, 12, 13:
	- contact the responsible OEM.
	- Deactivate copy protection (p7765) and acknowledge the fault (p3981).
	- Deactivate know-how protection (p7766 ... p7768) and acknowledge the fault (p3981).
	Note:
	In general, the copy protection can only be changed when know-how protection is deactivated.
	KHP: Know-How Protection
	See also: p3981 (Faults acknowledge drive object), p7765 (KHP configuration)

F13101 Know-how protection: Copy protection cannot be activated

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error occurred when attempting to activate the copy protection for the memory card.
	Fault value (r0949, interpret decimal):
	0: A memory card is not inserted.
	Note:
	KHP: Know-How Protection
Remedy:	- insert the memory card and carry out POWER ON.
	- Try to activate copy protection again (p7765).
	See also: p7765 (KHP configuration)

F13102 Know-how protection: Consistency error of the protected data

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	All objects
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	An error was identified when checking the consistency of the protected files. As a consequence, the project on the memory card cannot be run.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex: yyyy = object number, xxxx = fault cause
	xxxx = 1:
	A file has a checksum error.
	xxxx = 2:
	The files are not consistent with one another.
	xxxx = 3:
	The project files, which were loaded into the file system via load (download from the memory card), are inconsistent.
	Note:
	KHP: Know-How Protection
Remedy:	- Replace the project on the memory card or replace project files for download from the memory card.
	- Restore the factory setting and download again.

F30001 Power unit: Overcurrent

Message value: Fault cause: %1 bin
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an overcurrent condition.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- infeed: High discharge and post-charging currents for voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at power-up due to the missing line reactor.
- power cables are not correctly connected.
- the power cables exceed the maximum permissible length.
- power unit defective.
- line phase interrupted.

Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (powered down) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.

Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.
Bit 3: Overcurrent in the DC link.
Note:
Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).

Remedy:
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star/delta).
- U/f operation: Increase up ramp.
- U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Check the correct connection of the line filter and the line commutating reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.
- check the line supply phases.

For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30002 Power unit: DC link voltage overvoltage

Message value: %1
Message class: DC link overvoltage (4)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
- device connection voltage too high.
- when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.

	- line phase interrupted.
	Fault value (r0949, interpret decimal):
	DC link voltage at the time of trip [0.1 V].
Remedy:	- increase the ramp-down time
	- activate the DC link voltage controller
	- use a brake resistor or Active Line Module
	- increase the current limit of the infeed or use a larger module (for the Active Line Module)
	- check the device supply voltage
	- check and correct the phase assignment at the VSM and at the power unit
	- check the line supply phases.
	- set the rounding times (p1130, p1136). This is particularly recommended in U/f operation to relieve the DC link voltage controller with rapid ramp-down times of the ramp-function generator.
	See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration)

F30002 Power unit: DC link voltage overvoltage

Message value: %1
Message class: DC link overvoltage (4)
Drive object: B_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
- device connection voltage too high.
- when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.
- line phase interrupted.

Fault value (r0949, interpret decimal):
DC link voltage at the time of trip [0.1 V].

Remedy:
- increase the ramp-down time
- activate the DC link voltage controller (p1240)
- use a brake resistor or Active Line Module
- increase the current limit of the infeed or use a larger module (for the Active Line Module)
- check the device supply voltage
- check and correct the phase assignment at the VSM and at the power unit
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration)

F30003 Power unit: DC link voltage undervoltage

Message value: -
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an undervoltage condition in the DC link.
- line supply failure
- line supply voltage below the permissible value.
- line supply infeed failed or interrupted.
- line phase interrupted.

Note:
The monitoring threshold for undervoltage in the DC link is indicated in r0296.

Remedy:
- check the line supply voltage
- check the line supply infeed and observe the fault messages relating to it (if there are any)
- check the line supply phases.
- check the line supply voltage setting (p0210).
- booksize units: check the setting of p0278.

Note:
The ready signal for the infeed (r0863) must be interconnected to the associated drive inputs (p0864).
See also: p0210 (Drive unit line supply voltage)

F30004	**Power unit: Overtemperature heat sink AC inverter**
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The temperature of the power unit heat sink has exceeded the permissible limit value. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. Fault value (r0949): Temperature [1 bit = 0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements. - check whether the ambient temperature is in the permissible range. - check the motor load. - reduce the pulse frequency if this is higher than the rated pulse frequency. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05000 has been undershot. See also: p1800 (Pulse frequency setpoint)

F30005	**Power unit: Overload I2t**
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The power unit was overloaded (r0036 = 100 %). - the permissible rated power unit current was exceeded for an inadmissibly long time. - the permissible load duty cycle was not maintained. Fault value (r0949, interpret decimal): I2t [100 % = 16384].
Remedy:	- reduce the continuous load. - adapt the load duty cycle. - check the motor and power unit rated currents. - increase p0294 See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

F30005	**Power unit: Overload I2t**
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The power unit was overloaded (r0036 = 100 %). - the permissible rated power unit current was exceeded for an inadmissibly long time. - the permissible load duty cycle was not maintained. Fault value (r0949, interpret decimal): I2t [100 % = 16384].

Remedy: - reduce the continuous load.
- adapt the load duty cycle.
- check the motor and power unit rated currents.
See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

F30006 Power unit: Thyristor Control Board

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The Thyristor Control Board (TCB) of the Basic Line Module signals a fault.
- there is no line supply voltage.
- the line contactor is not closed.
- the line supply voltage is too low.
- line supply frequency outside the permissible range (45 ... 66 Hz).
- there is a DC link short-circuit.
- there is a DC link short-circuit (during the pre-charging phase).
- voltage supply for the Thyristor Control Board outside the nominal range (5 ... 18 V) and line voltage >30 V.
- there is an internal fault in the Thyristor Control Board.

Remedy: The faults must be saved in the Thyristor Control Board and must be acknowledged. To do this, the supply voltage of the Thyristor Control Board must be switched out for at least 10 s!
- check the line supply voltage
- check or energize the line contactor.
- check the monitoring time and, if required, increase (p0857).
- if required, observe additional power unit messages/signals.
- check the DC link regarding short-circuit or ground fault.
- evaluate diagnostic LEDs for the Thyristor Control Board.

F30008 Power unit: Sign-of-life error cyclic data

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: The Control Unit has not punctually updated the cyclic setpoint telegram. The number of consecutive sign-of-life errors has exceeded the fault threshold (p7789).
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- for projects with the VECTOR drive object, check whether p0117 = 6 has been set on the Control Unit.
- increase the fault threshold (p7789).
See also: p0117 (Current controller computing dead time mode)

A30010 (F) Power unit: Sign-of-life error cyclic data

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the power unit involved.
The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle.
Remedy: Check the electrical cabinet design and cable routing for EMC compliance.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30011 Power unit: Line phase failure in main circuit

Message value: %1
Message class: Network fault (2)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: At the power unit, the DC link voltage ripple has exceeded the permissible limit value.

Possible causes:

- A line phase has failed.
- The 3 line phases are inadmissibly unsymmetrical.
- The capacitance of the DC link capacitor forms a resonance frequency with the line inductance and the reactor integrated in the power unit.
- the fuse of a phase of a main circuit has ruptured.
- A motor phase has failed.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy:

- check the main circuit fuses.
- Check whether a single-phase load is distorting the line voltages.
- Detune the resonant frequency with the line inductance by using an upstream line reactor.
- Dampen the resonant frequency with the line inductance by switching over the DC link voltage compensation in the software (see p1810) – or increase the smoothing (see p1806). However, this can have a negative impact on the torque ripple at the motor output.
- check the motor feeder cables.

F30012 Power unit: Temperature sensor heat sink wire breakage

Message value: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The connection to a heat sink temperature sensor in the power unit is interrupted.

Fault value (r0949, interpret hexadecimal):

Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2

Remedy: Contact the manufacturer.

F30013 Power unit: Temperature sensor heat sink short-circuit

Message value: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The heat sink temperature sensor in the power unit is short-circuited.

Fault value (r0949, interpret hexadecimal):

Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1

	Bit 3: Inverter 2
	Bit 4: Inverter 3
	Bit 5: Inverter 4
	Bit 6: Inverter 5
	Bit 7: Inverter 6
	Bit 8: Rectifier 1
	Bit 9: Rectifier 2
Remedy:	Contact the manufacturer.

F30015 (N, A) Power unit: Phase failure motor cable

Message value:	-
Message class:	Application / technological function faulted (17)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A phase failure in the motor feeder cable was detected. The signal can also be output in the following cases: - The motor is correctly connected, but the drive has stalled in U/f control. In this case, a current of 0 A is possibly measured in one phase due to asymmetry of the currents. - the motor is correctly connected, however the closed-speed control is instable and therefore an oscillating torque is generated. Note: Chassis power units do not feature phase failure monitoring.
Remedy:	- check the motor feeder cables. - increase the ramp-up or ramp-down time (p1120) if the drive has stalled in U/f control. - check the speed controller settings.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A30016 (N) Power unit: Load supply switched out

Message value:	%1
Message class:	Network fault (2)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DC link voltage is too low. Alarm value (r2124, interpret decimal): DC link voltage at the time of trip [0.1 V].
Remedy:	- switch on load supply. - check the line supply if necessary.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F30017 Power unit: Hardware current limit has responded too often

Message value:	Fault cause: %1 bin
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit. For infeed units, the following applies: - closed-loop control is incorrectly parameterized. - load on the infeed is too high.

- Voltage Sensing Module incorrectly connected.
- line reactor missing or the incorrect type.
- power unit defective.

The following applies to Motor Modules:
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Fault value (r0949, interpret binary):

Bit 0: Phase U

Bit 1: Phase V

Bit 2: Phase W

Remedy: For infeed units, the following applies:
- check the controller settings and reset and identify the controller if necessary (p0340 = 2, p3410 = 5)
- reduce the load and increase the DC-link capacitance or use a higher-rating infeed if necessary
- check the connection of the optional Voltage Sensing Module
- check the connection and technical data of the line reactor
- check the power cables for short-circuit or ground fault.
- replace power unit.

The following applies to Motor Modules:
- check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

F30020 Power unit: Configuration not supported

Message value: fault cause: %1, additional information: %2

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A configuration is requested that is not supported by the power unit.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: xxxx = fault cause, yyyy = additional information (internal Siemens)

xxxx = 0: Autonomous operation is requested but is not supported.

xxxx = 1: The requested DRIVE-CLiQ timing is not permissible.

xxxx = 2: A PM260 has been detected with PS-ASIC version 2. This combination is not supported.

xxxx = 3: Initialization was not able to be successfully completed. It is possible that the Control Unit was withdrawn from the power module before or during power-up.

xxxx = 4: The combination of power unit and Control Unit or Control Unit Adapter is not supported.

xxxx = 5: The higher current controller dynamic performance is not supported.

Remedy: Re fault cause = 0:

If required, deactivate an active internal voltage protection (p1231).

Re fault cause = 1:

Update the Control Unit firmware or change the DRIVE-CLiQ topology.

Re fault cause = 2:

Replace the power unit with a PM260 with PS-ASIC version 3 (or higher).

Re fault cause = 3, 4:

Insert a Control Unit or Control Unit Adapter (CUAxx) on an appropriate Power Module and perform a POWER ON for the Control Unit or the Control Units Adapter.

Re fault cause = 5:

- use a booksize format power unit.

- for a Double Motor Module operate the two drive controls with the same current controller sampling time (p0115[0]). Otherwise, the higher current controller dynamics can only be activated on the drive with the longer sampling time.

- If required, de-select the higher current controller dynamic performance (p1810.11 = 0). After deselecting the computing dead time, recalculate the controller gains (p0340 = 4). If required, optimize the speed controller.

See also: p0115, p1231, p1810

F30021 Power unit: Ground fault

Message value: %1

Message class: Ground fault / inter-phase short-circuit detected (7)

Drive object: B_INF, VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The Power unit has detected a ground fault.

Possible causes:

- ground fault in the power cables.

- Ground fault at the motor.

- CT defective.

- when the brake closes, this causes the hardware DC current monitoring to respond.

- short-circuit at the braking resistor.

- the closed-loop circulating current control for devices connected in parallel (r0108.15 = 1) is either too slow or has been set too fast.

Note:

For power units, a ground fault is also emulated in r3113.5.

Fault value (r0949, interpret decimal):

0:

- the hardware DC current monitoring has responded.

- short-circuit at the braking resistor.

> 0:

Absolute value, total current amplitude [20479 = r0209 * 1.4142].

Remedy: - check the power cable connections.

- check the motor.

- check the CT.

- check the cables and contacts of the brake connection (a wire is possibly broken).

- check the braking resistor.

For parallel switching devices (r0108.15 = 1) the following additionally applies:

- check the ground fault monitoring thresholds (p0287).

- check the setting of the closed-loop circulating current control (p7036, p7037).

See also: p0287 (Ground fault monitoring thresholds)

F30022 Power unit: Monitoring U_ce

Message value: Fault cause: %1 bin

Message class: Ground fault / inter-phase short-circuit detected (7)

Drive object: B_INF, VECTOR_G

Reaction: OFF2

Acknowledge: POWER ON

Cause: In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded.

Possible causes:

- fiber-optic cable interrupted.

- power supply of the IGBT gating module missing.

- short-circuit at the power unit output.

- defective semiconductor in the power unit.

Fault value (r0949, interpret binary):
Bit 0: Short-circuit in phase U
Bit 1: Short circuit in phase V
Bit 2: Short-circuit in phase W
Bit 3: Light transmitter enable defective
Bit 4: U_ce group fault signal interrupted
See also: r0949 (Fault value)

Remedy:
- check the fiber-optic cable and if required, replace.
- check the power supply of the IGBT gating module (24 V).
- check the power cable connections.
- select the defective semiconductor and replace.

F30024 Power unit: Overtemperature thermal model

Message value: -
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature difference between the heat sink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.

See also: r0037

Remedy:
- adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
- if DC braking is active: reduce braking current (p1232).

F30024 Power unit: Overtemperature thermal model

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature difference between the heat sink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.

See also: r0037

Remedy:
- adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

F30025	Power unit: Chip overtemperature
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The chip temperature of the semiconductor has exceeded the permissible limit value. - the permissible load duty cycle was not maintained. - insufficient cooling, fan failure. - overload. - ambient temperature too high. - pulse frequency too high. Fault value (r0949, interpret decimal): Temperature difference between the heat sink and chip [0.01 °C].
Remedy:	- adapt the load duty cycle. - check whether the fan is running. - check the fan elements. - check whether the ambient temperature is in the permissible range. - check the motor load. - reduce the pulse frequency if this is higher than the rated pulse frequency. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05001 has been undershot. See also: r0037

F30027	Power unit: Precharging DC link time monitoring
Message value:	Enable signals: %1, Status: %2
Message class:	Infeed faulted (13)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The power unit DC link was not able to be pre-charged within the expected time. 1) There is no line supply voltage connected. 2) The line contactor/line side switch has not been closed. 3) The line supply voltage is too low. 4) Line supply voltage incorrectly set (p0210). 5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit. 6) The pre-charging resistors are overheated as the DC link capacitance is too high. 7) The pre-charging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link. 8) The pre-charging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module. 9) The DC link has either a ground fault or a short-circuit. 10) The pre-charging circuit is possibly defective (only for chassis units). 11) Infeed is defective and/or fuse has ruptured in the Motor Module (only Booksize units). Fault value (r0949, interpret binary): yyyyxxxx hex: yyyy = power unit state 0: Fault status (wait for OFF and fault acknowledgement). 1: Restart inhibit (wait for OFF). 2: Overvoltage condition detected -> change into the fault state. 3: Undervoltage condition detected -> change into the fault state. 4: Wait for bridging contactor to open -> change into the fault state. 5: Wait for bridging contactor to open -> change into restart inhibit. 6: Commissioning. 7: Ready for pre-charging.

8: Pre-charging started, DC link voltage less than the minimum switch-on voltage.
9: Pre-charging, DC link voltage end of pre-charging still not detected.
10: Wait for the end of the de-bounce time of the main contactor after pre-charging has been completed.
11: Pre-charging completed, ready for pulse enable.
12: It was detected that the STO terminal was energized at the power unit.
xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available)
Bit 0: Power supply of the IGBT gating shut down.
Bit 1: Ground fault detected.
Bit 2: Peak current intervention.
Bit 3: I2t exceeded.
Bit 4. Thermal model overtemperature calculated.
Bit 5: (heat sink, gating module, power unit) overtemperature measured.
Bit 6: Reserved.
Bit 7: Overvoltage detected.
Bit 8: Power unit has completed pre-charging, ready for pulse enable.
Bit 9: STO terminal missing.
Bit 10: Overcurrent detected.
Bit 11: Armature short-circuit active.
Bit 12: DRIVE-CLiQ fault active.
Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.
Bit 14: Undervoltage detected.
See also: p0210 (Drive unit line supply voltage)

Remedy: In general:
- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).
For booksize drive units, the following applies:
- wait (approx. 8 minutes) until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.
Re 5):
- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).
Re 6):
- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC-link capacitance if necessary (refer to the appropriate Equipment Manual)
Re 7):
- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link
Re 8):
- check the connections of the external line contactor. The line contactor must be open during DC-link fast discharge.
Re 9):
- check the DC link for ground faults or short circuits.
Re 11):
- Check the DC link voltage of the infeed (r0070) and Motor Modules (r0070).
If the DC link voltage generated by the infeed (or external) is not displayed for the Motor Modules (r0070), then a fuse has ruptured in the Motor Module.
See also: p0210 (Drive unit line supply voltage)

A30030 Power unit: Internal overtemperature alarm

Message value: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature inside the drive converter has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.

	- ambient temperature too high.
	Alarm value (r2124, interpret decimal):
	Only for internal Siemens troubleshooting.
Remedy:	- possibly use an additional fan.
	- check whether the ambient temperature is in the permissible range.
	Notice:
	This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.

A30031 Power unit: Hardware current limiting in phase U

Message value: -

Message class: Power electronics faulted (5)

Drive object: B_INF, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:

Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy: - check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).

- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30032 Power unit: Hardware current limiting in phase V

Message value: -

Message class: Power electronics faulted (5)

Drive object: B_INF, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:

Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy: Check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).

- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30033	**Power unit: Hardware current limiting in phase W**
Message value:	-
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period. - closed-loop control is incorrectly parameterized. - fault in the motor or in the power cables. - the power cables exceed the maximum permissible length. - motor load too high - power unit defective. Note: Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.
Remedy:	- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1). - check the motor circuit configuration (star/delta). - check the motor load. - check the power cable connections. - check the power cables for short-circuit or ground fault. - check the length of the power cables.

A30034	**Power unit: Internal overtemperature**
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The alarm threshold for internal overtemperature has been reached. If the temperature inside the unit continues to increase, fault F30036 may be triggered. - ambient temperature might be too high. - insufficient cooling, fan failure. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check the ambient temperature. - check the fan for the inside of the unit.

F30035	**Power unit: Air intake overtemperature**
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The air intake in the power unit has exceeded the permissible temperature limit. For air-cooled power units, the temperature limit is at 55 °C. - ambient temperature too high. - insufficient cooling, fan failure. Fault value (r0949, interpret decimal): Temperature [0.01 °C].
Remedy:	- check whether the fan is running. - check the fan elements. - check whether the ambient temperature is in the permissible range. Notice: This fault can only be acknowledged after this alarm threshold for alarm A05002 has been undershot.

F30036 Power unit: Internal overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature inside the drive converter has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
Notice:
This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.

F30037 Power unit: Rectifier overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- line supply phase failure.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].
Remedy: - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- check the line supply phases.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05004 has been undershot.

A30038 Power unit: Capacitor fan monitoring

Message value: %1
Message class: Infeed faulted (13)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The capacitor fan signals a fault.
Remedy: Replace the capacitor fan in the power unit.

F30039 Power unit: Failure capacitor fan

Message value: %1
Message class: Infeed faulted (13)
Drive object: B_INF
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The capacitor fan has failed.

Remedy:	Replace the capacitor fan in the power unit.

F30040	**Power unit: Undervolt 24 V**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The undervoltage threshold of the 24 V power supply for the power unit was fallen below for longer than 3 ms. Note: - for booksize power units, the undervoltage threshold is 15 V. - for CU310-2, CUA31 and CUA32 the undervoltage threshold is 16 V. - for all other power units, the undervoltage threshold depends on the power unit, and is not displayed. Fault value (r0949, interpret decimal): 24 V voltage [0.1 V].
Remedy:	- Check the power supply of the power unit. - carry out a POWER ON (power off/on) for the component.

F30040	**Power unit: Undervolt 24 V**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The undervoltage threshold of the 24 V power supply for the power unit was fallen below for longer than 3 ms. Note: - for booksize power units, the undervoltage threshold is 15 V. - for all other power units, the undervoltage threshold depends on the power unit, and is not displayed. Fault value (r0949, interpret decimal): 24 V voltage [0.1 V].
Remedy:	- Check the power supply of the power unit. - carry out a POWER ON (power off/on) for the component.

A30041 (F)	**Power unit: Undervoltage 24 V alarm**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the power unit power supply, the lower threshold has been violated. Alarm value (r2124, interpret decimal): 24 V voltage [0.1 V].
Remedy:	- Check the power supply of the power unit. - carry out a POWER ON (power off/on) for the component.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A30041 (F)	**Power unit: Undervoltage 24 V alarm**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the power unit power supply, the lower threshold has been violated. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.

Remedy: - Check the power supply of the power unit.
- carry out a POWER ON (power off/on) for the component.

Reaction upon F: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A30042 Power unit: Fan has reached the maximum operating hours

Message value: %1

Message class: Power electronics faulted (5)

Drive object: B_INF, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The maximum operating time of at least one fan will soon be reached, or has already been exceeded.
Fault value (r0949, interpret binary):
Bit 0: heat sink fan will reach the maximum operating time in 500 hours.
Bit 1: heat sink fan has exceeded the maximum operating time.
Bit 8: internal device fan will reach the maximum operating time in 500 hours.
Bit 9: internal device fan has exceeded the maximum operating time.
Note:
The maximum operating time of the heat sink fan in the power unit is displayed in p0252.
The maximum operating time of the internal device fan in the power unit is internally specified and is fixed.

Remedy: For the fan involved, carry out the following:
- replace the fan.
- reset the operating hours counter (p0251, p0254).
See also: p0251 (Operating hours counter power unit fan), p0252 (Maximum operating time power unit fan), p0254 (Operating hours counter power unit fan inside the converter)

F30043 Power unit: Overvolt 24 V

Message value: %1

Message class: Supply voltage fault (undervoltage) (3)

Drive object: B_INF, VECTOR_G

Reaction: OFF2

Acknowledge: POWER ON

Cause: For the power unit power supply, the upper threshold has been violated.
Fault value (r0949, interpret decimal):
24 V voltage [0.1 V].

Remedy: Check the power supply of the power unit.

A30044 (F) Power unit: Overvoltage 24 V alarm

Message value: %1

Message class: Supply voltage fault (undervoltage) (3)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: For the power unit power supply, the upper threshold has been violated.
Alarm value (r2124, interpret decimal):
24 V voltage [0.1 V].

Remedy: Check the power supply of the power unit.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A30044 (F)	Power unit: Overvoltage 24 V alarm
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the power unit power supply, the upper threshold has been violated. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	Check the power supply of the power unit.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

F30045	Power unit: Supply undervoltage
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Power supply fault in the power unit. - The voltage monitor signals an undervoltage fault on the module. The following applies for CU31x: - the voltage monitoring on the DAC board signals an undervoltage fault on the module.
Remedy:	- Check the power supply of the power unit. - carry out a POWER ON (power off/on) for the component. - replace the module if necessary.

A30046 (F)	Power unit: Undervoltage alarm
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Before the last restart, a problem occurred at the power unit power supply. The voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module. Fault value (r0949, interpret decimal): Register value of the voltage fault register.
Remedy:	- check the 24 V DC voltage supply to power unit. - carry out a POWER ON (power off/on) for the component. - replace the module if necessary.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A30046 (F)	Power unit: Undervoltage alarm
Message value:	%1
Message class:	Power electronics faulted (5)
Drive object:	B_INF
Reaction:	NONE
Acknowledge:	NONE
Cause:	Before the last restart, a problem occurred at the power unit power supply. The voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.

Remedy:	- check the 24 V DC voltage supply to power unit. - carry out a POWER ON (power off/on) for the component. - replace the module if necessary.
Reaction upon F:	NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

F30047 Cooling unit: Cooling medium flow rate too low

Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The flowrate of the cooling unit has fallen below the fault threshold.
Remedy:	- Check the feedback signals and parameter assignment (p0260 ... p0267). - Check the coolant feed. - Check the thermal conductivity of the coolant. - Check the coolant concentration.

A30048 Power unit: External fan faulty

Message value:	-
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The feedback signal from the external fan indicates a fault. - fan faulty, blocked. - feedback signal inaccurate.
Remedy:	- check the external fan and replace if necessary. - if you are using an external fan with feedback, check its wiring (X12.2 or X13.2). Note: If you are using an external fan without feedback, check that the feedback terminal wiring on the power unit is connected to ground and make this connection if necessary (X12.1/2 or X13.1/2).

A30049 Power unit: Internal fan faulty

Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The internal fan has failed.
Remedy:	Check the internal fan and replace if necessary.

F30050 Power unit: 24 V supply overvoltage

Message value:	-
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The voltage monitor signals an overvoltage fault on the module.
Remedy:	- check the 24 V power supply. - replace the module if necessary.

F30051 Power unit: Motor holding brake short circuit detected

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A short-circuit at the motor holding brake terminals has been detected.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check the motor holding brake for a short-circuit.
- check the connection and cable for the motor holding brake.

F30052 EEPROM data error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: POWER ON
Cause: EEPROM data error of the power unit module.
Fault value (r0949, interpret decimal):
0, 2, 3, 4:
The EEPROM data read in from the power unit module are incorrect.
1:
EEPROM data is not compatible to the firmware of the power unit application.
Additional values:
Only for internal Siemens troubleshooting.
Remedy: Re fault value = 0, 2, 3, 4:
Replace the power unit module or update the EEPROM data.
For fault value = 1:
The following applies for CU31x and CUA31:
Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

F30053 FPGA data faulty

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: The FPGA data of the power unit are faulty.
Remedy: Replace the power unit or update the FPGA data.

A30054 (F, N) Power unit: Undervoltage when opening the brake

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When the brake is being opened, it is detected that the power supply voltage is less than 24 V - 10% = 21.6V.
Alarm value (r2124, interpret decimal):
Supply voltage fault [0.1 V].
Example:
Alarm value = 195 --> voltage = 19.5 V
Remedy: Check the 24 V voltage for stability and value.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE
Acknowl. upon N: NONE

F30055 Power unit: Braking chopper overcurrent

Message value: -
Message class: Braking Module faulted (14)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An overcurrent condition has occurred in the braking chopper.
Remedy: - check whether the braking resistor has a short circuit.
- for an external braking resistor, check whether the resistor may have been dimensioned too small.
Note:
The braking chopper is only enabled again at pulse enable after the fault has been acknowledged.

A30057 Power unit: Line asymmetry

Message value: %1
Message class: Network fault (2)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Frequencies have been detected on the DC link voltage that would suggest line asymmetry or failure of a line phase.
It is also possible that a motor phase has failed.
Fault F30011 is output if the alarm is present and at the latest after 5 minutes.
The precise duration depends on the power unit type and the particular frequencies. For booksize and chassis power units, the duration also depends on how long the alarm has been active.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check the line phase connection.
- check the motor feeder cable connections.
If there is no phase failure of the line or motor, then line asymmetry is involved.
- reduce the power in order to avoid fault F30011.

F30059 Power unit: Internal fan faulty

Message value: -
Message class: Auxiliary unit faulted (20)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The internal power unit fan has failed and is possibly defective.
Remedy: Check the internal fan and replace if necessary.

F30060 (A) Pre-charge contactor state monitoring

Message value: Fault cause: %1 bin
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A feedback signal for the pre-charging contactor (ALM, SLM, BLM diode) or the line contactor (BLM thyristor) interconnected and the monitoring activated.
After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[0].
Fault value (r0949, interpret binary):
Bit 0: The time set in p0255[0] was exceeded when switching-in/switching-out the contactor.
Bit 1: The pre-charging contactor was opened while pre-charging or in the infeed mode (BLM thyristor).
Bit 2: The pre-charging contactor was switched-in in the OFF state or during infeed operation.

Remedy: - check the monitoring time setting (p0255[0]).
- check the contactor wiring and activation.
- replace the contactor.

Reaction upon A: NONE
Acknowl. upon A: NONE

F30061 (A) Bridging contactor monitoring

Message value: Fault cause: %1 bin
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A feedback signal for the bypass contactor is interconnected and the monitoring activated.

After switching-in/switching-out the contactor, a correct feedback signal was not received within the monitoring time set in p0255[1].

Fault value (r0949, interpret binary):

Bit 0: The time set in p0255[1] was exceeded when switching-in/switching-out the contactor.

Bit 1: The bypass contactor was opened in operation.

Bit 2: The bypass contactor was switched-in in the OFF state or during pre-charging.

Remedy: - check the monitoring time setting (p0255[1]).
- check the contactor wiring and activation.
- replace the contactor.

Reaction upon A: NONE
Acknowl. upon A: NONE

A30065 (F, N) Voltage measured values not plausible

Message value: %1
Message class: Power electronics faulted (5)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The voltage measurement supplies values that are not plausible

Bit01: Phase U.

Bit02: Phase V.

Bit03: Phase W.

Remedy: - Deactivate voltage measurement (p247.0 = 0).
- Deactivate flying restart with voltage measurement (p247.5 = 0) and deactivate fast flying restart (p1780.11 = 0).

Reaction upon F: NONE (OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F30070 Cycle requested by the power unit module not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle is requested that is not supported by the power unit.

Fault value (r0949, interpret hexadecimal):

0: The current control cycle is not supported.

1: The DRIVE-CLiQ cycle is not supported.

2: Internal timing problem (clearance between RX and TX instants too low).

3: Internal timing problem (TX instant too early).

Remedy: The power unit only supports the following cycles:
62.5 µs, 125 µs, 250 µs and 500 µs
For fault value = 0:
Set a permitted current control cycle.
For fault value = 1:
Set a permitted DRIVE-CLiQ cycle.
Re fault value = 2, 3:
Contact the manufacturer (you may have an incompatible firmware version).

F30071 No new actual values received from the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The number of actual value telegrams from the power unit module that have failed has exceeded the permissible number.
Remedy: Check the interface (adjustment and locking) to the power unit module.

F30072 Setpoints are no longer being transferred to the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
More than one setpoint telegram was not able to be transferred to the power unit module.
Remedy: The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit module.

A30073 (N) Actual value/setpoint preprocessing no longer synchronous

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Communication with the power unit module is no longer in synchronism with the current control cycle.
Remedy: Wait until synchronization is re-established.
Reaction upon N: NONE
Acknowl. upon N: NONE

F30074 (A) Communication error between the Control Unit and Power Module

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Communications between the Control Unit (CU) and Power Module (PM) via the interface no longer possible. The CU may have been withdrawn or is incorrectly inserted.
Fault value (r0949, interpret hexadecimal):
0 hex:
- a Control Unit with external 24 V supply was withdrawn from the Power Module during operation.
- with the Power Module switched off, the external 24 V supply for the Control unit was interrupted for some time.

1 hex:

The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible.

20A hex:

The Control Unit was inserted on a Power Module, which has another code number.

20B hex:

The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number.

601 hex:

The Control Unit was inserted on a Power Module, whose power/performance class (chassis unit) is not supported.

Remedy: Reinsert the Control Unit (CU) or the Control Unit adapter (CUAxx) onto the original Power Module and continue operation. If required, carry out a POWER ON for the CU and/or the CUA.

Reaction upon A: NONE

Acknowl. upon A: NONE

F30075 Configuration of the power unit unsuccessful

Message value: %1

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A communication error has occurred while configuring the power unit using the Control Unit. The cause is not clear.

Fault value (r0949, interpret decimal):

0:

The output filter initialization was unsuccessful.

1:

Activation/deactivation of the regenerative feedback functionality was unsuccessful.

Remedy:
- acknowledge the fault and continue operation.
- if the fault reoccurs, carry out a POWER ON (switch off/on).
- if required, replace the power unit.

F30080 Power unit: Current increasing too quickly

Message value: Fault cause: %1 bin

Message class: Power electronics faulted (5)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The power unit has detected an excessive rate of rise in the overvoltage range.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: rated current of motor much greater than that of power unit.
- infeed: High discharge and post-charging currents for voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at power-up due to the missing line reactor.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.

Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (powered down) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.

Fault value (r0949, interpret bitwise binary):

Bit 0: Phase U.

Bit 1: Phase V.

Bit 2: Phase W.

Remedy: - check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check assignment of rated currents of motor and power unit.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Correct connection of the line reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.
For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30081 Power unit: Switching operations too frequent

Message value: Fault cause: %1 bin
Message class: Power electronics faulted (5)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has executed too many switching operations for current limitation.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: rated current of motor much greater than that of power unit.
- infeed: High discharge and post-charging currents for voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at power-up due to the missing line reactor.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.
Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (powered down) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.
Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.
Remedy: - check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check assignment of rated currents of motor and power unit.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Correct connection of the line reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.
For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30105 PU: Actual value sensing fault

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy: Evaluate the diagnostic parameters.
If the actual value channel is incorrect, check the components and if required, replace.

F30314 Power unit: 24 V power supply overloaded by PM

Message value: -
Message class: Supply voltage fault (undervoltage) (3)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The 24 V power supply through the Power Module (PM) is overloaded.
An external 24 V power supply via X124 on the Control Unit is not connected.
Remedy: Connect an external 24 V power supply via X124 at the Control Unit.

A30315 (F) Power unit: 24 V power supply overloaded by PM

Message value: -
Message class: Supply voltage fault (undervoltage) (3)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The 24 V power supply through the Power Module (PM) is overloaded.
An external 24 V power supply via X124 on the Control Unit is not connected.
Remedy: Connect an external 24 V power supply via X124 at the Control Unit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A30502 Power unit: DC link overvoltage

Message value: %1
Message class: DC link overvoltage (4)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The power unit has detected overvoltage in the DC link on a pulse inhibit.
- device connection voltage too high.
- line reactor incorrectly dimensioned.
Alarm value (r0949, interpret decimal):
DC link voltage [1 bit = 100 mV].
See also: r0070 (Actual DC link voltage)
Remedy: - check the device supply voltage (p0210).
- check the dimensioning of the line reactor.
See also: p0210 (Drive unit line supply voltage)

F30600	**SI P2: STOP A initiated**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function in monitoring channel 2 has detected a fault and initiated a STOP A (STO via the safety shutdown path of monitoring channel 2). - forced checking procedure of the safety shutdown path of monitoring channel 2 unsuccessful. - subsequent response to fault F30611 (defect in a monitoring channel). Fault value (r0949, interpret decimal): 0: Stop request from the Control Unit. 1005: STO active although STO not selected and there is no internal STOP A present. 1010: STO inactive although STO is selected or an internal STOP A is present. 1011: internal error for STO deselected in monitoring channel 2. 1020: Internal software error in the "Internal voltage protection" function. The "internal voltage protection" function is withdrawn. A STOP A that cannot be acknowledged is initiated. 9999: Subsequent response to fault F30611.
Remedy:	- select Safe Torque Off and de-select again. - carry out a POWER ON (power off/on) for all components. - replace the Motor Module/Hydraulic Module involved. For fault value = 1020: - upgrade the Motor Module/Hydraulic Module software. - replace the Motor Module/Hydraulic Module. For fault value = 9999: - carry out diagnostics for fault F30611. Note: CU: Control Unit MM: Motor Module SI: Safety Integrated STO: Safe Torque Off / SH: Safe standstill

F30611 (A)	**SI P2: Defect in a monitoring channel**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive-integrated "Safety Integrated" function on processor 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. As a result of this fault, after the parameterized transition has expired (p9858), fault F30600 is output (SI MM: STOP A initiated). Fault value (r0949, interpret decimal): 0: Stop request from the Control Unit. 1 ... 999: Number of the cross-compared data that resulted in this fault. This number is also displayed in r9895. 1: SI monitoring clock cycle (r9780, r9880). 2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits. 3: SI SGE changeover tolerance time (p9650, p9850). 4: SI transition period STOP F to STOP A (p9658, p9858). 5: SI enable Safe Brake Control (p9602, p9802). 6: SI Motion enable, safety-relevant functions (p9501, internal value). 7: SI delay time of STO for Safe Stop 1 (p9652, p9852). 8: SI PROFIsafe address (p9610, p9810). 9: SI debounce time for STO/SBC/SS1 (MM) (p9651, p9851).

10: SI delay time for initiating STO for ESR (p9697, p9897).
11: SI Safe Brake Adapter mode, BICO interconnection (p9621, p9821).
12: SI Safe Brake Adapter relay ON time (p9622[0], p9822[0]).
13: SI Safe Brake Adapter relay OFF time (p9622[1], p9822[1]).
14: SI PROFIsafe telegram selection (p9611, p9811).
1000: Watchdog timer has expired.
Within the time of approx. 5 x p9650, alternatively, the following was defined:
- Too many signal changes have occurred at the EP terminal of the Motor Module.
- Via PROFIsafe/TM54F, STO was too frequently initiated (also as subsequent response).
- Safe pulse cancellation (r9723.9) was too frequently initiated (also as subsequent response).
1001, 1002: Initialization error, change timer / check timer.
1950: Module temperature outside the permissible temperature range.
1951: Module temperature not plausible.
1952: S120M: hardware access fault
2000: Status of the STO selection for both monitoring channels are different.
2001: Feedback signals of STO shutdown for both monitoring channels are different.
2002: Statuses of the delay timer SS1 on both monitoring channels are different (status of the timer in p9650/p9850).
2003: Status of the STO terminal for both monitoring channels are different.
6000 ... 6999:
Error in the PROFIsafe control.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety message C01711.

Remedy: Re fault value = 1 ... 5 and 7 ... 999:
- check the cross data comparison that resulted in a STOP F.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
For fault value = 6:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
For fault value = 1000:
- check the wiring of the safety-relevant inputs (SGE) on the Control Unit (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.
- check the wiring of the failsafe inputs at the TM54F (contact problems).
- check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).
Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
For fault value = 1950:
- operate the module in the permissible range.
- check the module fan, replace the Motor Module involved.
For fault value = 1951:
- operate the module in the permissible range.
- replace the Motor Module involved.
For fault value = 1952:
- replace the Motor Module involved.
Re fault value = 2000, 2001, 2002, 2003:
- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
- check why STO was selected in r9872. When the SMM functions are active (p9501 = 1), STO can also be selected using these functions.
- replace the Motor Module involved.

	Note:
	This fault can be acknowledged after removing the cause of the error and after correct selection/deselection of STO.
	Re fault value = 6000 ... 6999:
	Refer to the description of the message values in safety message C01711.
	Note:
	CU: Control Unit
	EP: Enable Pulses (pulse enable)
	ESR: Extended Stop and Retract
	MM: Motor Module
	SGE: Safety-relevant input
	SI: Safety Integrated
	SMM: Safe Motion Monitoring
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
	STO: Safe Torque Off / SH: Safe standstill
Reaction upon A:	NONE
Acknowl. upon A:	NONE

N30620 (F, A) SI P2: Safe Torque Off active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Torque Off" (STO) function of the basic functions has been selected in monitoring channel 2 using the input terminal and is active.
Note:
- This message does not result in a safety stop response.
- This message is not output when STO is selected using the Extended Functions.

Remedy: Not necessary.
Note:
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

N30621 (F, A) SI P2: Safe Stop 1 active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Stop 1" function (SS1) was selected in monitoring channel 2 and is active.
Note:
This message does not result in a safety stop response.

Remedy: Not necessary.
Note:
MM: Motor Module
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

Reaction upon F: NONE (OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon A: NONE
Acknowl. upon A: NONE

F30625 SI P2: Sign-of-life error in safety data

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function in monitoring channel 2 has detected an error in the sign-of-life of the safety data between the two monitoring channels and initiated a STOP A.

- there is either a DRIVE-CLiQ communication error or communication has failed.
- a time slice overflow of the safety software has occurred.
- The enable of the safety functions in both monitoring channels is inconsistent (p9601 = 0, p9801 <> 0).

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy: - select Safe Torque Off and de-select again.

- carry out a POWER ON (power off/on) for all components.

Check whether there is a DRIVE-CLiQ communication error between the two monitoring channels and, if required, carry out a diagnostics routine for the faults identified.

- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance
- Check the enable of the safety functions for both of the monitoring channels and if required, correct (p9601, p9801).

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

F30630 SI P2: Brake control error

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The "Safety Integrated" function integrated in the drive on the Motor Module (MM) has detected a brake control error and initiated a STOP A.

- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.

Fault value (r0949, interpret decimal):

10:

Fault in "open holding brake" operation.

- Parameter p1278 incorrectly set.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Ground fault in brake cable.

30:

Fault in "close holding brake" operation.

- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Short-circuit in brake winding.

40:

Fault in "brake closed" state.

60, 70:

Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).

81: Safe Brake Adapter: Fault in "brake closed" state.

82: Safe Brake Adapter: Fault for the operation "open brake".

83: Safe Brake Adapter: Fault for the operation "close brake".

84, 85:

Safe Brake Adapter:

Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).

90:

Brake released for service purposes (X4).

91:

Fault in "open holding brake" operation.

- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC de-activated)).

Remedy: - check parameter p1278 (for SBC, only p1278 = 0 is permissible).

- select Safe Torque Off and de-select again.
- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.

Operation with Safe Brake Module or Safe Brake Adapter:

- check the Safe Brake Module or Safe Brake Adapter connection.
- Replace the Safe Brake Module or Safe Brake Adapter.

Note:

MM: Motor Module

SBC: Safe Brake Control

SI: Safety Integrated

F30631 Brake control: External release active

Message value: -

Message class: External measured value / signal state outside the permissible range (16)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For mounting purposes, the brake is supplied with voltage via terminal X4.1 and released.

Remedy: If required, again remove the power supply at X4.1.

A30640 (F) SI P2: Fault in the shutdown path of the second channel

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The Motor Module has detected a communication error with the higher-level control or the TM54F to transfer the safety-relevant information or there is a communication error between Motor Modules connected in parallel.

Note:

This fault results in a STOP A that can be acknowledged.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy: For the higher-level control, the following applies:

- check the PROFIsafe address in the higher-level control and Motor Modules and if required, align.
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

For TM54F, carry out the following steps:
- start the copy function for the node identifier (p9700 = 1D hex).
- acknowledge hardware CRC (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.
For a parallel connection, the following applies:
- check the PROFIsafe address in both monitoring channels and if required, align.
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.
The following generally applies:
- upgrade the Motor Module software.
Note:
MM: Motor Module
SI: Safety Integrated
See also: p9810 (SI PROFIsafe address (Motor Module))

Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30649 SI P2: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal error in the Safety Integrated software in monitoring channel 2 has occurred.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
- re-commission the Safety Integrated function and carry out a POWER ON.
- upgrade the Motor Module/Hydraulic Module software.
- contact the Hotline.
- replace the Motor Module/Hydraulic Module.
Note:
MM: Motor Module
SI: Safety Integrated

F30650 SI P2: Acceptance test required

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The "Safety Integrated" function on monitoring channel 2 requires an acceptance test.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, interpret decimal):
130: Safety parameters for monitoring channel 2 not available.
Note:
This fault value is always output when Safety Integrated is commissioned for the first time.
1000: Reference and actual checksum in monitoring channel 2 are not identical (booting).
- as a result of the changed current controller sampling time (p0115[0]), the clock cycle time for the Safety Integrated Basic Functions (r9880) was adapted.
- Safety parameters set offline and loaded into the Control Unit.

- a download was made to the SINAMICS, whose firmware versions in monitoring channel 2 did not correspond to the latest version. The request to switch off the DRIVE-CLiQ component A1007 was present after the download.

- at least one checksum-checked piece of data is defective.

2000: Reference and actual checksum in monitoring channel 2 are not identical (commissioning mode).

- reference checksum on monitoring channel 2 incorrectly entered (p9899 not equal to r9898).

2003: Acceptance test is required as a safety parameter has been changed.

2005: The safety logbook has identified that the safety checksums have changed. An acceptance test is required.

3003: Acceptance test is required as a hardware-related safety parameter has been changed.

9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy: For fault value = 130:

- carry out safety commissioning routine.

For fault value = 1000:

- check the Safety Integrated Basic Functions (r9880) and adapt the reference checksum (p9899).

- again carry out safety commissioning routine.

- Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).

- switch off and switch on the drive unit and DRIVE-CLiQ components. If A30650 is still present, repeat the download.

- replace the memory card or Control Unit.

For fault value = 2000:

- check the safety parameters on monitoring channel 2 and adapt the reference checksum (p9899).

Re fault value = 2003, 2005:

- Carry out an acceptance test and generate an acceptance report.

The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:

SINAMICS S120 Function Manual Safety Integrated

For fault value = 3003:

- carry out the function checks for the modified hardware and generate an acceptance report.

The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:

SINAMICS S120 Function Manual Safety Integrated

For fault value = 9999:

- carry out diagnostics for the other safety-related fault that is present.

Note:

MM: Motor Module

SI: Safety Integrated

See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F30651 SI P2: Synchronization with Control Unit unsuccessful

Message value: %1

Message class: Hardware / software error (1)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-integrated "Safety Integrated" function requires synchronization of the safety time slices in both monitoring channels. This synchronization routine was unsuccessful.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on) for all components.

- upgrade the Motor Module/Hydraulic Module software.

- upgrade the Control Unit software.

Note:
MM: Motor Module
SI: Safety Integrated

F30652	**SI P2: Illegal monitoring clock cycle**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Safety Integrated monitoring clock cycle cannot be maintained due to the communication conditions requested in the system. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- if fault F01652 simultaneously occurs, apply the remedy/countermeasure described there. - upgrade the firmware of the Motor Module/Hydraulic Module to a later version. Note: MM: Motor Module SI: Safety Integrated

F30655	**SI P2: Align monitoring functions**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An error has occurred when aligning the Safety Integrated monitoring functions of both monitoring channels. No common set of supported SI monitoring functions was able to be determined. - there is either a DRIVE-CLiQ communication error or communication has failed. - Safety Integrated software releases on the Control Unit and Motor Module/Hydraulic Module are not compatible with one another. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module/Hydraulic Module software. - upgrade the Control Unit software. - check the electrical cabinet design and cable routing for EMC compliance Note: CU: Control Unit MM: Motor Module SI: Safety Integrated

F30656	**SI P2: Motor Module parameter error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for monitoring channel 2 in the non-volatile memory, an error has occurred. Note: This fault results in a STOP A that can be acknowledged.

Fault value (r0949, interpret decimal):
129:
- safety parameters for monitoring channel 2 corrupted.
- drive with enabled safety functions was possibly copied offline using the commissioning software and the project downloaded.
131: Internal software error on the Control Unit.
255: Internal Motor Module/Hydraulic Module software error.

Remedy:
- re-commission the safety functions.
- upgrade the Control Unit software.
- upgrade the Motor Module/Hydraulic Module software.
- replace the memory card or Control Unit.
For fault value = 129:
- activate the safety commissioning mode (p0010 = 95).
- adapt the PROFIsafe address (p9610).
- start the copy function for SI parameters (p9700 = D0 hex).
- acknowledge data change (p9701 = DC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for all components.
Note:
MM: Motor Module
SI: Safety Integrated

F30657 SI P2: PROFIsafe telegram number invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: POWER ON
Cause: The PROFIsafe telegram number set in p9811 is not valid.
When PROFIsafe is enabled (p9801.3 = 1), then a telegram number greater than zero must be entered in p9811.
Note:
This fault does not result in a safety stop response.
See also: p9611 (SI PROFIsafe telegram selection (Control Unit)), p60022 (PROFIsafe telegram selection)
Remedy: Check the telegram number setting (p9811).

F30659 SI P2: Write request for parameter rejected

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The write request for one or several Safety Integrated parameters in monitoring channel 2 was rejected.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
10: An attempt was made to enable the STO function although this cannot be supported.
11: An attempt was made to enable the SBC function although this cannot be supported.
13: An attempt was made to enable the SS1 function although this cannot be supported.
14: An attempt was made to enable the safe motion monitoring function with the higher-level control, although this cannot be supported.
15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
16: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on both monitoring channels is different.
18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.

19: For ESR, an attempt was made to enable the delay for pulse suppression, although this cannot be supported.

27: An attempt was made to activate the Basic Functions by controlling via TM54F although this cannot be supported.

See also: r9771 (SI common functions (Control Unit)), r9871 (SI common functions (Motor Module)

Remedy: Re fault value = 10, 11, 13, 14, 15, 16, 18, 19:

- check whether there are faults in the safety function alignment between the two monitoring channels (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 33:

- Deselect motion monitoring functions without selection integrated in drive (p9601.5, p9801.5) and

select safety functions that are supported (see p9771/p9871),

or:

- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Note:

CU: Control Unit

ESR: Extended Stop and Retract

MM: Motor Module

SBC: Safe Brake Control

SI: Safety Integrated

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

STO: Safe Torque Off / SH: Safe standstill

F30664 Error while booting

Message value: %1

Message class: Hardware / software error (1)

Drive object: B_INF, ENC, HUB, TB30, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: OFF2

Acknowledge: POWER ON

Cause: An error has occurred during booting.

Fault value (r0949, interpret hexadecimal):

Only for internal Siemens troubleshooting.

Remedy:
- carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F30665 SI P2: System is defective

Message value: %1

Message class: Hardware / software error (1)

Drive object: VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).

Fault value (r0949, interpret hexadecimal):

200000 hex, 400000 hex:

- Fault in the actual booting/operation.

2 hex:

- parameters p9500 and p9300 are not the same (if Safety message C30711 is displayed at the same time).

Additional values:

- defect before the last time that the system booted.

Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
For fault value = 2:
- check parameters p9500 and p9300 to see if they are the same (if Safety message C30711 is displayed at the same time).
Re fault value = 400000 hex:
- ensure that the Control Unit is connected to the Power Module.

A30666 (F) SI Motion P2: Steady-state (static) 1 signal at the F-DI for safe acknowledgment

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A logical 1 signal is present at the F-DI configured in p10106 for more than 10 seconds.
If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.
Remedy: Set the fail-safe digital input (F-DI) to a logical 0 signal (p10106).
Note:
F-DI: Failsafe Digital Input
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F30672 SI P2: Control Unit software incompatible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Control Unit software does not support the safe drive-based motion monitoring function.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check whether there are faults in the safety function alignment between the two monitoring channels (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Control Unit that supports the safe motion monitoring function.
- upgrade the Control Unit software.
Note:
SI: Safety Integrated

F30674 SI Motion P2: Safety function not supported by PROFIsafe telegram

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: POWER ON
Cause: The monitoring function enabled in p9301 and p9801 is not supported by the currently set PROFIsafe telegram (p9811).
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret bitwise binary):
Bit 24 = 1:
Transfer SLS (SG) limit value via PROFIsafe not supported (p9301.24).

Bit 25 = 1:
Transfer safe position via PROFIsafe is not supported (p9301.25).
Bit 26 = 1:
Gearbox stage switchover via PROFIsafe is not supported (p9301.26).

Remedy: - deselect the monitoring function involved (p9301, p9801).
- set the matching PROFIsafe telegram (p9811).
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed
SP: Safe Position

F30680 SI Motion P2: Checksum error safety monitoring functions

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The actual checksum calculated by the Motor Module/Hydraulic Module and entered in r9398 over the safety-relevant parameters does not match the reference checksum saved in p9399 at the last machine acceptance.
Safety-relevant parameters have been changed or a fault is present.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, interpret decimal):
0: Checksum error for SI parameters for motion monitoring.
1: Checksum error for SI parameters for component assignment.
Remedy: - check the safety-relevant parameters and if required, correct.
- set the reference checksum to the actual checksum.
- execute the function "Copy RAM to ROM".
- perform a POWER ON if safety parameters requiring a POWER ON have been modified.
- carry out an acceptance test.

F30681 SI Motion P1: Incorrect parameter value

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter cannot be parameterized with this value.
Note:
This message does not result in a safety stop response.
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
yyyy = 0:
No information available.

xxxx = 9301:
It is not permissible to enable the function "n < nx hysteresis and filtering" (p9301.16) in conjunction with the function "Extended functions without selection" (p9801.5).
xxxx = 9301 and yyyy = 8:
Referencing via SCC (p9301.27 = 1) is enabled without enabling absolutes motion monitoring functions (p9301.1 or p9301.2).
xxxx = 9334 or 9335:
The limit values of SLP have been set too high (absolute values).
xxxx = 9385:
For Safety without encoder and synchronous motor, p9385 must be set to 4.

xxxx = 9801 and yyyy = 1:
If motion monitoring functions integrated in the drive (p9801.2 = 1) and extended functions without selection (p9801.5 = 1) are activated, then PROFIsafe (p9801.3 = 1) is not possible.
xxxx = 9801 and yyyy = 2:
Extended functions without selection (p9801.5 =1) are enabled without enabling motion monitoring functions integrated in the drive (p9801.2).
xxxx = 9801 and yyyy = 3:
Onboard F-DI are enabled without enabling motion monitoring functions integrated in the drive (p9801.2).
xxxx = 9801 and yyyy = 5:
Transfer of the SLS limit value via PROFIsafe (p9301.24) has been enabled, without enabling PROFIsafe.
xxxx = 9801 and yyyy = 6:
Transfer of the safe position via PROFIsafe (p9301.25) has been enabled without enabling PROFIsafe.
xxxx = 9801 and yyyy = 7:
Safe switchover of the gearbox stages (p9301.26 = 1) has been enabled without enabling PROFIsafe.

Remedy: Correct parameter (if required, also on another monitoring channel, p9601).
Note:
For different values in the two monitoring channels, start the copy function for SI parameters on the drive (p9700 = 57 hex).
If xxxx = 9301:
Correct parameters p9501.16 and p9301.16 or deselect the extended functions without selection (p9801.5).
If xxxx = 9501 and yyyy = 8:
Inhibit referencing via SCC (p9501.27 = 1) or enable an absolute motion monitoring function (p9501.1 or p9501.2).
If xxxx = 9317:
Further, p9316.0 should be checked.
If xxxx = 9334 or 9335:
Reduce the limit values (absolute values) of SLP.
If xxxx = 9801:
yyyy = 1:
Only enable motion monitoring functions integrated in the drive (p9801.2 = 1) and extended functions without selection (p9801.5 = 1) – or only PROFIsafe (p9801.3 = 1).
yyyy = 2, 3:
Enable motion monitoring functions integrated in the drive (p9801.2 = 1).
yyyy = 5:
To transfer the SLS limit values via PROFIsafe (p9301.24 = 1), also enable PROFIsafe (p9801.3 =1) and motion monitoring functions integrated in the drive (p9801.2 = 1).
yyyy = 6:
For the safe position via PROFIsafe (p9301.25 = 1), also enable PROFIsafe (p9801.3 =1) and motion monitoring functions integrated in the drive (p9801.2 = 1).
yyyy = 7:
For safe switchover of gearbox stages (p9301.26 = 1) also enable PROFIsafe (p9801.3 =1) and motion monitoring functions integrated in the drive (p9801.2 = 1).

F30682 SI Motion P2: Monitoring function not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The monitoring function enabled in p9301, p9501, p9601, p9801, p9307 or p9507 is not supported in this firmware version.
Note:
This message does not result in a safety stop response.
Fault value (r0949, interpret decimal):
1: Monitoring function SLP not supported (p9301.1).
2: Monitoring function SCA not supported (p9301.7 and p9301.8 ... 15).
3: Monitoring function SLS override not supported (p9301.5).

	4: Monitoring function external ESR activation not supported (p9301.4).
	5: Monitoring function F-DI in PROFIsafe not supported (p9301.30).
	6: Enable actual value synchronization not supported (p9301.3).
	9: Monitoring function not supported by the firmware or enable bit not used.
	12: This Control Unit does not support operation of safety functions with a higher-level control (e.g. SINUMERIK).
	24: Monitoring function SDI not supported.
	26: Hysteresis and filtering for SSM monitoring function without an encoder not supported (p9301.16).
	27: This hardware does not support onboard F-DI and F-DO.
	30: The firmware version of the Motor Module is older than the version of the Control Unit.
	33: Safety functions without selection not supported (p9601.5, p9801.5).
	34: This module does not support safe position via PROFIsafe.
	36: Function "SS1E" not supported.
	39: This module or software version of the CU/MM does not support safe gearbox stage switchover (p9501.26).
	44: This module/this software version does not support referencing via the safety control channel (p9501.27).
	50: Shortening the switchover times for SOS (p9569/p9369, p9567/p9367) is not supported.
Remedy:	- de-select the monitoring function involved (p9301, p9501, p9601, p9801, p9307, p9507). - Upgrade the Motor Module firmware. Note: ESR: Extended Stop and Retract SCA: Safe Cam / SN: Safe software cam SDI: Safe Direction (safe motion direction) SI: Safety Integrated SLP: Safely-Limited Position / SE: Safe software limit switches SLS: Safely-Limited Speed / SG: Safely reduced speed SP: Safe Position SS1E: Safe Stop 1 external (Safe Stop 1 with external stop) See also: p9301 (SI Motion enable safety functions (Motor Module)), p9501 (SI Motion enable safety functions (Control Unit)), p9503 (SI Motion SCA (SN) enable (Control Unit)), p9601 (SI enable functions integrated in the drive (Control Unit)), p9801 (SI enable functions integrated in the drive (Motor Module)), r9871 (SI common functions (Motor Module)

F30683 SI Motion P2: SOS/SLS enable missing

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The safety-relevant basic function "SOS/SLS" is not enabled in p9301 although other safety-relevant monitoring functions are enabled. Note: This message does not result in a safety stop response.
Remedy:	Enable the function "SOS/SLS" (p9301.0) and carry out a POWER ON. Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop See also: p9301 (SI Motion enable safety functions (Motor Module))

F30684 SI Motion P2: Safely limited position limit values interchanged

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the function "Safely Limited Position" (SLP), a lower value is in p9334 than in p9335.

Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
1: Limit values SLP1 interchanged.
2: Limit values SLP2 interchanged.
See also: p9334 (SI Motion SLP upper limit values (Motor Module)), p9335 (SI Motion SLP lower limit values (Motor Module))

Remedy: - correct the lower and upper limit values (p9335, p9334).
- carry out a POWER ON (power off/on).
Note:
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches

F30685 SI Motion P2: Safely-limited speed limit value too high

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
Note:
This message does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Maximum permissible speed.

Remedy: Correct the limit values for SLS and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9331 (SI Motion SLS limit values (Motor Module))

F30688 SI Motion P2: Actual value synchronization not permissible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: - It is not permissible to enable actual value synchronization for a 1-encoder system.
- It is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
- It is not permissible to simultaneously enable actual value synchronization and safe position via PROFIsafe.
Note:
This fault results in a STOP A that cannot be acknowledged.

Remedy: - Either select the "actual value synchronization" function or parameterize a 2-encoder system.
- Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
- Either deselect the "actual value synchronization" function or do not enable "Safe position via PROFIsafe".
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
SP: Safe Position
See also: p9501 (SI Motion enable safety functions (Control Unit)), p9526 (SI Motion encoder assignment second channel)

F30692 SI Motion P2: Parameter value not permitted for encoderless

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter cannot be parameterized with this value if encoderless motion monitoring functions have been parameterized in p9306.

Note:

This message does not result in a safety stop response.

Fault value (r0949, interpret decimal):

Parameter number with the incorrect value.

See also: p9301 (SI Motion enable safety functions (Motor Module))

Remedy: - Correct the parameter specified in the fault value.

- If necessary, de-select encoderless motion monitoring functions (p9306).

See also: p9301 (SI Motion enable safety functions (Motor Module)), p9501 (SI Motion enable safety functions (Control Unit))

A30693 (F) SI P2: Safety parameter settings changed, warm restart/POWER ON required

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Safety parameters have been changed; these will only take effect following a warm restart or POWER ON.

Notice:

All changed parameters of the safety motion monitoring functions will only take effect following a warm restart or POWER ON.

Alarm value (r2124, interpret decimal):

Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.

Remedy: - carry out a warm restart (p0009 = 30, p0976 = 2, 3).

- carry out a POWER ON (power off/on) for all components.

Note:

Before performing an acceptance test, a POWER ON must be carried out for all components.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: POWER ON

C30700 SI Motion P2: STOP A initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP A (STO via the safety shutdown path of the Control Unit).

Possible causes:

- stop request from the Control Unit.
- STO not active after a parameterized time (p9357) after test stop selection.
- subsequent response to the message C30706 "SI Motion MM: SAM/SBR limit exceeded".
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C30701 "SI Motion MM: STOP B initiated".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".

Remedy: - remove the cause to the fault on the Control Unit.
- check the value in p9357, if required, increase the value.
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication).
- carry out a diagnostics routine for message C30706.
- carry out a diagnostics routine for message C30714.
- carry out a diagnostics routine for message C30701.
- carry out a diagnostics routine for message C30715.
- carry out a diagnostics routine for message C30716.
- replace the Motor Module, Power Module or Hydraulic Module.
- replace Control Unit.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe brake ramp monitoring)
SI: Safety Integrated

C30701 SI Motion P2: STOP B initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE (OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP B (braking along the OFF3 ramp).
As a result of this fault, after the time parameterized in p9356 has expired or after the speed threshold parameterized in p9360 has been fallen below, message C30700 "SI Motion MM: STOP A initiated" is output.
Possible causes:
- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C30711 "SI Motion MM: Defect in a monitoring channel".
- subsequent response to the message C30707 "SI Motion MM: tolerance for safe operating stop exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
Remedy: - remove the cause to the fault on the Control Unit.
- carry out a diagnostics routine for message C30714.
- carry out a diagnostics routine for message C30711.
- carry out a diagnostics routine for message C30707.
- carry out a diagnostics routine for message C30715.
- carry out a diagnostics routine for message C30716.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated

C30706 SI Motion P2: SAM/SBR limit exceeded

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Motion monitoring functions with encoder (p9306 = 0) or encoderless with set acceleration monitoring (SAM, p9306 = 3):
- after initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.
Motion monitoring functions encoderless with set brake ramp monitoring (SBR p9306 = 1):
- after initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.
The drive is shut down by the message C30700 "SI Motion MM: STOP A initiated".

Remedy: Check the braking behavior and, if necessary, adapt the parameterization of the parameter settings of the "SAM" or the "SBR" function.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe ramp monitoring)
SI: Safety Integrated
See also: p9348, p9381, p9382, p9383, p9548

C30707 SI Motion P2: Tolerance for safe operating stop exceeded

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The actual position has distanced itself further from the target position than the standstill tolerance.
The drive is shut down by the message C30701 "SI Motion MM: STOP B initiated".
Remedy: - check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9530 (SI Motion standstill tolerance (Control Unit))

C30708 SI Motion P2: STOP C initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: STOP2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP C (braking along the OFF3 ramp).
"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
See also: p9552 (SI Motion transition time STOP C to SOS (SBH) (Control Unit))
Remedy: - remove the cause of the fault at the control.
- carry out a diagnostics routine for messages C30714, C30715, C30716.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C30709 SI Motion P2: STOP D initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP D (braking along the path).
"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.

Possible causes:
- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
See also: p9353 (SI Motion transition time STOP D to SOS (Motor Module)), p9553 (SI Motion transition time STOP D to SOS (SBH) (Control Unit))

Remedy: - remove the cause of the fault at the control.
- carry out a diagnostics routine for messages C30714, C30715, C30716.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C30710 SI Motion P2: STOP E initiated

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP E (retraction motion).
"Safe Operating Stop" (SOS) is activated after the parameterized time has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C01715 "SI Motion CU: Safely-limited position exceeded".
- subsequent response to the message C30716 "SI Motion MM: tolerance for safe motion direction exceeded".
See also: p9354 (SI Motion transition time STOP E to SOS (Motor Module)), p9554 (SI Motion transition time STOP E to SOS (SBH) (Control Unit))

Remedy: - remove the cause of the fault at the control.
- carry out a diagnostics routine for messages C30714, C30715, C30716.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C30711 SI Motion P2: Defect in a monitoring channel

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When cross-comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
If at least one monitoring function is active, then after the parameterized timer has expired, the message C30701 "SI Motion: STOP B initiated" is output. The message is output with message value 1031 when the Sensor Module hardware is replaced.
The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply:
- differently parameterized cycle times (p9500/p9300, p9511/p9311).
- differently parameterized axis types (p9502/p9302).
- excessively fast cycle times (p9500/p9300, p9511/p9311).
- incorrect synchronization.

Message value (r9749, interpret decimal):

0 ... 999:

Number of the cross-compared data that resulted in this message.

The significance of the individual message values is described in safety message C01711 of the Control Unit.

1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.

1001: Initialization error of watchdog timer.

1002:

User agreement after the timer has expired different.

The user agreement is not consistent. After a time of 4 s has expired, the status of the user agreement is different in both monitoring channels.

1003: Reference tolerance exceeded. When the user agreement is set, the difference between the new reference point that has been determined after power up (absolute encoder) or reference point approach (distance-coded or incremental measuring system) and the safe actual position (saved value + traversing distance) is greater than the reference tolerance (p9344). In this case, the user agreement is withdrawn.

1004:

Plausibility error for user agreement.

1. If the user agreement has already been set, then setting is initiated again. In this case, the user agreement is withdrawn.

2. The user agreement was set, although the axis has still not been referenced.

1005:

- For safe motion monitoring functions without encoder: pulses already suppressed for test stop selection.

- For safe motion monitoring functions with encoder: STO already active for test stop selection.

1011: Acceptance test status between the monitoring channels differ.

1012: Plausibility violation of the actual value from the encoder.

1015: Gearbox switchover (bit 27 in PROFIsafe Telegram (takes longer than 2 min.

1020: Cyc. communication failure between the monit. cycles.

1021: Cyc. communication failure between the monit. channel and Sensor Module.

1023: Error in the effectiveness test in the DRIVE-CLiQ encoder

1024: Sign-of-life error for HTL/TTL encoders.

1030: Encoder fault detected from another monitoring channel.

1031: Data transfer error between the monitoring channel and the Sensor Module (p9526/p9326).

1040: Pulses suppressed with active encoderless monitoring functions.

1041: Current absolute value too low (encoderless)

1042: Current/voltage plausibility error

1043: Too many acceleration phases

1044: Actual current values plausibility error.

1045: CRC of the standstill position incorrect.

5000 ... 5140:

PROFIsafe message values.

For these message values, the failsafe control signals (failsafe values) are transferred to the safety functions.

The significance of the individual message values is described in safety message C01711 of the Control Unit.

6000 ... 6166:

PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).

For these message values, the failsafe control signals (failsafe values) are transferred to the safety functions.

The significance of the individual message values is described in safety fault F01611 of the Control Unit.

7000 ... 7002:

Message values of the "Safe position via PROFIsafe" function.

See also: p9555 (SI Motion transition time STOP F to STOP B (Control Unit)), r9725 (SI Motion diagnostics STOP F)

Remedy: Re message value = 1002:

- Perform safe acknowledgment, set the user agreement in both monitoring channels simultaneously (within 4 s).

Re message value = 1003:

- check the mechanical system of the axis. It is possible that the axis was shifted when switched-off, and the last saved actual position no longer corresponds with the new actual position after the system has been powered up again.

- Increase the tolerance for the actual value comparison when referencing (p9344).

Then check the actual values, perform a POWER ON and set the user agreement again.

Re message value = 1004:

For 1., the following applies: Perform safe acknowledgment. Set the user agreement again.

For 2., the following applies: Perform safe acknowledgment. Only set the user agreement again if the axis has been referenced.

Re message value = 1005:

- For safe motion monitoring functions without encoder: check the conditions for pulse enable.
- For safe motion monitoring functions with encoder: check the conditions for STO deselection.

Note:

For a power module, the test stop should always be performed for pulse enable (independent of whether with encoder or without encoder).

Re message value = 1012:

- upgrade the Sensor Module firmware to a more recent version.
- for 1-encoder systems, the following applies: check the encoder parameters for equality (p9515/p9315, p9519/p9319, p9523/p9323, p9524/p9324, p9525/p9325, p9529/p9329).
- For a 1-encoder system and 2-encoder system the following applies: in order to correctly copy the encoder parameters from p04xx, p9700 must be set to 46 and p9701 must be set to 172.
- For DQI encoders the following applies: If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.
- check the electrical cabinet design and cable routing for EMC compliance
- carry out a POWER ON (power off/on) for all components or a warm restart (p0009 = 30, p0976 = 2, 3).
- replace the hardware.

Re message value = 1024:

- check the communication link.
- increase the monitoring cycle clock settings (p9500, p9511).
- carry out a POWER ON (power off/on) for all components.
- replace the hardware.

Re message value = 1030:

- check the encoder connection.
- if required, replace the encoder.

Re message value = 1031:

When replacing a Sensor Module, carry out the following steps:

- start the copy function for the node identifier on the drive (p9700 = 1D hex).
- acknowledge the hardware CRC on the drive (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

The following always applies:

- check the encoder connection.
- if required, replace the encoder.

Re message value = 1040:

- de-select encoderless monitoring functions, select and de-select STO.
- if monitoring function is active, issue "SLS" pulse enable within 5 s of de-selecting STO.

Re message value = 6000 ... 6999:

- The significance of the individual message values is described in safety fault F01611 of the Control Unit.

Re other message values:

- the significance of the individual message values is described in safety message C01711.

Note:

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C30712 SI Motion P2: Defect in F-IO processing

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.

The safety message C30711 with message value 0 is also displayed due to initiation of STOP F.

If at least one monitoring function is active, the safety message C30701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired.

Message value (r9749, interpret decimal):

Number of the cross-compared data that resulted in this message.

Refer to the description of the message values in safety message C01712.

Remedy: - check parameterization in the parameters involved and correct if required.

- ensure equality by copying the SI data to the second channel and then carry out an acceptance test.

- check monitoring clock cycle for equality (p9500, p9300).

Note:

This message can be acknowledged via F-DI or PROFIsafe.

See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C30714 SI Motion P2: Safely-Limited Speed exceeded

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive had moved faster than that specified by the velocity limit value (p9331). The drive is stopped as a result of the configured stop response (p9363).

Message value (r9749, interpret decimal):

100: SLS1 exceeded.

200: SLS2 exceeded.

300: SLS3 exceeded.

400: SLS4 exceeded.

1000: Encoder limit frequency exceeded.

Remedy: - check the traversing/motion program in the control.

- check the limits for "SLS" function and if required, adapt (p9331).

Note:

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

SI: Safety Integrated

SLS: Safely-Limited Speed / SG: Safely reduced speed

See also: p9331 (SI Motion SLS limit values (Motor Module)), p9363 (SI Motion SLS stop response (Motor Module))

C30715 SI Motion P2: Safely-Limited Position exceeded

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The axis has moved past a parameterized position that is monitored by the "SLP" function.

Message value (r9749, interpret decimal):

10: SLP1 violated.

20: SLP2 violated.

Remedy: - check the traversing/motion program in the control.

- check the limits for "SLP" function and if required, adapt (p9534, p9535).

This message can be acknowledged as follows:

- motion monitoring functions with SINUMERIK: Via the machine control panel

Note:

SI: Safety Integrated

SLP: Safely-Limited Position / SE: Safe software limit switches

See also: p9334 (SI Motion SLP upper limit values (Motor Module)), p9335 (SI Motion SLP lower limit values (Motor Module))

C30716 SI Motion P2: Tolerance for safe motion direction exceeded

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9366).

Message value (r9749, interpret decimal):

0: Tolerance for the "safe motion direction positive" function exceeded.

1: Tolerance for the "safe motion direction negative" function exceeded.

Remedy: - check the traversing/motion program in the control.

- check the tolerance for "SDI" function and if required, adapt (p9364).

This message can be acknowledged as follows:

- Deselect the "SDI" function and select again.

- Perform a safe acknowledgment via F-DI or PROFIsafe.

Note:

SDI: Safe Direction (safe motion direction)

SI: Safety Integrated

See also: p9364 (SI Motion SDI tolerance (Motor Module)), p9365 (SI Motion SDI delay time (Motor Module)), p9366 (SI Motion SDI stop response (Motor Module))

C30730 SI Motion P2: Reference block for dynamic safely limited speed invalid

Message value: %1

Message class: Safety monitoring channel has identified an error (10)

Drive object: VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The reference block transferred via PROFIsafe is negative.

A reference block is used to generate a referred velocity limit value based on the reference quantity "Velocity limit value SLS1" (p9331[0]).

The drive is stopped as a result of the configured stop response (p9363[0]).

Message value (r9749, interpret decimal):

requested, invalid reference block.

Remedy: In the PROFIsafe telegram, input data S_SLS_LIMIT_IST must be corrected.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated

SLS: Safely-Limited Speed

C30770	**SI Motion P2: Discrepancy error of the fail-safe inputs/outputs**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The fail-safe digital inputs/digital outputs (F-DI/F-DO) show a different state longer than that parameterized in p10002 / p10102. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex xxxx: Discrepancy error for fail-safe digital inputs (F-DI). Bit 0: Discrepancy error for F-DI 0 Bit 1: Discrepancy error for F-DI 1 ... yyyy: Discrepancy error for fail-safe digital outputs (F-DO). Bit 0: Discrepancy error for F-DO 0 ... Note: If several discrepancy errors occur consecutively, then this message is only signaled for the first error that occurs.
Remedy:	- check the wiring of the F-DI (contact problems). Note: This message can be acknowledged via F-DI or PROFIsafe. Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally. For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency. If the period of a cyclic switching pulse corresponds to twice the value of p10002, then the following formulas should be checked: - p10002 < (tp / 2) - td (discrepancy time must be less than half the period minus the actual discrepancy time) - p10002 >= p9500 (discrepancy time must be no less than p9500) - p10002 > td (discrepancy time must be greater than the switch discrepancy time which may actually apply) td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI monitoring cycle (see p9500). tp = period for a switching operation in ms. When debounce p10017 is active, the discrepancy time is directly specified by the debounce time. If the period of a cyclic switching pulse corresponds to twice the debounce time, then the following formulas should be checked. - p10002 < p10017 + 1 ms - td - p10002 > td - p10002 >= p9500 Example: For a 12 ms SI monitoring cycle and a switching frequency of 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows: p10002 <= (110/2 ms) - 12 ms = 43 ms Rounded-off, p10002 <= 36 ms is obtained (since the discrepancy time can only be accepted as a whole SI monitoring cycle, the value will need to be rounded up or down to a whole SI monitoring cycle if the result is not an exact multiple of an SI monitoring cycle). Note: F-DI: Failsafe Digital Input F-DO: Failsafe Digital Output

A30772	**SI Motion P2: Test stop failsafe inputs/outputs active**
Message value:	-
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The test stop for the fail-safe digital inputs (F-DI) and/or fail-safe digital outputs (F-DO) is presently being performed. Note: F-DI: Failsafe Digital Input F-DO: Failsafe Digital Output
Remedy:	The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.

F30773	**SI Motion P2: Test stop fault Motor Module**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault has occurred on the MM side during the test stop for the fail-safe outputs. Fault value (r0949, interpret hexadecimal): RRRVWXYZ hex: R: Reserved. V: Actual state of the DO channel concerned (see X) on the CU (corresponds to the states read back from the hardware, bit 0 = DO 0, bit 1 = DO 1, etc.). W: Required state of the DO channel concerned (see X, bit 0 = DO 0, bit 1 = DO 1, etc.). X: DO channels involved, which indicate an error (bit 0 = DO 0, bit 1 = DO 1, etc.). Y: Reason for the test stop fault. Z: State of the test stop in which the fault has occurred. Y: Reason for the test stop fault Y = 1: MM side in incorrect test stop state (internal fault). Y = 2: Expected states of the DOs were not fulfilled (CU305: readback via DI 22 / CU240 readback DI 2). Y = 3: Incorrect timer state on CU side (internal fault) Y = 4: Expected states of the diag DOs were not fulfilled (CU305: internal readback on MM channel). Y = 5: Expected states of the second diag DOs were not fulfilled (CU305: internal readback on CU channel). X and V indicate the DI or Diag-DO state dependent upon the reason for the fault (2, 4 or 5). In the event of multiple test stop faults, the first one that occurred is shown. Z: Test stop state and associated test actions Z = 0 ... 3: Synchronization phase of test stop between CU and Motor Module no switching operations Z = 4: DO + OFF and DO - OFF Z = 5: Check to see if states are as expected Z = 6: DO + ON and DO - ON Z = 7: Check to see if states are as expected Z = 8: DO + OFF and DO - ON Z = 9: Check to see if states are as expected Z = 10: DO + ON and DO - OFF Z = 11: Check to see if states are as expected Z = 12: DO + OFF and DO - OFF Z = 13: Check to see if states are as expected Z = 14: End of test stop

Diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: 0/-/-/1
7: 0/-/-/0
9: 0/-/-/0
11: 1/-/-/1
13: 0/-/-/1
Second diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/-/-/1
7: -/-/-/0
9: -/-/-/1
11: -/-/-/0
13: -/-/-/1
DI expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/1/1/-
7: -/0/0/-
9: -/0/1/-
11: -/0/1/-
13: -/1/1/-

Example:
Fault F01773 (CU) is signaled with fault value = 0001_0127 and fault F30773 (MM) is signaled with fault value 0000_0127.
This means that in state 7 (Z = 7) the state of the external readback signal was not set correctly (Y = 2) after DO-0 (X = 1) was switched to ON/ON.
Fault value 0001_0127 indicates that 0 was expected (W = 0) and 1 (V = 1) was read back from the hardware.
Fault value 0000_0127 on the MM indicates that the states were as expected.
In the case of fault F30773, W and V are always identical; a value of 0 always means that 0 was expected at the readback input but was not present on the other channel (CU).

Remedy: Check the wiring of the F-DOs and restart the test stop.
Note:
The fault is withdrawn if the test stop is successfully completed.
In the event of multiple test stop faults, the first one that occurred is shown.
Once the test stop has been restarted the next queued test stop fault will be signaled (if there is one).

A30788 Automatic test stop: wait for STO deselection via SMM

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The STO function is selected via Safety Extended Functions or a safety message is present, which results in STO.
The automatic test stop was not able to be carried out since the power up.
The automatic test stop is performed after deselecting STO.
Remedy: - Deselect STO via Safety Extended Functions.
- Remove the cause of the safety message and acknowledge the fault.

C30797 SI Motion P2: Axis not safely referenced

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The standstill position saved before powering down does not match the actual position determined at power-up.

Message value (r9749, interpret decimal):
1: Axis not safely referenced.
2: User agreement missing.

Remedy: If safe automatic referencing is not possible the user must issue a user agreement for the new position using the softkey. This mean that this position is then designated as safety-relevant.
Note:
SI: Safety Integrated

C30798 SI Motion P2: Test stop running

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The test stop is active.
Remedy: Not necessary.
The message is withdrawn when the test stop is finished.
Note:
SI: Safety Integrated

C30799 SI Motion P2: Acceptance test mode active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The acceptance test mode is active.
This means the following:
- the setpoint velocity limiting is deactivated (r9733).
- the standard limit switches are deactivated during the acceptance test for function SLP (for EPOS internal, otherwise via r10234).

Remedy: Not necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated
SLP: Safely-Limited Position

N30800 (F) Power unit: Group signal

Message value: -
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: NONE
Cause: The power unit has detected at least one fault.
Remedy: Evaluate the other messages that are presently available.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F30801 Power unit DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
The computing time load might be too high.

	Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance - remove DRIVE-CLiQ components that are not required. - de-select functions that are not required. - if required, increase the sampling times (p0112, p0115). - replace the component involved.

F30802 Power unit: Time slice overflow

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred. Fault value (r0949, interpret decimal): xx: Time slice number xx
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.

F30804 (N, A) Power unit: CRC

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: OFF2 (OFF1, OFF3) Infeed: OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A CRC error has occurred for the power unit.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F30805 Power unit: EEPROM checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted. Fault value (r0949, interpret hexadecimal): 01: EEPROM access error. 02: Too many blocks in the EEPROM.
Remedy:	Replace the module.

F30809	**Power unit: Switching information not valid**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	For 3P gating unit, the following applies: The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.

A30810 (F)	**Power unit: Watchdog timer**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.
Reaction upon F:	NONE (OFF2)
Acknowl. upon F:	IMMEDIATELY

F30820	**Power unit DRIVE-CLiQ: Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early.

	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30835 Power unit DRIVE-CLiQ: Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. The nodes do not send and receive in synchronism.
	Fault cause:
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
	- replace the component involved.
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30836 Power unit DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

F30837 Power unit DRIVE-CLiQ: Component fault

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.

35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

A30840 Power unit DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.

64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30845 Power unit DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (power off/on).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30850 Power unit: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred in the power unit.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - replace power unit.
- if required, upgrade the firmware in the power unit.
- contact the Hotline.

F30851 Power unit DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.

Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

A30853 Power unit: Sign-of-life error cyclic data

Message value: -
Message class: General drive fault (19)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The power unit has detected that the cyclic setpoint telegrams of the Control Unit have not been updated on time. At least two sign-of-life errors have occurred within the window set in p7788.
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- reduce the size of the window (p7788) for monitoring.

F30860 Power unit DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.

	22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30875 Power unit DRIVE-CLiQ (CU): Supply voltage failed

Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause: 9 (= 09 hex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...). - check the dimensioning of the power supply for the DRIVE-CLiQ component.

F30885 CU DRIVE-CLiQ (CU): Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30886 PU DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F30887 Power unit DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (power unit) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F30895 PU DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30896 Power unit DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (power unit), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F30899 (N, A) Power unit: Unknown fault

Message value: New message: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F30903 Power unit: I2C bus error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: Communications error with an EEPROM or A/D converter.
Fault value (r0949, interpret hexadecimal):
80000000 hex:
- internal software error.
00000001 hex ... 0000FFFF hex:
- module fault.
Remedy: Re fault value = 80000000 hex:
- upgrade firmware to later version.
Re fault value = 00000001 hex ... 0000FFFF hex:
- replace the module.

F30907 Power unit: FPGA configuration unsuccessful

Message value: -
Message class: Hardware / software error (1)
Drive object: B_INF
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: During initialization within the power unit, an internal software error has occurred.
Remedy: - if required, upgrade the firmware in the power unit.
- replace power unit.
- contact the Hotline.

A30920 (F) Power unit: Temperature sensor fault

Message value: %1
Message class: Power electronics faulted (5)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT100: R > 375 Ohm).
2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm).
Note:
A temperature sensor is connected to the following terminals:
- "Booksize" format: X21.1/.2 or X22.1/.2
- "Chassis" format: X41.4/.3
Information on temperature sensors is provided in the following literature for example:
SINAMICS S120 Function Manual Drive Functions
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A30930 (N)	**Power unit: Component trace has saved data**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Trace data was saved in the component.
Remedy:	Not necessary. Note: For p7792= 1, the trace data of the component can be written to the memory card. See also: p7792 (Upload component trace data)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F30950	**Power unit: Internal software error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret decimal): Information about the fault source. Only for internal Siemens troubleshooting.
Remedy:	- If necessary, upgrade the firmware in the power unit to a later version. - contact the Hotline.

A30999 (F, N)	**Power unit: Unknown alarm**
Message value:	New message: %1
Message class:	Power electronics faulted (5)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the power unit by an older firmware version (r0128). - upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31100 (N, A)	**Encoder 1: Zero mark distance error**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.

	For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Fault value (r0949, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
	See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - if message output above speed threshold, reduce filter time if necessary (p0438). - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31101 (N, A) Encoder 1: Zero mark failed

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowledge:	PULSE INHIBIT
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse). See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - if message output above speed threshold, reduce filter time if necessary (p0438). - when p0437.1 is active, check p4686. - replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31103 (N, A) Encoder 1: Amplitude error track R

Message value:	R track: %1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 1. The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
The response threshold for the differential signal level of the encoder is < -1600 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly.
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31110 (N, A) Encoder 1: Serial communications error

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Fault value (r0949, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 7: Timeout for the register communication.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.
Bit 14: Fault for the register communication.
Bit 15: Internal communication error.
Note:
For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.

Remedy: Re fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.
Re fault value, bit 1 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.
Re fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 6 = 1:
- Update Sensor Module firmware.
Re fault value, bit 7 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 8 = 1:
- Check parameterization (p0429.2).
Re fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 10 = 1:
- Check parameterization (p0429.2, p0449).
Re fault value, bit 11 = 1:
- Check parameterization (p0436).
Re fault value, bit 12 = 1:
- Check parameterization (p0429.6).
Re fault value, bit 13 = 1:
- Check data line.
Re fault value, bit 14 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31111 (N, A) Encoder 1: Absolute encoder internal error

Message value: Fault cause: %1 bin, additional information: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The absolute encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.
Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.

	yyyy = 1: Bit 0: Signal amplitude outside the control range. Bit 1: Error multiturn interface Bit 2: Internal data error (singleturn/multiturn not with single steps). Bit 3: Error EEPROM interface. Bit 4: SAR converter error. Bit 5: Fault for the register data transfer. Bit 6: Internal error identified at the error pin (nErr). Bit 7: Temperature threshold exceeded or fallen below. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	For yyyy = 0: Re fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor. Re fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor. Re fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up). For yyyy = 1: Encoder is defective. Replace encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31112 (N, A) Encoder 1: Error bit set in the serial protocol

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	The encoder sends a set error bit via the serial protocol. Fault value (r0949, interpret binary): Bit 0: Fault bit in the position protocol.
Remedy:	For fault value, bit 0 = 1: In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31115 (N, A) Encoder 1: Amplitude error track A or B (A^2 + B^2)

Message value: A track: %1, B-track: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE

Acknowledge: PULSE INHIBIT

Cause: The amplitude (root of A^2 + B^2) for encoder 1 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 170 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.

The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31116 (N, A) Encoder 1: Amplitude error monitoring track A + B

Message value: A track: %1, B-track: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE

Acknowledge: IMMEDIATELY

Cause: The amplitude of the rectified encoder signals A and B and the amplitude from the roots of A^2 + B^2 for encoder 1 are not within the tolerance bandwidth.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 130 mV (observe the frequency response of the encoder) and > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31117 (N, A) Encoder 1: Inversion error signals A/B/R

Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE
Acknowledge:	IMMEDIATELY
Cause:	For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R. Fault value (r0949, interpret binary): Bits 0 ... 15: Only for internal Siemens troubleshooting. Bit 16: Error track A. Bit 17: Error track B. Bit 18: Error track R. Note: For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies: A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- Check the encoder/cable. - Does the encoder supply signals and the associated inverted signals? Note: For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies: - check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520). For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310): - pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground) - pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31118 (N, A) Encoder 1: Speed difference outside the tolerance range

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting. See also: p0491 (Motor encoder fault response ENCODER), p0492

Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31120 (N, A) Encoder 1: Power supply voltage fault

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: A power supply fault was detected for encoder 1.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Re fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
Re fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 5 = 1:
- Measuring unit correctly connected at the converter?
- Replace the measuring unit or the cable to the measuring unit.
Re fault value, bit 6, 7 = 1:
- Replace the defective EnDat 2.2 converter.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31121 (N, A) Encoder 1: Coarse position error

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: For the actual value sensing, an error was detected on the module.
As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31122 Encoder 1: Internal power supply voltage faulty

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER
Infeed: NONE
Acknowledge: IMMEDIATELY
Cause: Fault in internal reference voltage of ASICs for encoder 1.
Fault value (r0949, interpret decimal):
1: Reference voltage error.
2: Internal undervoltage.
3: Internal overvoltage.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F31123 (N, A) Encoder 1: Signal level A/B unipolar outside tolerance

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F31125 (N, A) Encoder 1: Amplitude error track A or B overcontrolled

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The amplitude of track A or B for encoder 1 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31126 (N, A) Encoder 1: Amplitude AB too high

Message value: Amplitude: %1, Angle: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of A^2 + B^2 or |A| + |B|) for encoder 1 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31129 (N, A) Encoder 1: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429.
Fault value (r0949, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31130 (N, A) Encoder 1: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Determined mechanical zero mark position (can only be used for track C/D).
xxxx: Deviation of the zero mark from the expected position as electrical angle.
Scaling: 32768 dec = 180 °
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - Check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary).
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- Check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31131 (N, A) Encoder 1: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: Absolute encoder:
When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
Limit value for the deviation:
- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.
Incremental encoder:
When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Fault value (r0949, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31135 Encoder 1: Fault when determining the position

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):

Bit 0: F1 (safety status display).

Bit 1: F2 (safety status display).

Bit 2: Reserved (lighting).

Bit 3: Reserved (signal amplitude).

Bit 4: Reserved (position value).

Bit 5: Reserved (overvoltage).

Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).

Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).

Bit 16: Lighting (--> F3x135, x = 1, 2, 3).

Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).

Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).

Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).

Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).

Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).

Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).

Bit 23: Singleturn position 2 (safety status display).

Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).

Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).

Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).

Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).

Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).

Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).

Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).

Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.

- replace the encoder if necessary.

Note:

An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.

If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F31136 Encoder 1: Error when determining multiturn information

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)

Infeed: NONE

Acknowledge: PULSE INHIBIT

Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F31137 Encoder 1: Internal fault when determining the position

Message value: Fault cause: %1 bin
Message class: Hardware / software error (1)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE
Acknowledge: PULSE INHIBIT
Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
For yy = 08 hex (bit 27 = 1), the following bit definition applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) fault position word 1.
Bit 9: F2 (safety status display) fault position word 2.
Bit 16: LED monitoring iC-LG (opto ASIC).

	Bit 17: Fault in the multiturn.
	Bit 23: Temperature outside the limit values.
	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.

F31138 Encoder 1: Internal error when determining multiturn information

Message value:	Fault cause: %1 bin
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE)
	Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder.
	Fault value (r0949, interpret binary):
	yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
	For yy = 08 hex (bit 27 = 1), the following bit definition applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) fault position word 1.
	Bit 9: F2 (safety status display) fault position word 2.
	Bit 16: LED monitoring iC-LG (opto ASIC).
	Bit 17: Fault in the multiturn.
	Bit 23: Temperature outside the limit values.
	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.

F31142 (N, A) Encoder 1: Battery voltage fault

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy:	Replace battery.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31150 (N, A) Encoder 1: Initialization error

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 is not operating correctly.

	Fault value (r0949, interpret hexadecimal):
	Encoder malfunction.
	The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
	See also: p0404 (Encoder configuration effective), p0491 (Motor encoder fault response ENCODER)
Remedy:	- Check that p0404 is correctly set.
	- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
	- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31151 (N, A) Encoder 1: Encoder speed for initialization AB too high

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE
Acknowledge:	PULSE INHIBIT
Cause:	The encoder speed is too high while initializing the Sensor Module.
Remedy:	Reduce the speed of the encoder accordingly during initialization.
	If necessary, de-activate monitoring (p0437.29).
	See also: p0437 (Sensor Module configuration extended)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31152 (N, A) Encoder 1: Maximum input frequency exceeded

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
	Infeed: ENCODER (NONE, OFF1, OFF2)
Acknowledge:	PULSE INHIBIT
Cause:	The maximum input frequency of the encoder evaluation has been exceeded.
	Fault value (r0949, interpret decimal):
	Actual input frequency in Hz.
	See also: p0408 (Rotary encoder pulse number)
Remedy:	- Reduce the speed.
	- Use an encoder with a lower pulse number (p0408).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31153 (N, A) Encoder 1: Identification error

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error has occurred when identifying the encoder (waiting) p0400=10100.
	The connected encoder was not able to be identified.

	Fault value (r0949, interpret hexadecimal):
	Bit 0: Data length incorrect
	See also: p0400 (Encoder type selection)
Remedy:	Manually configure the encoder according to the data sheet.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31160 (N, A) Encoder 1: Analog sensor channel A failed

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: ENCODER (NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4673). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31161 (N, A) Encoder 1: Analog sensor channel B failed

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: ENCODER (NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4675). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31163 (N, A)	**Encoder 1: Analog sensor position value exceeds limit value**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: ENCODER (NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The position value has exceeded the permissible range of -0.5 ... +0.5. Fault value (r0949, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic.
Remedy:	For fault value = 1: - Check the LVDT ratio (p4678). - check the reference signal connection at track B. For fault value = 2: - check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31400 (F, N)	**Encoder 1: Alarm threshold zero mark distance error**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - replace the encoder or encoder cable.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31401 (F, N)	**Encoder 1: Alarm threshold zero mark failed**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

	Alarm value (r2124, interpret decimal):
	Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the clearance between zero marks (p0425).
	- replace the encoder or encoder cable.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31405 (N, A) Encoder 1: Temperature in the encoder evaluation inadmissible

Message value:	%1
Message class:	Overtemperature of the electronic components (6)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature.
	The fault threshold is 125 ° C.
	Alarm value (r2124, interpret decimal):
	Measured board/module temperature in 0.1 °C.
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31407 (F, N) Encoder 1: Function limit reached

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder has reached one of its function limits. A service is recommended.
	Alarm value (r2124, interpret decimal):
	1 : Incremental signals
	3 : Absolute track
	4 : Code connection
Remedy:	Perform service. Replace the encoder if necessary.
	Note:
	The actual functional reserve of an encoder can be displayed via r4651.
	See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31410 (F, N) Encoder 1: Serial communications

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31411 (F, N) Encoder 1: Absolute encoder signals internal alarms

Message value: Fault cause: %1 bin, additional information: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The absolute encoder fault word includes alarm bits that have been set.
Alarm value (r2124, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR_converter error.
Bit 5: Fault for the register data transfer.
Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Replace encoder.

Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31412 (F, N) Encoder 1: Error bit set in the serial protocol

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The encoder sends a set error bit via the serial protocol.
Alarm value (r2124, interpret binary):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.
Remedy: - carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31414 (F, N) Encoder 1: Amplitude error track C or D (C^2 + D^2)

Message value: C track: %1, D track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

N31415 (F, A) Encoder 1: Amplitude alarm track A or B (A^2 + B^2)

Message value: Amplitude: %1, Angle: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The amplitude (root of A^2 + B^2) for encoder 1 exceeds the permissible tolerance.

Alarm value (r2124, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Angle

xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response threshold is < 230 mV (observe the frequency response of the encoder).

A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.

The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.

Note for Sensor Modules for resolvers (e.g. SMC10):

The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).

A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Infeed: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY

Reaction upon A: NONE

Acknowl. upon A: NONE

A31418 (F, N) Encoder 1: Speed difference per sampling rate exceeded

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.

The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.

Alarm value (r2124, interpret decimal):

Only for internal Siemens troubleshooting.

See also: p0492

Remedy:

- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Infeed: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A31419 (F, N) Encoder 1: Track A or B outside tolerance

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude/phase/offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31421 (F, N) Encoder 1: Coarse position error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Alarm value (r2124, interpret decimal):
3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy: Re alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31422 (F, N) Encoder 1: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
Alarm value (r2124, interpret decimal):
accumulated differential pulses in encoder pulses.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31429 (F, N) Encoder 1: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31431 (F, N) Encoder 1: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- Clean coding disk or remove strong magnetic fields.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31432 (F, N) Encoder 1: Rotor position adaptation corrects deviation

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31442 (F, N) Encoder 1: Battery voltage pre-alarm

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.

Remedy:	Replace battery.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31443 (F, N) Encoder 1: Unipolar CD signal level outside specification

Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - Monitoring active (p0437.31 = 1). See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)? - replace the encoder cable.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31460 (N) Encoder 1: Analog sensor channel A failed

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The input voltage of the analog sensor is outside the permissible limits. Alarm value (r2124, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside measuring range set in p4673. 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	Re alarm value = 1: - check the output voltage of the analog sensor. Re alarm value = 2: - check the voltage setting for each encoder period (p4673). Re alarm value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31461 (N) Encoder 1: Analog sensor channel B failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31462 (N) Encoder 1: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
See also: p4670 (Analog sensor configuration)
Reaction upon N: NONE
Acknowl. upon N: NONE

A31463 (N) Encoder 1: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31470 (F, N) Encoder 1: Soiling detected

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.

Remedy: - check the plug connections.

- replace the encoder or encoder cable.

Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Infeed: NONE (OFF1, OFF2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F31500 (N, A) Encoder 1: Position tracking traversing range exceeded

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: OFF1 (NONE, OFF2, OFF3)

Infeed: OFF1 (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.

For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.

For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

Remedy: The fault should be resolved as follows:

- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31501 (N, A) Encoder 1: Position tracking encoder position outside tolerance window

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: OFF1 (NONE, OFF2, OFF3)

Infeed: OFF1 (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.

Fault value (r0949, interpret decimal):

Deviation (difference) to the last encoder position in increments of the absolute value.

The sign designates the traversing direction.

Note:

The deviation (difference) found is also displayed in r0477.

See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference)

Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).

See also: p0010

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31502 (N, A) Encoder 1: Encoder with measuring gear without valid signals

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF1 (OFF2, OFF3)
Infeed: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gear no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31503 (N, A) Encoder 1: Position tracking cannot be reset

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gear cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31700 Encoder 1: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N31800 (F)	**Encoder 1: Group signal**
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: OFF2 (NONE)
Acknowledge:	NONE
Cause:	The motor encoder has detected at least one fault. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	Evaluate the other messages that are presently available.
Reaction upon F:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: OFF2 (NONE)
Acknowl. upon F:	IMMEDIATELY

F31801 (N, A)	**Encoder 1 DRIVE-CLiQ: Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31802 (N, A)	**Encoder 1: Time slice overflow**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred in encoder 1. Fault value (r0949, interpret hexadecimal): yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved x = 9: Time slice overflow of the fast (current controller clock cycle) time slice. x = A: Time slice overflow of the average time slice. x = C: Time slice overflow of the slow time slice.

	yx = 3E7:
	Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
	See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	Increase the current controller sampling time
	Note:
	For a current controller sampling time = 31.25 µs, use an SMx20 with order number 6SL3055-0AA00-5xA3.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31804 (N, A) Encoder 1: Checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE)
	Infeed: OFF2 (NONE)
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Memory area involved.
	xxxx: Difference between the checksum at POWER ON and the actual checksum.
	See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- carry out a POWER ON (power off/on).
	- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
	- check whether the permissible ambient temperature for the component is maintained.
	- replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31805 (N, A) Encoder 1: EEPROM checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE)
	Infeed: OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted.
	Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
	See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	Replace the module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31806 (N, A)	**Encoder 1: Initialization error**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: OFF2 (NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized. Fault value (r0949, interpret hexadecimal): Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4). Bit 2: Mid-voltage matching for track A unsuccessful. Bit 3: Mid-voltage matching for track B unsuccessful. Bit 4: Mid-voltage matching for acceleration input unsuccessful. Bit 5: Mid-voltage matching for track safety A unsuccessful. Bit 6: Mid-voltage matching for track safety B unsuccessful. Bit 7: Mid-voltage matching for track C unsuccessful. Bit 8: Mid-voltage matching for track D unsuccessful. Bit 9: Mid-voltage matching for track R unsuccessful. Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V) Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V) Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V) Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V) Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V) Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V) Bit 16: Internal fault - fault when reading a register (CAFE) Bit 17: Internal fault - fault when writing a register (CAFE) Bit 18: Internal fault: No mid-voltage matching available Bit 19: Internal error - ADC access error. Bit 20: Internal error - no zero crossover found. Bit 28: Error while initializing the EnDat 2.2 measuring unit. Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit. Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect. Bit 31: Data of the EnDat 2.2 measuring unit inconsistent. Note: Bit 0, 1: Up to 6SL3055-0AA00-5*A0 Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	Acknowledge fault. If the fault cannot be acknowledged: Bits 2 ... 9: Check encoder power supply. Bits 2 ... 14: Check the corresponding cable. Bit 15 with no other bits: Check track R, check settings in p0404. Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit. Bit 29 ... 31: Replace the defective measuring unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).

Cause 1:

- The encoder was replaced.

Cause 2:

- A third-party, built-in or linear motor was re-commissioned.

Cause 3:

- The motor with integrated and adjusted encoder was replaced.

Cause 4:

- The firmware was updated to a version that checks the encoder serial number.

Note:

With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).

When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).

Proceed as follows to hide serial number monitoring:

- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.

- parameterize F07414 as message type N (p2118, p2119).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Re causes 1, 2:

Carry out an automatic adjustment using the pole position identification routine. Acknowledge fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.

SERVO:

If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.

or

Set the adjustment via p0431. In this case, the new serial number is automatically accepted.

or

Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.

Re causes 3, 4:

Accept the new serial number with p0440 = 1.

Reaction upon F: Vector: NONE (ENCODER, OFF2)

Infeed: OFF2 (NONE)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, ENC, VECTOR_G

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.

Fault value (r0949, interpret decimal):

0: Application cycle is not supported.

1: DRIVE-CLiQ cycle is not supported.

	2: Distance between RX and TX instants in time too low.
	3: TX instant in time too early.
Remedy:	Carry out a POWER ON (power off/on) for all components.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31813 Encoder 1: Hardware logic unit failed

Message value: Fault cause: %1 bin

Message class: Hardware / software error (1)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE

Acknowledge: PULSE INHIBIT

Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit 0: ALU watchdog has responded.
Bit 1: ALU has detected a sign-of-life error.

Remedy: Replace encoder.

F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31835 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31840 Encoder 1 DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F31845 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Carry out a POWER ON (power off/on).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31850 (N, A) Encoder 1: Encoder evaluation internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2 (NONE)
Acknowledge: POWER ON
Cause: An internal software error has occurred in the Sensor Module of encoder 1.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
11000 ... 11499: Descriptive data from EEPROM incorrect.
11500 ... 11899: Calibration data from EEPROM incorrect.
11900 ... 11999: Configuration data from EEPROM incorrect.
12000 ... 12008: Communication with AD converter faulted.
16000: DRIVE-CLiQ encoder initialization application error.
16001: DRIVE-CLiQ encoder initialization ALU error.
16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
16003: DRIVE-CLiQ encoder safety initialization error.
16004: DRIVE-CLiQ encoder internal system error.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31851 (N, A) Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - Upgrade the firmware of the component involved.
- carry out a POWER ON (power off/on) for the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31860 (N, A)	**Encoder 1 DRIVE-CLiQ (CU): Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. 17 (= 11 hex): CRC error and the receive telegram is too early. 18 (= 12 hex): The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex): The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex): The length of the receive telegram does not match the receive list and the receive telegram is too early. 21 (= 15 hex): The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31875 (N, A) Encoder 1 DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2

Message class: Supply voltage fault (undervoltage) (3)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: OFF2

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).

- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the power supply for the DRIVE-CLiQ component.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31885 (N, A) Encoder 1 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, ENC, VECTOR_G

Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE (OFF1, OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.

The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

98 (= 62 hex):

Error at the transition to cyclic operation.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the power supply voltage of the component involved.

- carry out a POWER ON.

- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31886 (N, A)	**Encoder 1 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON. - check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31887 (N, A)	**Encoder 1 DRIVE-CLiQ (CU): Component fault**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31895 (N, A) Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31896 (N, A) Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: OFF2 (ENCODER, IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31899 (N, A) Encoder 1: Unknown fault

Message value: New message: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.

	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
	See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31902 (F, N) Encoder 1: SPI-BUS error occurred

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact the Hotline.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31903 (F, N) Encoder 1: I2C-BUS error occurred

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus.
	Fault value (r0949, interpret hexadecimal):
	Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact the Hotline.
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31905 (N, A) Encoder 1: Parameterization error

Message value:	Parameter: %1, supplementary information: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
	Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 1 was detected as being incorrect.
	It is possible that the parameterized encoder type does not match the connected encoder.

The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
xxxx = 421:
For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
yyyy = 0:
No information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For an SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.
yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.
yyyy = 9:
The length of the position in the EnDat protocol may be a maximum of 32 bits.
yyyy = 10:
The connected encoder is not supported.
yyyy = 11:
The hardware does not support track monitoring.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31912 Encoder 1: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE)
Infeed: ENCODER (NONE)
Acknowledge: PULSE INHIBIT
Cause: The selected device combination is not supported.
Fault value (r0949, interpret decimal):
1003:
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.

1005:
The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
1006:
The maximum duration (31.25 μs) of the EnDat transfer was exceeded.
2001:
The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
2002:
The resolution of the linear measuring unit does not match the pole pair width of the linear motor

Remedy: Re fault value = 1003, 1005, 1006:
- Use a measuring unit that is permissible.
For fault value = 2001:
- Set a permissible cycle combination (if required, use standard settings).
For fault value = 2002:
- Use a measuring unit with a lower resolution (p0422).

A31915 (F, N) Encoder 1: Configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 1 is incorrect.
Alarm value (r2124, interpret decimal):
1:
Re-parameterization between fault/alarm is not permissible.
419:
When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy: Re alarm value = 1:
No re-parameterization between fault/alarm.
Re alarm value = 419:
Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31916 (N, A) Encoder 1: Parameterization fault

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, VECTOR_G
Reaction: Vector: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 1 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
Parameter number.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31916 (N, A) Encoder 1: Parameterization fault

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: ENC
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 1 was detected as being incorrect.
In the case of the ENCODER drive object, the selected encoder type (rotary/linear) might not match the function module setting (r0108.12).
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
Parameter number.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- if a linear encoder has been selected in parameter p0400/p0404, the "linear encoder" function module has to be activated (r0108.12 = 1)
- if a rotary encoder has been selected in parameter p0400/p0404, the "linear encoder" function module should not be activated (r0108.12 = 0)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31920 (F, N) Encoder 1: Temperature sensor fault

Message value: Fault cause: %1, channel number: %2
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Fault cause:
1 (= 01 hex):
Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
2 (= 02 hex):
Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Additional values:
Only for internal Siemens troubleshooting.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = channel number, xx = error cause
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31930 (N) Encoder 1: Data logger has saved data

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.
The diagnostics data is saved in the following folder:
/USER/SINAMICS/DATA/SMTRC00.BIN
...
/USER/SINAMICS/DATA/SMTRC07.BIN
/USER/SINAMICS/DATA/SMTRCIDX.TXT
The following information is contained in the TXT file:
- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).
Note:
Only Siemens can evaluate the BIN files.
Remedy: Not necessary.
The alarm disappears automatically.
The data logger is ready to record the next fault case.
Reaction upon N: NONE
Acknowl. upon N: NONE

A31940 (F, N) Encoder 1: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: B_INF, ENC, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.
Fault value (r0949, interpret decimal):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy: - Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.
Reaction upon F: Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31950	**Encoder 1: Internal software error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	ENCODER (OFF2)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred. Fault value (r0949, interpret decimal): The fault value contains information regarding the fault source. Only for internal Siemens troubleshooting.
Remedy:	- If necessary, upgrade the firmware in the Sensor Module to a later version. - contact the Hotline.

A31999 (F, N)	**Encoder 1: Unknown alarm**
Message value:	New message: %1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	B_INF, ENC, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	Vector: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32100 (N, A)	**Encoder 2: Zero mark distance error**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - if message output above speed threshold, reduce filter time if necessary (p0438). - replace the encoder or encoder cable.

Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32101 (N, A) Encoder 2: Zero mark failed

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The 1.5 x parameterized zero mark distance was exceeded.

The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Fault value (r0949, interpret decimal):

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable.

Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32103 (N, A) Encoder 2: Amplitude error track R

Message value: R track: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 2.

The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)

The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.

The response threshold for the differential signal level of the encoder is < -1600 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.

The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).

The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

Remedy:
- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly.

- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32110 (N, A) Encoder 2: Serial communications error

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Fault value (r0949, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 7: Timeout for the register communication.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.
Bit 14: Fault for the register communication.
Bit 15: Internal communication error.
Note:
For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.
Remedy: Re fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.
Re fault value, bit 1 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.
Re fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 6 = 1:
- Update Sensor Module firmware.
Re fault value, bit 7 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 8 = 1:
- Check parameterization (p0429.2).
Re fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 10 = 1:
- Check parameterization (p0429.2, p0449).

	Re fault value, bit 11 = 1:
	- Check parameterization (p0436).
	Re fault value, bit 12 = 1:
	- Check parameterization (p0429.6).
	Re fault value, bit 13 = 1:
	- Check data line.
	Re fault value, bit 14 = 1:
	- Incorrect encoder type / replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32111 (N, A) Encoder 2: Absolute encoder internal fault

Message value: Fault cause: %1 bin, additional information: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The absolute encoder fault word supplies fault bits that have been set.

Fault value (r0949, interpret binary):

yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause

yyyy = 0:

Bit 0: Lighting system failed.

Bit 1: Signal amplitude too low.

Bit 2: Position value incorrect.

Bit 3: Encoder power supply overvoltage condition.

Bit 4: Encoder power supply undervoltage condition.

Bit 5: Encoder power supply overcurrent condition.

Bit 6: The battery must be changed.

yyyy = 1:

Bit 0: Signal amplitude outside the control range.

Bit 1: Error multiturn interface

Bit 2: Internal data error (singleturn/multiturn not with single steps).

Bit 3: Error EEPROM interface.

Bit 4: SAR converter error.

Bit 5: Fault for the register data transfer.

Bit 6: Internal error identified at the error pin (nErr).

Bit 7: Temperature threshold exceeded or fallen below.

Remedy: For yyyy = 0:

Re fault value, bit 0 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 1 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 2 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 3 = 1:

5 V power supply voltage fault.

When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.

When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.

Re fault value, bit 4 = 1:

5 V power supply voltage fault.

When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.

	When using a motor with DRIVE-CLiQ: Replace the motor.
	Re fault value, bit 5 = 1:
	Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
	Re fault value, bit 6 = 1:
	The battery must be changed (only for encoders with battery back-up).
	For yyyy = 1:
	Encoder is defective. Replace encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32115 (N, A) Encoder 2: Amplitude error track A or B (A^2 + B^2)

Message value:	A track: %1, B-track: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The amplitude (root of A^2 + B^2) for encoder 2 exceeds the permissible tolerance.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex:
	yyyy = Signal level, track B (16 bits with sign).
	xxxx = Signal level, track A (16 bits with sign).
	The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
	The response thresholds are < 170 mV (observe the frequency response of the encoder) and > 750 mV.
	A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
	Note for Sensor Modules for resolvers (e.g. SMC10):
	The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
	A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- check the plug connections.
	- replace the encoder or encoder cable.
	- check the Sensor Module (e.g. contacts).
	The following applies to measuring systems without their own bearing system:
	- adjust the scanning head and check the bearing system of the measuring wheel.
	The following applies for measuring systems with their own bearing system:
	- ensure that the encoder housing is not subject to any axial force.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32116 (N, A) Encoder 2: Amplitude error monitoring track A + B

Message value:	A track: %1, B-track: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The amplitude of the rectified encoder signals A and B and the amplitude from the roots of A^2 + B^2 for encoder 2 are not within the tolerance bandwidth.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Signal level, track B (16 bits with sign).

xxxx = Signal level, track A (16 bits with sign).

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response thresholds are < 130 mV (observe the frequency response of the encoder) and > 955 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.

- check the plug connections.

- replace the encoder or encoder cable.

- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32117 (N, A) Encoder 2: Inversion error signals A/B/R

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.

Fault value (r0949, interpret binary):

Bits 0 ... 15: Only for internal Siemens troubleshooting.

Bit 16: Error track A.

Bit 17: Error track B.

Bit 18: Error track R.

Note:

For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies:

A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.

Remedy: - Check the encoder/cable.

- Does the encoder supply signals and the associated inverted signals?

Note:

For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:

- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).

For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):

- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)

- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32118 (N, A)	**Encoder 2: Speed difference outside the tolerance range**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492
Remedy:	- check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32120 (N, A)	**Encoder 2: Power supply voltage fault**
Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	A power supply fault was detected for encoder 2. Fault value (r0949, interpret binary): Bit 0: Undervoltage condition on the sense line. Bit 1: Overcurrent condition for the encoder power supply. Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative. Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive. Bit 4: The 24 V power supply through the Power Module (PM) is overloaded. Bit 5: Overcurrent at the EnDat connection of the converter. Bit 6: Overvoltage at the EnDat connection of the converter. Bit 7: Hardware fault at the EnDat connection of the converter. Note: If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
Remedy:	Re fault value, bit 0 = 1: - correct encoder cable connected? - check the plug connections of the encoder cable. - SMC30: Check the parameterization (p0404.22). Re fault value, bit 1 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. Re fault value, bit 2 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. Re fault value, bit 3 = 1: - correct encoder cable connected? - replace the encoder or encoder cable. Re fault value, bit 5 = 1: - Measuring unit correctly connected at the converter? - Replace the measuring unit or the cable to the measuring unit.

	Re fault value, bit 6, 7 = 1:
	- Replace the defective EnDat 2.2 converter.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32121 (N, A) Encoder 2: Coarse position error

Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32122 Encoder 2: Internal power supply voltage faulty

Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	Fault in internal reference voltage of ASICs for encoder 2. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F32123 (N, A) Encoder 2: Signal level A/B unipolar outside tolerance

Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance. Fault value (r0949, interpret binary): Bit 0 = 1: Either AP or AN outside the tolerance. Bit 16 = 1: Either BP or BN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - Monitoring active (p0437.31 = 1).
Remedy:	- make sure that the encoder cables and shielding are installed in an EMC-compliant manner. - check the plug connections and contacts of the encoder cable. - check the short-circuit of a signal cable with mass or the operating voltage. - replace the encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32125 (N, A) Encoder 2: Amplitude error track A or B overcontrolled

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The amplitude of track A or B for encoder 2 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32126 (N, A) Encoder 2: Amplitude AB too high

Message value: Amplitude: %1, Angle: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of A^2 + B^2 or |A| + |B|) for encoder 2 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F32129 (N, A) Encoder 2: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.

One period of track C/D corresponds to 360 ° mechanical.

One period of the Hall signal corresponds to 360 ° electrical.

The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.

After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.

Fault value (r0949, interpret decimal):

For track C/D, the following applies:

Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).

For Hall signals, the following applies:

Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy:
- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32130 (N, A) Encoder 2: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.

When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.

When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Determined mechanical zero mark position (can only be used for track C/D).

xxxx: Deviation of the zero mark from the expected position as electrical angle.

Scaling: 32768 dec = 180 °

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- Check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F32131 (N, A) Encoder 2: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32135 Encoder 2: Fault when determining the position

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):

Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F32136 Encoder 2: Error when determining multiturn information

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F32137 Encoder 2: Internal fault when determining the position

Message value: Fault cause: %1 bin
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
For yy = 08 hex (bit 27 = 1), the following bit definition applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) fault position word 1.
Bit 9: F2 (safety status display) fault position word 2.
Bit 16: LED monitoring iC-LG (opto ASIC).
Bit 17: Fault in the multiturn.
Bit 23: Temperature outside the limit values.
Note:
For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

F32138 Encoder 2: Internal error when determining multiturn information

Message value: Fault cause: %1 bin
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.

	Fault value (r0949, interpret binary):
	yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
	For yy = 08 hex (bit 27 = 1), the following bit definition applies:
	Bit 1: Signal monitoring (sin/cos).
	Bit 8: F1 (safety status display) fault position word 1.
	Bit 9: F2 (safety status display) fault position word 2.
	Bit 16: LED monitoring iC-LG (opto ASIC).
	Bit 17: Fault in the multiturn.
	Bit 23: Temperature outside the limit values.
	Note:
	For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value.
	- if required, replace the DRIVE-CLiQ encoder.

F32142 (N, A) Encoder 2: Battery voltage fault

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy:	Replace battery.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32150 (N, A) Encoder 2: Initialization error

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 is not operating correctly.
	Fault value (r0949, interpret hexadecimal):
	Encoder malfunction.
	The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:	- Check that p0404 is correctly set.
	- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
	- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32151 (N, A) Encoder 2: Encoder speed for initialization AB too high

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder speed is too high while initializing the Sensor Module.

Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32152 (N, A) Encoder 2: Maximum input frequency exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum input frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy: - Reduce the speed.
- Use an encoder with a lower pulse number (p0408).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32153 (N, A) Encoder 2: Identification error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error has occurred when identifying the encoder (waiting) p0400=10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect
See also: p0400 (Encoder type selection)
Remedy: Manually configure the encoder according to the data sheet.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32160 (N, A) Encoder 2: Analog sensor channel A failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).

Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32161 (N, A) Encoder 2: Analog sensor channel B failed

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4675). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32163 (N, A) Encoder 2: Analog sensor position value exceeds limit value

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The position value has exceeded the permissible range of -0.5 ... +0.5. Fault value (r0949, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic.
Remedy:	For fault value = 1: - Check the LVDT ratio (p4678). - check the reference signal connection at track B. For fault value = 2: - check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32400 (F, N) Encoder 2: Alarm threshold zero mark distance error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.

For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.

The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Alarm value (r2124, interpret decimal):

Last measured zero mark distance in increments (4 increments = 1 encoder pulse).

The sign designates the direction of motion when detecting the zero mark distance.

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32401 (F, N) Encoder 2: Alarm threshold zero mark failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The 1.5 x parameterized zero mark distance was exceeded.

The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Alarm value (r2124, interpret decimal):

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32405 (N, A) Encoder 2: Temperature in the encoder evaluation inadmissible

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature.

The fault threshold is 125 ° C.

Alarm value (r2124, interpret decimal):

Measured board/module temperature in 0.1 °C.

Remedy: Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32407 (F, N) Encoder 2: Function limit reached

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The encoder has reached one of its function limits. A service is recommended.
Alarm value (r2124, interpret decimal):
1 : Incremental signals
3 : Absolute track
4 : Code connection
Remedy: Perform service. Replace the encoder if necessary.
Note:
The actual functional reserve of an encoder can be displayed via r4651.
See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32410 (F, N) Encoder 2: Serial communications

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32411 (F, N) Encoder 2: Absolute encoder signals internal alarms

Message value: Fault cause: %1 bin, additional information: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The absolute encoder fault word includes alarm bits that have been set.
Alarm value (r2124, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR converter error.
Bit 5: Fault for the register data transfer.
Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.
Remedy: Replace encoder.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32412 (F, N) Encoder 2: Error bit set in the serial protocol

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The encoder sends a set error bit via the serial protocol.
Alarm value (r2124, interpret binary):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32414 (F, N)	**Encoder 2: Amplitude error track C or D (C^2 + D^2)**
Message value:	C track: %1, D track: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex: yyyy = Signal level, track D (16 bits with sign). xxxx = Signal level, track C (16 bits with sign). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note: If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - check the Hall sensor box.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

N32415 (F, A)	**Encoder 2: Amplitude alarm track A or B (A^2 + B^2)**
Message value:	Amplitude: %1, Angle: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude (root of A^2 + B^2) for encoder 2 exceeds the permissible tolerance. Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex: yyyy = Angle xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign) The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold is < 230 mV (observe the frequency response of the encoder). A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec. The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B. Note for Sensor Modules for resolvers (e.g. SMC10): The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms). A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec. Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range. - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable.

	- check the Sensor Module (e.g. contacts).
	- if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32418 (F, N) Encoder 2: Speed difference per sampling rate exceeded

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492
Remedy:	- check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the setting of p0492.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32419 (F, N) Encoder 2: Track A or B outside tolerance

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude/phase/offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxxx1: Minimum of the offset correction, track B xxxx2: Maximum of the offset correction, track B xxx1x: Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A xx1xx: Minimum of the amplitude correction, track B/A xx2xx: Maximum of the amplitude correction, track B/A x1xxx: Minimum of the phase error correction x2xxx: Maximum of the phase error correction 1xxxx: Minimum of the cubic correction 2xxxx: Maximum of the cubic correction
Remedy:	- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders). - check the plug connections (also the transition resistance). - check the encoder signals. - replace the encoder or encoder cable.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY

Reaction upon N: NONE
Acknowl. upon N: NONE

A32421 (F, N) Encoder 2: Coarse position error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.

Alarm value (r2124, interpret decimal):

3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.

Remedy: Re alarm value = 3:

- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32422 (F, N) Encoder 2: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.

This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.

The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).

Alarm value (r2124, interpret decimal):

accumulated differential pulses in encoder pulses.

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32429 (F, N) Encoder 2: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.

One period of track C/D corresponds to 360 ° mechanical.

One period of the Hall signal corresponds to 360 ° electrical.

The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32431 (F, N) Encoder 2: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- Clean coding disk or remove strong magnetic fields.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32432 (F, N) Encoder 2: Rotor position adaptation corrects deviation

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32442 (F, N) Encoder 2: Battery voltage pre-alarm

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy: Replace battery.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32443 (F, N) Encoder 2: Unipolar CD signal level outside specification

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32460 (N) Encoder 2: Analog sensor channel A failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).

Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32461 (N) Encoder 2: Analog sensor channel B failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32462 (N) Encoder 2: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
See also: p4670 (Analog sensor configuration)

Reaction upon N: NONE
Acknowl. upon N: NONE

A32463 (N) Encoder 2: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.

Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32470 (F, N) Encoder 2: Soiling detected

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
Remedy: - check the plug connections.
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32500 (N, A) Encoder 2: Position tracking traversing range exceeded

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.

For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.

For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32501 (N, A) Encoder 2: Position tracking encoder position outside tolerance window

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.

Fault value (r0949, interpret decimal):

Deviation (difference) to the last encoder position in increments of the absolute value.

The sign designates the traversing direction.

Note:

The deviation (difference) found is also displayed in r0477.

See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference)

Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32502 (N, A) Encoder 2: Encoder with measuring gear without valid signals

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gear no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32503 (N, A) Encoder 2: Position tracking cannot be reset

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gear cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32700 Encoder 2: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N32800 (F) Encoder 2: Group signal

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32802 (N, A) Encoder 2: Time slice overflow

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred in encoder 2.
Fault value (r0949, interpret hexadecimal):
yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
x = 9:
Time slice overflow of the fast (current controller clock cycle) time slice.
x = A:
Time slice overflow of the average time slice.
x = C:
Time slice overflow of the slow time slice.
yx = 3E7:
Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy: Increase the current controller sampling time
Note:
For a current controller sampling time = 31.25 µs, use an SMx20 with order number 6SL3055-0AA00-5xA3.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F32804 (N, A) **Encoder 2: Checksum error**

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: POWER ON (IMMEDIATELY)
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32805 (N, A) **Encoder 2: EEPROM checksum error**

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32806 (N, A) **Encoder 2: Initialization error**

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.
Bit 5: Mid-voltage matching for track safety A unsuccessful.
Bit 6: Mid-voltage matching for track safety B unsuccessful.
Bit 7: Mid-voltage matching for track C unsuccessful.
Bit 8: Mid-voltage matching for track D unsuccessful.

	Bit 9: Mid-voltage matching for track R unsuccessful.
	Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
	Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
	Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
	Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
	Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
	Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
	Bit 16: Internal fault - fault when reading a register (CAFE)
	Bit 17: Internal fault - fault when writing a register (CAFE)
	Bit 18: Internal fault: No mid-voltage matching available
	Bit 19: Internal error - ADC access error.
	Bit 20: Internal error - no zero crossover found.
	Bit 28: Error while initializing the EnDat 2.2 measuring unit.
	Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
	Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
	Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.
	Note:
	Bit 0, 1: Up to 6SL3055-0AA00-5*A0
	Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher
Remedy:	Acknowledge fault.
	If the fault cannot be acknowledged:
	Bits 2 ... 9: Check encoder power supply.
	Bits 2 ... 14: Check the corresponding cable.
	Bit 15 with no other bits: Check track R, check settings in p0404.
	Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
	Bit 29 ... 31: Replace the defective measuring unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32811 (F, N) Encoder 2: Encoder serial number changed

Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
	- The encoder was replaced.
	Note:
	With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
	When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
	Proceed as follows to hide serial number monitoring:
	- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.
Remedy:	Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32812 (N, A)	**Encoder 2: Requested cycle or RX-/TX timing not supported**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A cycle requested from the Control Unit or RX/TX timing is not supported. Fault value (r0949, interpret decimal): 0: Application cycle is not supported. 1: DRIVE-CLiQ cycle is not supported. 2: Distance between RX and TX instants in time too low. 3: TX instant in time too early.
Remedy:	Carry out a POWER ON (power off/on) for all components.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32813	**Encoder 2: Hardware logic unit failed**
Message value:	Fault cause: %1 bin
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Fault value (r0949, interpret binary): Bit 0: ALU watchdog has responded. Bit 1: ALU has detected a sign-of-life error.
Remedy:	Replace encoder.

F32820 (N, A)	**Encoder 2 DRIVE-CLiQ: Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32835 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32836 (N, A) Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32837 (N, A) Encoder 2 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32840 Encoder 2 DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F32845 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (power off/on).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32850 (N, A)	**Encoder 2: Encoder evaluation internal software error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred in the Sensor Module of encoder 2. Fault value (r0949, interpret decimal): 1: Background time slice is blocked. 2: Checksum over the code memory is not OK. 10000: OEM memory of the EnDat encoder contains data that cannot be interpreted. 11000 ... 11499: Descriptive data from EEPROM incorrect. 11500 ... 11899: Calibration data from EEPROM incorrect. 11900 ... 11999: Configuration data from EEPROM incorrect. 12000 ... 12008: Communication with AD converter faulted. 16000: DRIVE-CLiQ encoder initialization application error. 16001: DRIVE-CLiQ encoder initialization ALU error. 16002: DRIVE-CLiQ encoder HISI / SISI initialization error. 16003: DRIVE-CLiQ encoder safety initialization error. 16004: DRIVE-CLiQ encoder internal system error.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module. - contact the Hotline.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32851 (N, A)	**Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- Upgrade the firmware of the component involved. - carry out a POWER ON (power off/on) for the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32860 (N, A) **Encoder 2 DRIVE-CLiQ (CU): Telegram error**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the power unit in the telegram and in the receive list do not match.

9 (= 09 hex):

The error bit in the receive telegram is set.

16 (= 10 hex):

The receive telegram is too early.

17 (= 11 hex):

CRC error and the receive telegram is too early.

18 (= 12 hex):

The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.

19 (= 13 hex):

The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.

20 (= 14 hex):

The length of the receive telegram does not match the receive list and the receive telegram is too early.

21 (= 15 hex):

The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).

- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32875 (N, A)	**Encoder 2 DRIVE-CLiQ (CU): Supply voltage failed**
Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause: 9 (= 09 hex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...). - check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32885 (N, A)	**Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32886 (N, A)	**Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32887 (N, A)	**Encoder 2 DRIVE-CLiQ (CU): Component fault**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32895 (N, A) Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32896 (N, A) Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32899 (N, A) Encoder 2: Unknown fault

Message value: New message: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32905 (N, A) Encoder 2: Parameterization error

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 2 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
xxxx = 421:
For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
yyyy = 0:
No information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For an SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.

yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.
yyyy = 9:
The length of the position in the EnDat protocol may be a maximum of 32 bits.
yyyy = 10:
The connected encoder is not supported.
yyyy = 11:
The hardware does not support track monitoring.

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32912 Encoder 2: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The selected device combination is not supported.
Fault value (r0949, interpret decimal):
1003:
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.
1005:
The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
1006:
The maximum duration (31.25 µs) of the EnDat transfer was exceeded.
2001:
The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
2002:
The resolution of the linear measuring unit does not match the pole pair width of the linear motor

Remedy: Re fault value = 1003, 1005, 1006:
- Use a measuring unit that is permissible.
For fault value = 2001:
- Set a permissible cycle combination (if required, use standard settings).
For fault value = 2002:
- Use a measuring unit with a lower resolution (p0422).

A32915 (F, N) Encoder 2: Configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 2 is incorrect.
Alarm value (r2124, interpret decimal):
1:
Re-parameterization between fault/alarm is not permissible.

	419:
	When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy:	Re alarm value = 1:
	No re-parameterization between fault/alarm.
	Re alarm value = 419:
	Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F:	NONE (IASC/DCBRK)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32916 (N, A) Encoder 2: Parameterization fault

Message value:	Parameter: %1, supplementary information: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 2 was detected as being incorrect.
	It is possible that the parameterized encoder type does not match the connected encoder.
	The parameter involved can be determined as follows:
	- determine the parameter number using the fault value (r0949).
	- determine the parameter index (p0187).
	Fault value (r0949, interpret decimal):
	Parameter number.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized.
	- correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32920 (F, N) Encoder 2: Temperature sensor fault

Message value:	Fault cause: %1, channel number: %2
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred.
	Fault cause:
	1 (= 01 hex):
	Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
	2 (= 02 hex):
	Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
	Additional values:
	Only for internal Siemens troubleshooting.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = channel number, xx = error cause
Remedy:	- check that the encoder cable is the correct type and is correctly connected.
	- check the temperature sensor selection in p0600 to p0603.
	- replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY

Reaction upon N: NONE
Acknowl. upon N: NONE

A32930 (N) Encoder 2: Data logger has saved data

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.

The diagnostics data is saved in the following folder:

/USER/SINAMICS/DATA/SMTRC00.BIN

...

/USER/SINAMICS/DATA/SMTRC07.BIN

/USER/SINAMICS/DATA/SMTRCIDX.TXT

The following information is contained in the TXT file:

- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).

Note:

Only Siemens can evaluate the BIN files.

Remedy: Not necessary.

The alarm disappears automatically.

The data logger is ready to record the next fault case.

Reaction upon N: NONE
Acknowl. upon N: NONE

A32940 (F, N) Encoder 2: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.

Fault value (r0949, interpret decimal):

Signal level from sensor S1.

Note:

A signal level of 500 mV corresponds to the numerical value 500 dec.

Remedy:
- Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32950 Encoder 2: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred.

	Fault value (r0949, interpret decimal):
	Information about the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	- If necessary, upgrade the firmware in the Sensor Module to a later version.
	- contact the Hotline.

A32999 (F, N) Encoder 2: Unknown alarm

Message value:	New message: %1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Alarm value (r2124, interpret decimal):
	Alarm number.
	Note:
	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
	- upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33100 (N, A) Encoder 3: Zero mark distance error

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	The measured zero mark distance does not correspond to the parameterized zero mark distance.
	For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
	The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
	Fault value (r0949, interpret decimal):
	Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
	The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC.
	- check the plug connections.
	- check the encoder type (encoder with equidistant zero marks).
	- adapt the parameter for the distance between zero marks (p0424, p0425).
	- if message output above speed threshold, reduce filter time if necessary (p0438).
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33101 (N, A) Encoder 3: Zero mark failed

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The 1.5 x parameterized zero mark distance was exceeded.

The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Fault value (r0949, interpret decimal):

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33103 (N, A) Encoder 3: Amplitude error track R

Message value: R track: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 3.

The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)

The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.

The response threshold for the differential signal level of the encoder is < -1600 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.

The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).

The signal level is not evaluated unless the following conditions are satisfied:

- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

Remedy:
- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly.
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F33110 (N, A) Encoder 3: Serial communications error

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Fault value (r0949, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 7: Timeout for the register communication.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.
Bit 14: Fault for the register communication.
Bit 15: Internal communication error.
Note:
For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.
Remedy: Re fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.
Re fault value, bit 1 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.
Re fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 6 = 1:
- Update Sensor Module firmware.
Re fault value, bit 7 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 8 = 1:
- Check parameterization (p0429.2).
Re fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 10 = 1:
- Check parameterization (p0429.2, p0449).
Re fault value, bit 11 = 1:
- Check parameterization (p0436).
Re fault value, bit 12 = 1:
- Check parameterization (p0429.6).

	Re fault value, bit 13 = 1:
	- Check data line.
	Re fault value, bit 14 = 1:
	- Incorrect encoder type / replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33111 (N, A) Encoder 3: Absolute encoder internal fault

Message value: Fault cause: %1 bin, additional information: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause:
The absolute encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.
Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR converter error.
Bit 5: Fault for the register data transfer.
Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.

Remedy:
For yyyy = 0:
Re fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
Re fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.
Re fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

	Re fault value, bit 6 = 1:
	The battery must be changed (only for encoders with battery back-up).
	For yyyy = 1:
	Encoder is defective. Replace encoder.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33112 (N, A) Encoder 3: Error bit set in the serial protocol

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder sends a set error bit via the serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
Remedy: For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33115 (N, A) Encoder 3: Amplitude error track A or B (A^2 + B^2)

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of A^2 + B^2) for encoder 3 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 170 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.
The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F33116 (N, A) Encoder 3: Amplitude error monitoring track A + B

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The amplitude of the rectified encoder signals A and B and the amplitude from the roots of A^2 + B^2 for encoder 3 are not within the tolerance bandwidth.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Signal level, track B (16 bits with sign).

xxxx = Signal level, track A (16 bits with sign).

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response thresholds are < 130 mV (observe the frequency response of the encoder) and > 955 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.

- check the plug connections.

- replace the encoder or encoder cable.

- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33117 (N, A) Encoder 3: Inversion error signals A/B/R

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.

Fault value (r0949, interpret binary):

Bits 0 ... 15: Only for internal Siemens troubleshooting.

Bit 16: Error track A.

Bit 17: Error track B.

Bit 18: Error track R.

Note:

For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies:

A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.

Remedy: - Check the encoder/cable.

- Does the encoder supply signals and the associated inverted signals?

Note:

For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:

- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).

For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):

- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)

- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33118 (N, A) Encoder 3: Speed difference outside the tolerance range

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33120 (N, A) Encoder 3: Power supply voltage fault

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A power supply fault was detected for encoder 3.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply of the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
Remedy: Re fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
Re fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

	Re fault value, bit 3 = 1:
	- correct encoder cable connected?
	- replace the encoder or encoder cable.
	Re fault value, bit 5 = 1:
	- Measuring unit correctly connected at the converter?
	- Replace the measuring unit or the cable to the measuring unit.
	Re fault value, bit 6, 7 = 1:
	- Replace the defective EnDat 2.2 converter.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33121 (N, A) Encoder 3: Coarse position error

Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33122 Encoder 3: Internal power supply voltage faulty

Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	OFF1
Acknowledge:	IMMEDIATELY
Cause:	Fault in internal reference voltage of ASICs for encoder 3. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage.
Remedy:	Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F33123 (N, A) Encoder 3: Signal level A/B unipolar outside tolerance

Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The unipolar level (AP/AN or BP/BN) for encoder 3 is outside the permissible tolerance. Fault value (r0949, interpret binary): Bit 0 = 1: Either AP or AN outside the tolerance. Bit 16 = 1: Either BP or BN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV.

Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

Remedy: - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33125 (N, A) Encoder 3: Amplitude error track A or B overcontrolled

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The amplitude of track A or B for encoder 3 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33126 (N, A) Encoder 3: Amplitude AB too high

Message value: Amplitude: %1, Angle: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of A^2 + B^2 or |A| + |B|) for encoder 3 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.

	Note:
	The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC.
	- replace the encoder or encoder cable.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33129 (N, A) Encoder 3: Position difference hall sensor/track C/D and A/B too large

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
	One period of track C/D corresponds to 360 ° mechanical.
	One period of the Hall signal corresponds to 360 ° electrical.
	The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
	After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A33429.
	Fault value (r0949, interpret decimal):
	For track C/D, the following applies:
	Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
	For Hall signals, the following applies:
	Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected.
	- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
	- check that the encoder cables are routed in compliance with EMC.
	- check the adjustment of the Hall sensor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33130 (N, A) Encoder 3: Zero mark and position error from the coarse synchronization

Message value:	Angular deviation, electrical: %1, angle, mechanical: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
	When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
	When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Determined mechanical zero mark position (can only be used for track C/D).
	xxxx: Deviation of the zero mark from the expected position as electrical angle.
	Scaling: 32768 dec = 180 °

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- Check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33131 (N, A) Encoder 3: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33135 Encoder 3: Fault when determining the position

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F33136 Encoder 3: Error when determining multiturn information

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).

Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F33137 Encoder 3: Internal fault when determining the position

Message value: Fault cause: %1 bin
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
For yy = 08 hex (bit 27 = 1), the following bit definition applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) fault position word 1.
Bit 9: F2 (safety status display) fault position word 2.
Bit 16: LED monitoring iC-LG (opto ASIC).
Bit 17: Fault in the multiturn.
Bit 23: Temperature outside the limit values.
Note:
For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

F33138	**Encoder 3: Internal error when determining multiturn information**
Message value:	Fault cause: %1 bin
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary): yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause For yy = 08 hex (bit 27 = 1), the following bit definition applies: Bit 1: Signal monitoring (sin/cos). Bit 8: F1 (safety status display) fault position word 1. Bit 9: F2 (safety status display) fault position word 2. Bit 16: LED monitoring iC-LG (opto ASIC). Bit 17: Fault in the multiturn. Bit 23: Temperature outside the limit values. Note: For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.
Remedy:	- determine the detailed cause of the fault using the fault value. - if required, replace the DRIVE-CLiQ encoder.

F33142 (N, A)	**Encoder 3: Battery voltage fault**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy:	Replace battery.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33150 (N, A)	**Encoder 3: Initialization error**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	PULSE INHIBIT
Cause:	Encoder functionality selected in p0404 is not operating correctly. Fault value (r0949, interpret hexadecimal): Encoder malfunction. The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:	- Check that p0404 is correctly set. - check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable. - if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33151 (N, A) Encoder 3: Encoder speed for initialization AB too high

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high while initializing the Sensor Module.
Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33152 (N, A) Encoder 3: Maximum input frequency exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum input frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy: - Reduce the speed.
- Use an encoder with a lower pulse number (p0408).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33153 (N, A) Encoder 3: Identification error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error has occurred when identifying the encoder (waiting) p0400=10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect
See also: p0400 (Encoder type selection)
Remedy: Manually configure the encoder according to the data sheet.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33160 (N, A)	**Encoder 3: Analog sensor channel A failed**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4673). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33161 (N, A)	**Encoder 3: Analog sensor channel B failed**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy:	For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4675). For fault value = 3: - check the range limit setting and increase it if necessary (p4676).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33163 (N, A)	**Encoder 3: Analog sensor position value exceeds limit value**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The position value has exceeded the permissible range of -0.5 ... +0.5. Fault value (r0949, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic.

Remedy: For fault value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A33400 (F, N) Encoder 3: Alarm threshold zero mark distance error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33401 (F, N) Encoder 3: Alarm threshold zero mark failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F33405 (N, A)	**Encoder 3: Temperature in the encoder evaluation inadmissible**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature. The fault threshold is 125 ° C. Alarm value (r2124, interpret decimal): Measured board/module temperature in 0.1 °C.
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33407 (F, N)	**Encoder 3: Function limit reached**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder has reached one of its function limits. A service is recommended. Alarm value (r2124, interpret decimal): 1 : Incremental signals 3 : Absolute track 4 : Code connection
Remedy:	Perform service. Replace the encoder if necessary. Note: The actual functional reserve of an encoder can be displayed via r4651. See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33410 (F, N)	**Encoder 3: Serial communications**
Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Alarm value (r2124, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice.

	Bit 11: Parity error.
	Bit 12: Data line signal level error during the monoflop time.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33411 (F, N) Encoder 3: Absolute encoder signals internal alarms

Message value:	Fault cause: %1 bin, additional information: %2
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The absolute encoder fault word includes alarm bits that have been set. Alarm value (r2124, interpret binary): yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0: Bit 0: Frequency exceeded (speed too high). Bit 1: Temperature exceeded. Bit 2: Control reserve, lighting system exceeded. Bit 3: Battery discharged. Bit 4: Reference point passed. yyyy = 1: Bit 0: Signal amplitude outside the control range. Bit 1: Error multiturn interface Bit 2: Internal data error (singleturn/multiturn not with single steps). Bit 3: Error EEPROM interface. Bit 4: SAR converter error. Bit 5: Fault for the register data transfer. Bit 6: Internal error identified at the error pin (nErr). Bit 7: Temperature threshold exceeded or fallen below.
Remedy:	Replace encoder.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33412 (F, N) Encoder 3: Error bit set in the serial protocol

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The encoder sends a set error bit via the serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol.
Remedy:	- carry out a POWER ON (power off/on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33414 (F, N) Encoder 3: Amplitude error track C or D (C^2 + D^2)

Message value: C track: %1, D track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

N33415 (F, A) Encoder 3: Amplitude alarm track A or B (A^2 + B^2)

Message value: Amplitude: %1, Angle: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (root of A^2 + B^2) for encoder 3 exceeds the permissible tolerance.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 230 mV (observe the frequency response of the encoder).
A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy:	- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range. - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - if the coding disk is soiled or the lighting aged, replace the encoder.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33418 (F, N) Encoder 3: Speed difference per sampling rate exceeded

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492
Remedy:	- check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the setting of p0492.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33419 (F, N) Encoder 3: Track A or B outside tolerance

Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The amplitude/phase/offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxxx1: Minimum of the offset correction, track B xxxx2: Maximum of the offset correction, track B xxx1x: Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A xx1xx: Minimum of the amplitude correction, track B/A xx2xx: Maximum of the amplitude correction, track B/A x1xxx: Minimum of the phase error correction x2xxx: Maximum of the phase error correction 1xxxx: Minimum of the cubic correction 2xxxx: Maximum of the cubic correction

Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33421 (F, N) Encoder 3: Coarse position error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.

Alarm value (r2124, interpret decimal):

3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.

Remedy: Re alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33422 (F, N) Encoder 3: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.

This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.

The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).

Alarm value (r2124, interpret decimal):

accumulated differential pulses in encoder pulses.

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33429 (F, N) Encoder 3: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.

One period of track C/D corresponds to 360 ° mechanical.

One period of the Hall signal corresponds to 360 ° electrical.

The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.

Alarm value (r2124, interpret decimal):

For track C/D, the following applies:

Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).

For Hall signals, the following applies:

Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy:
- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33431 (F, N) Encoder 3: Deviation position incremental/absolute too large

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Alarm value (r2124, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- Clean coding disk or remove strong magnetic fields.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33432 (F, N)	**Encoder 3: Rotor position adaptation corrects deviation**
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33442 (F, N)	**Encoder 3: Battery voltage pre-alarm**
Message value:	-
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy:	Replace battery.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33443 (F, N)	**Encoder 3: Unipolar CD signal level outside specification**
Message value:	Fault cause: %1 bin
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The unipolar level (CP/CN or DP/DN) for encoder 3 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - Monitoring active (p0437.31 = 1).
Remedy:	- check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)? - replace the encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33460 (N) Encoder 3: Analog sensor channel A failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A33461 (N) Encoder 3: Analog sensor channel B failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A33462 (N) Encoder 3: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
See also: p4670 (Analog sensor configuration)

Reaction upon N: NONE
Acknowl. upon N: NONE

A33463 (N) Encoder 3: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

A33470 (F, N) Encoder 3: Soiling detected

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
Remedy: - check the plug connections.
- replace the encoder or encoder cable.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F33500 (N, A) Encoder 3: Position tracking traversing range exceeded

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33501 (N, A) Encoder 3: Position tracking encoder position outside tolerance window

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.

Fault value (r0949, interpret decimal):

Deviation (difference) to the last encoder position in increments of the absolute value.

The sign designates the traversing direction.

Note:

The deviation (difference) found is also displayed in r0477.

See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference)

Remedy: Reset the position tracking as follows:

- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).

See also: p0010

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33502 (N, A) Encoder 3: Encoder with measuring gear without valid signals

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The encoder with measuring gear no longer provides any valid signals.

Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33503 (N, A) Encoder 3: Position tracking cannot be reset

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: VECTOR_G

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The position tracking for the measuring gear cannot be reset.

Remedy: The fault should be resolved as follows:

- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

A33700 Encoder 3: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N33800 (F) Encoder 3: Group signal

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluate the other messages that are presently available.
Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F33801 (N, A) Encoder 3 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33802 (N, A) Encoder 3: Time slice overflow

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred in encoder 3.

	Fault value (r0949, interpret hexadecimal):
	yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
	x = 9:
	Time slice overflow of the fast (current controller clock cycle) time slice.
	x = A:
	Time slice overflow of the average time slice.
	x = C:
	Time slice overflow of the slow time slice.
	yx = 3E7:
	Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy:	Increase the current controller sampling time
	Note:
	For a current controller sampling time = 31.25 µs, use an SMx20 with order number 6SL3055-0AA00-5xA3.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33804 (N, A) Encoder 3: Checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	POWER ON (IMMEDIATELY)
Cause:	A checksum error has occurred when reading-out the program memory on the Sensor Module.
	Fault value (r0949, interpret hexadecimal):
	yyyyxxxx hex
	yyyy: Memory area involved.
	xxxx: Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- carry out a POWER ON (power off/on).
	- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
	- check whether the permissible ambient temperature for the component is maintained.
	- replace the Sensor Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33805 (N, A) Encoder 3: EEPROM checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted.
	Fault value (r0949, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	Replace the module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33806 (N, A)	Encoder 3: Initialization error
Message value:	%1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	The encoder was not successfully initialized. Fault value (r0949, interpret hexadecimal): Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4). Bit 2: Mid-voltage matching for track A unsuccessful. Bit 3: Mid-voltage matching for track B unsuccessful. Bit 4: Mid-voltage matching for acceleration input unsuccessful. Bit 5: Mid-voltage matching for track safety A unsuccessful. Bit 6: Mid-voltage matching for track safety B unsuccessful. Bit 7: Mid-voltage matching for track C unsuccessful. Bit 8: Mid-voltage matching for track D unsuccessful. Bit 9: Mid-voltage matching for track R unsuccessful. Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V) Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V) Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V) Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V) Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V) Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V) Bit 16: Internal fault - fault when reading a register (CAFE) Bit 17: Internal fault - fault when writing a register (CAFE) Bit 18: Internal fault: No mid-voltage matching available Bit 19: Internal error - ADC access error. Bit 20: Internal error - no zero crossover found. Bit 28: Error while initializing the EnDat 2.2 measuring unit. Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit. Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect. Bit 31: Data of the EnDat 2.2 measuring unit inconsistent. Note: Bit 0, 1: Up to 6SL3055-0AA00-5*A0 Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher
Remedy:	Acknowledge fault. If the fault cannot be acknowledged: Bits 2 ... 9: Check encoder power supply. Bits 2 ... 14: Check the corresponding cable. Bit 15 with no other bits: Check track R, check settings in p0404. Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit. Bit 29 ... 31: Replace the defective measuring unit.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33811 (F, N) Encoder 3: Encoder serial number changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).

- The encoder was replaced.

Note:

With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).

When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).

Proceed as follows to hide serial number monitoring:

- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.

Remedy: Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F33812 (N, A) Encoder 3: Requested cycle or RX-/TX timing not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.

Fault value (r0949, interpret decimal):

0: Application cycle is not supported.

1: DRIVE-CLiQ cycle is not supported.

2: Distance between RX and TX instants in time too low.

3: TX instant in time too early.

Remedy: Carry out a POWER ON (power off/on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33813 Encoder 3: Hardware logic unit failed

Message value: Fault cause: %1 bin
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.

Fault value (r0949, interpret binary):

Bit 0: ALU watchdog has responded.

Bit 1: ALU has detected a sign-of-life error.

Remedy: Replace encoder.

F33820 (N, A)	**Encoder 3 DRIVE-CLiQ: Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33835 (N, A)	**Encoder 3 DRIVE-CLiQ: Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list.

	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON.
	- replace the component involved.
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33836 (N, A) Encoder 3 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33837 (N, A) Encoder 3 DRIVE-CLiQ: Component fault

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
	- check the electrical cabinet design and cable routing for EMC compliance
	- if required, use another DRIVE-CLiQ socket (p9904).
	- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A33840 Encoder 3 DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.

	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F33845 (N, A) Encoder 3 DRIVE-CLiQ: Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON (power off/on).
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33850 (N, A) Encoder 3: Encoder evaluation internal software error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred in the Sensor Module of encoder 3.
	Fault value (r0949, interpret decimal):
	1: Background time slice is blocked.
	2: Checksum over the code memory is not OK.
	10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
	11000 ... 11499: Descriptive data from EEPROM incorrect.
	11500 ... 11899: Calibration data from EEPROM incorrect.
	11900 ... 11999: Configuration data from EEPROM incorrect.
	12000 ... 12008: Communication with AD converter faulted.
	16000: DRIVE-CLiQ encoder initialization application error.
	16001: DRIVE-CLiQ encoder initialization ALU error.
	16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
	16003: DRIVE-CLiQ encoder safety initialization error.
	16004: DRIVE-CLiQ encoder internal system error.
Remedy:	- replace the Sensor Module.
	- if required, upgrade the firmware in the Sensor Module.
	- contact the Hotline.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33851 (N, A) Encoder 3 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - Upgrade the firmware of the component involved.
- carry out a POWER ON (power off/on) for the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33860 (N, A) Encoder 3 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: VECTOR_G
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.

	21 (= 15 hex):
	The type of the receive telegram does not match the receive list and the receive telegram is too early.
	22 (= 16 hex):
	The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
	25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
	See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33875 (N, A) Encoder 3 DRIVE-CLiQ (CU): Supply voltage failed

Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on).
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33885 (N, A) Encoder 3 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.

	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved.
	- carry out a POWER ON.
	- replace the component involved.
	See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33886 (N, A) Encoder 3 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit.
	Data were not able to be sent.
	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33887 (N, A) Encoder 3 DRIVE-CLiQ (CU): Component fault

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 3). Faulty hardware cannot be excluded.
	Fault cause:
	32 (= 20 hex):
	Error in the telegram header.
	35 (= 23 hex):
	Receive error: The telegram buffer memory contains an error.
	66 (= 42 hex):
	Send error: The telegram buffer memory contains an error.
	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	96 (= 60 hex):
	Response received too late during runtime measurement.

	97 (= 61 hex):
	Time taken to exchange characteristic data too long.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33895 (N, A) Encoder 3 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 3) involved to the Control Unit. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33896 (N, A) Encoder 3 DRIVE-CLiQ (CU): Inconsistent component properties

Message value:	Component number: %1
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 3), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- carry out a POWER ON. - when a component is replaced, the same component type and if possible the same firmware version should be used. - when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33899 (N, A)	**Encoder 3: Unknown fault**
Message value:	New message: %1
Message class:	Position/speed actual value incorrect or not available (11)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. Note: If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33902 (F, N)	**Encoder 3: SPI-BUS error occurred**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal SPI bus. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module. - contact the Hotline.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33903 (F, N)	**Encoder 3: I2C-BUS error occurred**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error when operating the internal I2C bus. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- replace the Sensor Module. - if required, upgrade the firmware in the Sensor Module. - contact the Hotline.
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33905 (N, A)	**Encoder 3: Parameterization error**
Message value:	Parameter: %1, supplementary information: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 3 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter xxxx = 421: For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits. yyyy = 0: No information available. yyyy = 1: The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1). yyyy = 2: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification. yyyy = 3: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000. yyyy = 4: This component does not support SSI encoders (p0404.9 = 1) without track A/B. yyyy = 5: For SQW encoder, value in p4686 greater than in p0425. yyyy = 6: DRIVE-CLiQ encoder cannot be used with this firmware version. yyyy = 7: For an SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks. yyyy = 8: The motor pole pair width is not supported by the linear scale being used. yyyy = 9: The length of the position in the EnDat protocol may be a maximum of 32 bits. yyyy = 10: The connected encoder is not supported. yyyy = 11: The hardware does not support track monitoring.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. - re parameter number = 314: - check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F33912	**Encoder 3: Device combination is not permissible**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	The selected device combination is not supported. Fault value (r0949, interpret decimal): 1003: The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n. 1005: The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter. 1006: The maximum duration (31.25 µs) of the EnDat transfer was exceeded. 2001: The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter. 2002: The resolution of the linear measuring unit does not match the pole pair width of the linear motor
Remedy:	Re fault value = 1003, 1005, 1006: - Use a measuring unit that is permissible. For fault value = 2001: - Set a permissible cycle combination (if required, use standard settings). For fault value = 2002: - Use a measuring unit with a lower resolution (p0422).

A33915 (F, N)	**Encoder 3: Configuration error**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configuration for encoder 3 is incorrect. Alarm value (r2124, interpret decimal): 1: Re-parameterization between fault/alarm is not permissible. 419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy:	Re alarm value = 1: No re-parameterization between fault/alarm. Re alarm value = 419: Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F:	NONE (IASC/DCBRK)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F33916 (N, A)	**Encoder 3: Parameterization fault**
Message value:	Parameter: %1, supplementary information: %2
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	A parameter of encoder 3 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): Parameter number.
Remedy:	- check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A33920 (F, N)	**Encoder 3: Temperature sensor fault**
Message value:	Fault cause: %1, channel number: %2
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred. Fault cause: 1 (= 01 hex): Wire breakage or sensor not connected (KTY: R > 1630 Ohm). 2 (= 02 hex): Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Additional values: Only for internal Siemens troubleshooting. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = channel number, xx = error cause
Remedy:	- check that the encoder cable is the correct type and is correctly connected. - check the temperature sensor selection in p0600 to p0603. - replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A33930 (N)	**Encoder 3: Data logger has saved data**
Message value:	-
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN

...
/USER/SINAMICS/DATA/SMTRC07.BIN
/USER/SINAMICS/DATA/SMTRCIDX.TXT
The following information is contained in the TXT file:
- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).
Note:
Only Siemens can evaluate the BIN files.

Remedy: Not necessary.
The alarm disappears automatically.
The data logger is ready to record the next fault case.

Reaction upon N: NONE
Acknowl. upon N: NONE

A33940 (F, N) Encoder 3: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.
Fault value (r0949, interpret decimal):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy: - Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F33950 Encoder 3: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Information about the fault source.
Only for internal Siemens troubleshooting.
Remedy: - If necessary, upgrade the firmware in the Sensor Module to a later version.
- contact the Hotline.

A33999 (F, N) Encoder 3: Unknown alarm

Message value: New message: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A alarm has occurred on the Sensor Module for encoder 3 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.

	Alarm value (r2124, interpret decimal):
	Alarm number.
	Note:
	If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Sensor Module by an older firmware version (r0148).
	- upgrade the firmware on the Control Unit (r0018).
Reaction upon F:	NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F34207 (N, A) VSM: Temperature fault threshold exceeded

Message value:	%1
Message class:	Infeed faulted (13)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE
	Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The temperature (r3666) measured using the Voltage Sensing Module (VSM) has exceeded the threshold value (p3668).
	Note:
	This fault can only be initiated if the temperature evaluation was activated (p3665 = 2 for a KTY sensor or p3665 = 1 for a PTC sensor).
	Fault value (r0949, interpret decimal):
	yyxxxx dec:
	yy: Component number of the component which detected the fault.
Remedy:	- check the fan.
	- reduce the power.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A34211 (F, N) VSM: Temperature alarm threshold exceeded

Message value:	%1
Message class:	Infeed faulted (13)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r3666) measured using the Voltage Sensing Module (VSM) has exceeded the threshold value (p3667).
	Alarm value (r2124, interpret decimal):
	The hundred-thousands and ten-thousands position specifies the component number of the VSM which detected the fault.
Remedy:	- check the fan.
	- reduce the power.
Reaction upon F:	Vector: NONE
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

N34800 (F)	**VSM: Group signal**
Message value:	-
Message class:	Infeed faulted (13)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	NONE
Cause:	The Voltage Sensing Module (VSM) has detected at least one fault.
Remedy:	Evaluates other actual messages.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowl. upon F:	IMMEDIATELY

F34801	**VSM DRIVE-CLiQ: Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	VECTOR_G
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module (VSM). Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ connection. - replace the component involved.

F34801	**VSM DRIVE-CLiQ: Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module (VSM). Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ connection. - replace the Voltage Sensing Module (VSM).

F34802	**VSM: Time slice overflow**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A time slice overflow has occurred on the Voltage Sensing Module.
Remedy:	Replace the Voltage Sensing Module.

F34803	**VSM: Memory test**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	An error has occurred during the memory test on the Voltage Sensing Module.
Remedy:	- check whether the permissible ambient temperature for the Voltage Sensing Module is being maintained. - replace the Voltage Sensing Module.

F34804 (N, A)	**VSM: CRC**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A checksum error has occurred when reading-out the program memory on the Voltage Sensing Module (VSM).
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the Voltage Sensing Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F34805	**VSM: EEPROM checksum error**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	Internal parameter data is corrupted. Fault value (r0949, interpret hexadecimal): 01: EEPROM access error. 02: Too many blocks in the EEPROM.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the Voltage Sensing Module (VSM).

F34806	**VSM: Initialization**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2, OFF3) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	For the Voltage Sensing Module (VSM), a fault has occurred while initializing.
Remedy:	Replace the Voltage Sensing Module.

A34807 (F, N)	**VSM: Sequence control time monitoring**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Error, timeout in the sequence control on the Voltage Sensing Module (VSM).
Remedy:	Replace the Voltage Sensing Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F34820	**VSM DRIVE-CLiQ: Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module involved. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F34835	**VSM DRIVE-CLiQ: Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module involved. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON. - replace the component involved.

F34836	**VSM DRIVE-CLiQ: Send error for DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

F34837	**VSM DRIVE-CLiQ: Component fault**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	Vector: NONE (OFF1, OFF2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error.

	67 (= 43 hex): Send error: The telegram buffer memory contains an error. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.

A34840 VSM DRIVE-CLiQ: error below the signaling threshold

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ error has occurred below the signaling threshold. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. 16 (= 10 hex): The receive telegram is too early. 32 (= 20 hex): Error in the telegram header. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 64 (= 40 hex): Timeout in the telegram send list. 65 (= 41 hex): Telegram type does not match send list.

66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F34845 VSM DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the Voltage Sensing Module (VSM).
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F34850 VSM: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: POWER ON
Cause: An internal software error in the Voltage Sensing Module (VSM) has occurred.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
Remedy: - replace the Voltage Sensing Module (VSM).
- if required, upgrade the firmware in the Voltage Sensing Module.
- contact the Hotline.

F34851 VSM DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.

Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

F34860 VSM DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM150, TM31, VECTOR_G

Reaction: Vector: NONE (OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.

Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34875 VSM DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).

- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F34885 VSM DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.

The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

98 (= 62 hex):

Error at the transition to cyclic operation.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the power supply voltage of the component involved.

- carry out a POWER ON.

- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34886 VSM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM150, TM31, VECTOR_G

Reaction: Vector: NONE (OFF1, OFF2)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.

Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F34887 VSM DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM150, TM31, VECTOR_G

Reaction: Vector: NONE (OFF1, OFF2)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component (Voltage Sensing Module) involved. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

96 (= 60 hex):

Response received too late during runtime measurement.

97 (= 61 hex):

Time taken to exchange characteristic data too long.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F34895 VSM DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34896 VSM DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Voltage Sensing Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.

Fault value (r0949, interpret decimal):

Component number.

Remedy: - carry out a POWER ON.

- when a component is replaced, the same component type and if possible the same firmware version should be used.

- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F34899 (N, A) VSM: Unknown fault

Message value: New message: %1
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Voltage Sensing Module that cannot be interpreted by the Control Unit firmware.

This can occur if the firmware on this component is more recent than the firmware on the Control Unit.

Fault value (r0949, interpret decimal):

Fault number.

Note:

If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

Remedy: - replace the firmware on the Voltage Sensing Module by an older firmware version (r0158).

- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A34903 (F, N) VSM: I2C bus error occurred

Message value: -
Message class: Hardware / software error (1)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred when accessing the module-internal I2C bus.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A34903 (F, N) VSM: I2C bus error occurred

Message value: -
Message class: Hardware / software error (1)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred when accessing the module-internal I2C bus.
Remedy: Replace the Voltage Sensing Module (VSM).
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A34904 (F, N) VSM: EEPROM

Message value: -
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred accessing the non-volatile memory on the Terminal Module.
Remedy: Replace the Voltage Sensing Module (VSM).
Reaction upon F: Vector: NONE
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A34905 (F, N) VSM: Parameter access

Message value: -
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The Control Unit attempted to write an illegal parameter value to the Voltage Sensing Module (VSM).
Remedy: - check whether the firmware version of the VSM (r0158) matches the firmware version of Control Unit (r0018).
- if required, replace the Voltage Sensing Module.
Note:
The firmware versions that match each other are in the readme.txt file on the memory card.
Reaction upon F: Vector: NONE
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

F34920 (N, A) VSM: Temperature sensor fault

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, VECTOR_G
Reaction: Vector: NONE
Infeed: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F34950 VSM: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, VECTOR_G
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error in the Voltage Sensing Module (VSM) has occurred.
Fault value (r0949, interpret decimal):
Information about the fault source.
Only for internal Siemens troubleshooting.
Remedy: - If necessary, upgrade the firmware in the Voltage Sensing Module to a later version.
- contact the Hotline.

A34999 (F, N) VSM: Unknown alarm

Message value: New message: %1
Message class: Infeed faulted (13)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A fault occurred on the Voltage Sensing Module (VSM) an alarm has occurred that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Voltage Sensing Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35000	**TM54F: Sampling time invalid**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	The set sampling time is invalid. - not a multiple integer of the DP clock cycle. Fault value (r0949, floating point): Recommended valid sampling time.
Remedy:	Adapt the sampling time (e.g. set the recommended valid sampling time). See also: p10000 (SI TM54F communication clock cycle)

F35001	**TM54F: Parameter value invalid**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The functionality of the basic functions via TM54F is used. TM54F has been incorrectly parameterized (incorrect parameter assignment). Fault value (r0949, interpret binary): Bits 0 ... 3 specifies for which drive group illegal F-DIs were parameterized: Bit 0 = 1 : drive group 1 error Bit 1 = 1 : drive group 2 error Bit 2 = 1 : drive group 3 error Bit 3 = 1 : drive group 4 error p10024 ... p10038 must be 0, p10039 may only use signals from Basic Safety Functions. Bits 4 ... 7 specifies for which F-DOs incorrect links were specified: Bit 4 = 1 : F-DO 0 error (p10042) Bit 5 = 1 : F-DO 1 error (p10043) Bit 6 = 1 : F-DO 2 error (p10044) Bit 7 = 1 : F-DO 3 error (p10045) Note: Only the following signals may be parameterized: "STO active" "SS1 active" "internal event" "Safe state"
Remedy:	- activate the safety commissioning mode TM54F (change parameter). - check p10042 ... p10045 and if required, correct. - check p10024 ... p10039 and if required, correct. - copy the parameters. - activate the settings.

F35002	**TM54F: Commissioning not possible**
Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The commissioning mode activation was rejected because at least one drive belonging to the TM54F is enabled for operation. Fault value (r0949, interpret decimal): Drive object number of the first drive found without pulse suppression/power inhibit.

Remedy: Withdraw the operating enable for the drive specified in the fault value.

F35003 TM54F: Acknowledgement on the Control Unit is required

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A fault on the Terminal Module 54F (TM54) was acknowledged using the safe acknowledgement (p10006).

An additional acknowledgement is also required at the Control Unit.

Remedy: - acknowledge all faults on the Control Unit (BI: p2102).

or

- acknowledge all faults on the drive object TM54F (BI: p2103, p2104 or p2105).

Note:

A fault acknowledgement is triggered with a 0/1 signal.

F35004 TM54F: communication cycle invalid

Message value: Fault cause: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: - the communication cycle specified in p10000[x] does not correspond with the monitoring cycle of the drive object which was specified in p10010[x].

As long as this fault is present, fail safe values are activated in TM54F. All the drives are not enabled.

Fault value (r0949, interpret binary):

If a bit is set in the range bit 0 ... 5, then the following applies:

The communication cycle specified in p10000[x] does not correspond with the monitoring cycle of the drive object which was specified in p10010[x]. (if only p10000[0] used, then this value must be identical with all monitoring cycles of the drive objects used in p10010[0..5].)

Bit 0 = 1 : p10000[0] does not correspond with the monitoring cycle of p10010[0]

Bit 1 = 1 : p10000[1] does not correspond with the monitoring cycle of p10010[1]

..

Bit 5 = 1 : p10000[5] does not correspond with the monitoring cycle of p10010[5]

If a bit is set in the range bit 16 ... 21, then the following applies:

Bit 16 = 1 : p10000[0] has been selected too low.

Bit 17 = 1 : p10000[1] has been selected too low.

..

Bit 21 = 1 : p10000[5] has been selected too low.

When using an axis with Basic Safety Functions with TM54F, then the monitoring cycle should be greater than 500us + 8*current controller clock cycles of the drive.

-this error is also signaled if a drive controlled with TM54F is parameterized so that the basic functions are controlled via TM54F and simultaneously extended safety functions or ncSI have been parameterized.

- the following applies for fault value 0:

Since the firmware update of the TM54F it has not been switched off.

Or, the connected TM54F has firmware that is too old.

See also: p10010 (SI TM54F drive object assignment)

Remedy: For a fault value in the range from bit 0 ... 5:
- First check that all drives are entered in p10010,
extended safety functions or basic functions have been enabled via TM54F.
- Execute the copy function for TM54F(p9700 = 87).
- adapt the checksums for TM54F(p9701 = 172).
- copy RAM to ROM.
- carry out a POWER ON.

For a fault value in the range from bit 16 ... 21:
Increase the current controller sampling time of the corresponding drive, in order to avoid faults in operation.
- Execute the copy function for TM54F(p9700 = 87).
- adapt the checksums for TM54F(p9701 = 172).
- copy RAM to ROM.
- carry out a POWER ON.

F35005 TM54F:parallel connection not supported

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: VECTOR_G
Reaction: NONE
Acknowledge: POWER ON
Cause: The TM54F function with Basic Safety Functions is used. This function is not supported when power units are connected in parallel.
All drives of the TM54F assume fail safe values, and are not enabled.
See also: p10010 (SI TM54F drive object assignment)
Remedy: - deactivate parallel connection or TM54F with Basic Functions.
- copy RAM to ROM.
- carry out a POWER ON (power off/on).

F35006 TM54F: drive groups invalid

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: POWER ON
Cause: The functionality of the basic functions via TM54F is used.
Drive groups have been incorrectly parameterized (incorrect parameter assignment).
Fault value (r0949, interpret binary):
The value specifies in which drive group Basic Safety drives are mixed with Extended Safety drives.
Bit 0 = 1 : drive group 1 error
Bit 1 = 1 : drive group 2 error
Bit 2 = 1 : drive group 3 error
Bit 3 = 1 : drive group 4 error

As long as this fault is present, fail safe values are activated in TM54F. All the drives are not enabled.

Note:
-this error is also signaled if a drive controlled with TM54F is parameterized so that the basic functions are controlled via TM54F and simultaneously extended safety functions or ncSI have been parameterized.
Remedy: Corresponding to the fault value, p10011 should be checked to ensure that no Basic Safety drives are mixed with Extended Safety drives in a drive group.

F35009 TM54F: Safety commissioning drive incomplete

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, TM54F_MA, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: In the configuration of the TM54F, a drive object of the TM54F was assigned, that has no safety functions or has incorrectly parameterized safety functions.

The fault value specifies which drive (refer to p10010) has been incorrectly parameterized (p9601 p9501).

Bit 0 = 1 : drive 1 error

Bit 1 = 1 : drive 2 error

Bit 2 = 1 : drive 3 error

Bit 3 = 1 : drive 4 error

Bit 4 = 1 : drive 5 error

Bit 5 = 1 : drive 6 error

Remedy: Carry out the safety commissioning of the drive involved and enable the safety functions for TM54F.

Then commission the TM54F and then just set p9700=87d and p9701=172d.

F35011 TM54F: Drive object number assignment illegal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A drive object number was assigned twice. Each drive object number can be assigned only once.
Remedy: Correct the assignment of the drive object numbers.

See also: p10010 (SI TM54F drive object assignment)

A35012 TM54F: Test stop active

Message value: -
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The test stop for the Terminal Module 54F (TM54F) is presently being executed.

Note:

Fault F35013 is output if a fault occurs during the test stop.

Remedy: The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.

F35013 TM54F: Test stop error

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An error was detected when carrying out the test stop on the TM54F. Failsafe control signals (failsafe values) are transferred to the safety functions.

Fault value (r0949, interpret hexadecimal):

aaaabbcc hex:

aaaa: DO or F-DI (dependent on test step cc), where the expected state was not assumed (bit 0 = F-DI 0 or F-DO 0, bit 1 = F-DI 1 or F-DO 1, etc.).

bb: Fault cause

bb = 01 hex: Internal fault.

bb = 02 hex: Fault when comparing the switching signals of the two channels (F-DI or DI).

bb = 03 hex: Internal fault.

bb = 04 hex: Fault when comparing the switching signals of the two channels (Diag-DO).

cc: State of the test stop in which the fault has occurred.

The display format is as follows:

Slave fault state: (test actions)(test actions) | corresponding step for the master: (test actions)(test actions) | Description

00 hex: (L1+OFF)(L2+ON) | 0A hex: ( )( ) | Synchronization / switching step

0A hex: (L1+OFF)(L2+ON) | 15 hex: ( )( ) | Wait step

15 hex: (L1+OFF)(L2+OFF) | 20 hex :( )( ) | 1.) F-DI 0 ... 4 check for 0 V 2.) Switch step to new level

20 hex: (L1+OFF)(L2+OFF) | 2B hex: ( )( ) | Wait step

2B hex: (L1+ON)(L2+ON) | 36 hex: ( )( ) | 1.) F-DI 5 ... 9 check for 0 V 2.) Switch step to new level

36 hex: (DO OFF)( ) | 41 hex: (DO OFF)( ) | Wait step / switching step

41 hex: (DO OFF)( ) | 4C hex: (DO OFF)( ) | Wait step

4C hex: (DO ON)( ) | 57 hex: (DO ON)( ) | 1.) Check diag-DO or diag-DI 2.) Switch step to new level

57 hex: (DO ON)( ) | 62 hex: (DO ON)( ) | Wait step

62 hex: (DO OFF)( ) | 6D hex: (DO ON)( ) | 1.) Check diag-DO or diag-DI 2.) Switch step

6D hex: (DO OFF)( ) | 78 hex: (DO ON)( ) | Wait step

78 hex: (DO ON)( ) | 83 hex: (DO OFF)( ) | 1.) Check diag-DO or diag-DI 2.) Switch step

83 hex: (DO ON)( ) | 8E hex: (DO OFF)( ) | Wait step

8E hex: (DO OFF)( ) | 99 hex: (DO OFF)( ) | 1.) Check diag-DO or diag-DI 2.) Switch step

99 hex: (DO OFF)( ) | A4 hex: (DO OFF)( ) | Wait step

A4 hex: (DO OFF)( ) | AF hex: (DO OFF)( ) | Check Diag-DO or Diag-DI

AF hex: (DO original state)() | C5 hex: (DO original state)() | Switching step

C5 hex: End of test

The expected states to be checked depend on the parameterized test mode (p10047).

The following expected states are tested in the test steps when testing the F-DOs:

The display format is as follows:

Test step (SL MA): Expected Diag-DO mode 1 | Expected DI 20 ... 23 mode 2 | Expected DI 20 ... 23 mode 3

(4C hex 57 hex): Diag-DO = 0 V | DI = 24 V | DI = 24 V

(62 hex 6D hex): Diag-DO = 0 V | DI = 0 V | DI = 0 V

(78 hex 83 hex): Diag-DO = 0 V | DI = 0 V | DI = 24 V

(8E hex 99 hex): Diag-DO = 24 V | DI = 0 V | DI = 24 V

(A4 hex AF hex): Diag-DO = 0 V | DI = 24 V | DI = 24 V

Example:

If an error with fault causes bb = 02 hex or 04 hex occurs in a test stop step, the test action for the fault took place in the previous test stop step. The expected states are tested in the next step.

Master signals fault value 0001_04AF and slave signals fault value 0001_04A4.

aaaa = 1 --> F-DO 0 is involved.

bb = 04 hex --> the test of the Diag-DO was unsuccessful.

cc = The expected states were tested in test stop step AF on the master and A4 on the slave.

The expected state Diag-DO = 0 V was checked in the table, i.e. Diag-DO was at 0 V instead of the expected 24 V. The associated test action took place in the previous step (99 hex DO OFF, A4 hex DO OFF). Both DOs were switched to OFF.

Remedy: Check the wiring of the F-DIs and F-DOs and restart the test stop.

Note:

The fault is withdrawn if the test stop is successfully completed.

For fault value = CCCCCCCC hex, DDDDDDDD hex, EEEEEEEE hex the following applies:

These fault values occur together with fault F35152. In this case, all parameters for the test stop should be checked.

You should also check whether the firmware version of the TM54F matches that of the Control Unit.

You also need to check p10001, p10017, p10046 and p10047.

A POWER ON must be carried out after correcting the parameters.

A35014	**TM54F: Test stop required**
Message value:	-
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	- after powering up the drive, a test stop has still not been carried out. - a new test stop is required after commissioning. - the time to carry out the forced checking procedure (test stop) has expired (p10003).
Remedy:	Initiate test stop (BI: p10007).

A35015	**TM54F: Motor/Hydraulic Module replaced or configuration inconsistent**
Message value:	Fault cause: %1 bin
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Cyclic communication of at least one drive with the Terminal Module 54F (TM54F) is not active. Possible causes: - at least one Motor Module/Hydraulic Module was replaced (e.g. hardware was replaced). - The parameterization of theTM54F (p10010) is inconsistent with the number of drives, which have drive-based motion monitoring functions activated with TM54F. - For the signaled drive, it is not permissible that the "Safe motion monitoring without selection" (p9601.5 = 1) is parameterized. - And activated drive has no communication via DRIVE-CLiQ. - p10010 of the TM54F master module is not the same as p10010 of the TM54F slave module (in this case, F35051 is also output). - In p10010 of the TM54F master or slave module, the number of a drive object was entered several times. - the control of the Basis Functions via TM54F was parameterized, and simultaneously the Extended Safety Functions or ncSI were parameterized. Fault value (r0949, interpret binary): yyyy yyyy xxxx xxxx bin xxxx xxxx bin: inconsistent configuration Bit 0 = 1: No communication with drive 1. ... Bit 5 = 1: No communication with drive 6. yyyy yyyy bin: Motor Module/Hydraulic Module replaced or a DRIVE-CLiQ cable of a Motor Module/Hydraulic Module not inserted. Bit 8 = 1: Motor Module/Hydraulic Module from drive 1 was replaced or does not communicate. ... Bit 13 = 1: Motor Module/Hydraulic Module from drive 6 was replaced or does not communicate. Note: When this fault is present, none of the drives listed in the fault value, which have drive-based motion monitoring functions operating with TM54F, are enabled. For fault value = 0: The number of drive objects specified in p10010 is not equal to the number of drives that have drive-based motion monitoring functions that have been enabled. See also: p10010 (SI TM54F drive object assignment)

Remedy: For all drive objects specified in p10010, check whether the drive-based motion monitoring functions with TM54F are enabled (p9601).

Check as to whether F35051 is also output and remove the cause.

Check whether each drive object number is listed only once in the indices of p10010.

Note:

If a drive was deactivated and activated without first having established the DRIVE-CLiQ connection, then this alarm is also output.

When replacing a Motor Module/Hydraulic Module, carry out the following steps:

- start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
- acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

For SINUMERIK, the following applies:

HMI supports the replacement of components with Safety functions (operating area "Diagnostics" --> Softkey "Alarm list" --> Softkey "Confirm SI HW" etc.).

The precise procedure is given in the following document:

SINUMERIK Function Manual Safety Integrated

A35016 TM54F: Net data communication with drive not established

Message value: -

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The cyclic net data communication within the Terminal Module 54F (TM54F) is still not active for at least one drive.

Note:

This message is output after the TM54F master and TM54F slave have booted and is automatically withdrawn as soon as communications have been established.

Remedy: When replacing a Motor Module/Hydraulic Module, carry out the following steps:

- start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
- acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

The following always applies:

- for all drive objects specified in p10010, check whether the drive-based motion monitoring functions with TM54F are enabled (p9601).
- check whether fault F35150 is present and if required, remove the cause of the fault.

Note:

If this message is displayed, in p10055 you can read which drives have not established communication. Together with parameter p10010, the corresponding drive objects of the Control Unit can be identified.

See also: r10055 (SI TM54F communication status drive-specific)

F35040 TM54F: 24 V undervoltage

Message value: Fault cause: %1 bin

Message class: Supply voltage fault (undervoltage) (3)

Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: For the 24 V power supply for the Terminal Module 54F (TM54F) an undervoltage condition was detected.

As fault response fail-safe input terminal signals are transferred to the motion monitoring functions.

Fault value (r0949, interpret binary):

Bit 0 = 1: Power supply undervoltage at connection X524.

Bit 1 = 1: Power supply undervoltage at connection X514.

Remedy: - check the 24 V DC power supply for the TM54F.

- carry out safe acknowledgment (p10006).

F35043	**TM54F: 24 V overvoltage**
Message value:	-
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	For the 24 V power supply for the Terminal Module 54F (TM54F) an overvoltage condition was detected. As fault response fail-safe input terminal signals are transferred to the motion monitoring functions.
Remedy:	- check the 24 V DC power supply for the TM54F. - carry out safe acknowledgment (p10006).

F35051	**TM54F: Defect in a monitoring channel**
Message value:	%1
Message class:	Safety monitoring channel has identified an error (10)
Drive object:	B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The Terminal Module 54F (TM54F) has identified an error in the crosswise data comparison between the two control channels. This can be the result of incorrect parameterization. However, a fault may have occurred, which was identified by the Safety Integrated software (e.g. defective hardware). Perform the steps listed under "Remedy" in order to rule out any defective hardware. As fault response fail-safe input terminal signals are transferred to the motion monitoring functions. Fault value (r0949, interpret hexadecimal): aaaabbcc hex aaaa: A value greater than zero indicates an internal software error. bb: Data to be cross-compared that resulted in the error. If specified, check the specified parameters to ensure that they are the same for both the TM54F master and TM54F slave. bb = 00 hex: p10000[0] bb = 01 hex: p10001 bb = 02 hex: p10002 bb = 03 hex: p10006 bb = 04 hex: p10008 bb = 05 hex: p10010 bb = 06 hex: p10011 bb = 07 hex: p10020 bb = 08 hex: p10021 bb = 09 hex: p10022 bb = 0A hex: p10023 bb = 0B hex: p10024 bb = 0C hex: p10025 bb = 0D hex: p10026 bb = 0E hex: p10027 bb = 0F hex: p10028 bb = 10 hex: p10036 bb = 11 hex: p10037 bb = 12 hex: p10038 bb = 13 hex: p10039 bb = 14 hex: p10040 bb = 15 hex: p10041 bb = 16 hex: p10042 bb = 17 hex: p10043 bb = 18 hex: p10044 bb = 19 hex: p10045

bb = 1A hex: p10046
bb = 1B hex: p10041
bb = 1C hex: p10046
bb = 1D ... 1F hex: p10017, p10002, p10000
bb = 20 ... 2A hex: p10040, p10046, p10047
bb = 2B hex: error in the data for test stop initialization
bb = 2C hex: error in the data for initializing the input/output calculation
bb = 2D ... 45 hex: error in the data for the output calculation p10042 ... p10045
bb = 46 ... 63 hex: error in the data for the calculation of drive group 1
bb = 64 ... 81 hex: error in the data for the calculation of drive group 2
bb = 82 ... 9F hex: error in the data for the calculation of drive group 3
bb = A0 ... BD hex: error in the data for the calculation of the drive group 4
bb = BE hex: debounce time of the fail-safe inputs (F-DI) p10017
bb = BF hex: debounce time of the single-channel inputs (DI) p10017
bb = C0 hex: debounce time of the Diag inputs p10017
bb = C1 hex: error in the internal data for p10030 SDI positive
bb = C2 hex: error in the internal data for p10031 SDI negative
bb = C3 ... CA hex: error in the data to calculate the drive groups p10030 ... p10031
bb = CB hex: p10032
bb = CC hex: p10033
bb = CD hex: p10009
bb = CE ... CF error in the data for drive group 1 SLP parameter p10032 ... p10033
bb = D0 ... D1 error in the data for drive group 2 SLP parameter p10032 ... p10033
bb = D2 ... D3 error in the data for drive group 3 SLP parameter p10032 ... p10033
bb = D4 ... D5 error in the data for drive group 4 SLP parameter p10032 ... p10033
bb = D6 error in the data for initializing the retract function
bb = D7 error in the data for the retract function SLP
bb = D8 error in parameter p10000[1..5]
bb = D9..E3 error in the internal data of the axis communication
bb = E4..F2 error in the internal data of the discrepancy check

cc: indicates the index of the data to be cross-compared that resulted in the error.

Remedy: Carry out the following steps on the TM54F:
- check the specified parameters for incorrect parameterization.
- activate the safety commissioning mode (p0010 = 95).
- start the copy function for SI parameters (p9700 = 57 hex).
- acknowledge complete data change (p9701 = AC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0977 = 1).
- carry out safe acknowledgment (p10006).

For an internal software error (aaaa > 0):
- For TM54F, upgrade the firmware to a later version.
- contact the Hotline.
- replace the TM54F.

F35052 (A) TM54F: Internal hardware error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software/hardware error has been detected on the Terminal Module 54F (TM54F).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- upgrade TM54F firmware to more recent version.
- contact the Hotline.
- replace the TM54F.

Reaction upon A: NONE
Acknowl. upon A: NONE

F35053 TM54F: Temperature fault threshold exceeded

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The temperature measured using the temperature sensing on the TM54F has exceeded the threshold value to initiate this fault.
As fault response fail-safe input terminal signals are transferred to the motion monitoring functions.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - allow the TM54F to cool down.
- carry out safe acknowledgment (p10006).

A35054 TM54F: Temperature alarm threshold exceeded

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing on the TM54F has exceeded the threshold value to initiate this alarm.
Remedy: - allow the TM54F to cool down.
- carry out safe acknowledgment (p10006).

A35075 (F) TM54F: Error during internal communication

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An internal communications error has occurred in the Terminal Module 54F (TM54F).
This message is also output in the following cases:
- The TM54F exists and no safety function of the TM54F has yet been parameterized.
- Parameter p10000 (TM54F master) is not set the same as p10000 (TM54F slave).
- Parameter p10010 (TM54F master) is not set the same as p10010 (TM54F slave).

Alarm value (r2124, interpret decimal):
Only for internal Siemens diagnostics.
Remedy: If TM54F exists and no safety function has yet been parameterized:
- Not necessary. The alarm disappears automatically after a safety function of the TM54F has been parameterized.

For p10010/p10000 from the TM54F master not equal to the TM54F slave:
- start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
- acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

For internal communication errors:
- check the electrical cabinet design and cable routing for EMC compliance
- upgrade the software on the TM54F.

- contact the Hotline.
- replace the TM54F.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)

A35080 (F) TM54F: Checksum error safety parameters

Message value: %1
Message class: Safety monitoring channel has identified an error (10)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The calculated checksum entered in r10004 over the safety-relevant parameters does not match the reference checksum saved in p10005 at the last machine acceptance.

Fault value (r0949, interpret binary):

Bit 0 = 1: Checksum error for functional SI parameters.

Bit 1 = 1: Checksum error for SI parameters for component assignment.

Remedy:
- check the safety-relevant parameters and if required, correct.
- set the reference checksum to the actual checksum.
- acknowledge the hardware replacement.
- carry out a POWER ON (power off/on).
- carry out an acceptance test.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)

A35081 (F) TM54F: Static (steady state) 1 signal at the F-DI for safe acknowledgment

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A logical 1 signal is present at the F-DI configured in p10006 for more than 10 seconds.

If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.

Remedy: Set the fail-safe digital input (F-DI) to a logical 0 signal (p10006).

Note:

F-DI: Failsafe Digital Input

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F35150 TM54F: Communication error

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A communication error between the TM54F master and Control Unit or between the TM54F slave and the Motor Module/Hydraulic Module was detected.

Fault value (r0949, interpret hexadecimal):

Only for internal Siemens troubleshooting.

Remedy: When replacing a Motor Module/Hydraulic Module, carry out the following steps:
- start the copy function for the node identifier on the TM54F (p9700 = 1D hex).
- acknowledge the hardware CRC on the TM54F (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

The following always applies:
- check the electrical cabinet design and cable routing for EMC compliance
- upgrade the software on the TM54F.
- contact the Hotline.
- replace the TM54F.

F35151 **TM54F: Discrepancy error**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The safety input terminals or output terminals show a different state longer than that parameterized in p10002.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
xxxx: The safety-relevant input terminals F-DI indicate a discrepancy.
Bit 0: Discrepancy for F-DI 0
...
Bit 9: Discrepancy for F-DI 9
yyyy: The safety-relevant output terminals F-DO indicate a discrepancy.
Bit 0: Discrepancy for F-DO 0
...
Bit 3: Discrepancy for F-DO 3
Note:
If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.
The following options are available to analyze all of the discrepancy errors:
- Using the commissioning software, evaluate the input states and output states of the TM54F. All discrepancy errors are displayed here.
- Compare parameters p10051 and p10052 from the TM54F master and TM54F slave for discrepancy.

Remedy: Check the wiring of the corresponding F-DI (contact problems).
Discrepancy errors in the fail-safe digital inputs (F-DI) can only be completely acknowledged if, after the cause of the error was resolved, safe acknowledgement was carried out (see p10006). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.

Sets the discrepancy time for cyclic switching operations at the F-DIs:
For cyclic switching operations at the fail-safe digital inputs (F-DI), it may be necessary to adapt the discrepancy time to the switching frequency:
If the period of a cyclic switching pulse corresponds to twice the value of p10002, then the following formulas should be checked:
- p10002 < (tp / 2) - td (discrepancy time must be less than half the period minus the actual discrepancy time)
- p10002 >= p10000 (discrepancy time must be no less than p10000)
- p10002 > td (discrepancy time must be greater than the switch discrepancy time which may actually apply)
td: possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI sampling cycle (see p10000).
tp: period for a switching operation in ms.
For cyclic switching operations and when debounce (p10017) is active, the discrepancy time is directly specified by the debounce time.
If the period of a cyclic switching pulse corresponds to twice the debounce time, then the following formulas should be checked.
- p10002 < p10017 + 1ms - td
- p10002 > td
- p10002 >= p10000

Example:

If the SI sampling cycle is 12 ms and the switching frequency is 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows:

p10002 <= 110/2 ms - 12 ms = 43 ms --> rounded-off, the following is obtained p10002 <= 36 ms

Since the discrepancy time can only be accepted as a whole SI sampling time, the value will need to be rounded up or down to a whole SI sampling time value if it is not an exact integer multiple of an SI sampling time.

Basic secondary condition to set the discrepancy time:

The discrepancy time of the FDIs must always be set higher than the highest value p9780 (the drives that use safety with TM54F).

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

F35152 TM54F: Internal software error

Message value: %1

Message class: Hardware / software error (1)

Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An internal software error has occurred in the Terminal Module 54F (TM54F).

The fail-safe digital inputs and digital outputs (F-DI, F-DO) on the TM54F have been set to the safe state.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Note:

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

Remedy: Check that the firmware version of the TM54F matches the Control Unit's firmware version.

The automatic firmware update must be activated in the project.

Note:

This signal will also appear, for example, in conjunction with fault F35013. In this case you should check all the parameters for the test stop on the TM54F (p10001, p10003, p10007, p10041, p10046, p10047). In this case, a POWER ON is required after the parameters have been corrected.

A35200 (F, N) TM: Calibration data

Message value: %1

Message class: Hardware / software error (1)

Drive object: B_INF, TM150, TM31, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: An error was detected in the calibration data of the Terminal Module.

Alarm value (r2124, interpret decimal):

ddcbaa dec: dd = component number, c = AI/AO, b = fault type, aa = number

c = 0: analog input (AI, Analog Input)

c = 1: analog output (AO, Analog Output)

b = 0: No calibration data available.

b = 1: Offset too high (> 100 mV).

Remedy: - carry out a POWER ON (power off/on) for all components.

- Replace the component if necessary.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F35207 (N, A) **TM: Temperature fault/alarm threshold channel 0 exceeded**

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[0], p4103[0]).
or
- fault threshold exceeded (p4102[1]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies:
- if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C
- if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C
The temperature actual value is displayed via connector output r4105[0] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[1] - hysteresis (5 K, for TM150, can be set using p4118[0]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35208 (N, A) **TM: Temperature fault/alarm threshold channel 1 exceeded**

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[2], p4103[1]).
or
- fault threshold exceeded (p4102[3]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies:
- if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C
- if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C
The temperature actual value is displayed via connector output r4105[1] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[3] - hysteresis (5 K, for TM150, can be set using p4118[1]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35209 (N, A) TM: Temperature fault/alarm threshold channel 2 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[4], p4103[2]).
or
- fault threshold exceeded (p4102[5]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies:
- if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C
- if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C
The temperature actual value is displayed via connector output r4105[2] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[5] - hysteresis (5 K, for TM150, can be set using p4118[2]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35210 (N, A) TM: Temperature fault/alarm threshold channel 3 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[6], p4103[3]).
or
- fault threshold exceeded (p4102[7]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies:
- if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C
- if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C

The temperature actual value is displayed via connector output r4105[3] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[7] - hysteresis (5 K, for TM150, can be set using p4118[3]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35211 (F, N) TM: Temperature alarm threshold channel 0 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[0]) has exceeded the threshold value to initiate this alarm (p4102[0]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies:
- if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C
- if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[0] - hysteresis (5 K); for TM150, can be set using p4118[0].
See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35212 (F, N) TM: Temperature alarm threshold channel 1 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[1]) has exceeded the threshold value to initiate this alarm (p4102[2]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies:
- if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C
- if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K); for TM150, can be set using p4118[1].
See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

A35213 (F, N) TM: Temperature alarm threshold channel 2 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[2]) has exceeded the threshold value to initiate this alarm (p4102[4]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies:

- if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C
- if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K); for TM150, can be set using p4118[2].

See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35214 (F, N) TM: Temperature alarm threshold channel 3 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[3]) has exceeded the threshold value to initiate this alarm (p4102[6]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies:

- if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C
- if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[6] - hysteresis (5 K); for TM150, can be set using p4118[3].

See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35220 (N, A) TM: Frequency limit reached for signal output

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, TM31, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The signals output from the Terminal Module 41 (TM41) for tracks A/B have reached the limit frequency. The output signals are no longer in synchronism with the specified setpoint.

SIMOTION (p4400 = 0) operating mode:
- If the TM41 has been configured as the technology project, this fault is also output in response to short-circuited A/B signals in X520.
SINAMICS (p4400 = 1) operating mode:
- the fine resolution of TM41 in p0418 does not match that of the connector input that was interconnected at p4420
- the encoder position actual value r0479 interconnected at connector input p4420 has an excessively high actual speed
- the output signals correspond to a speed, which is greater than the maximum speed (r1082 of TM41).

Remedy: SIMOTION (p4400 = 0) operating mode:
- enter a lower speed setpoint (p1155).
- reduce the encoder pulse number (p0408).
- check track A/B for short-circuits.
SINAMICS (p4400 = 1) operating mode:
- enter a lower speed setpoint (p1155).
- reduce the encoder pulse number (p0408).
Notice:
The output signal is no longer monitored after changing the message type to "Alarm" (A).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35221 (N, A) TM: Setpoint - actual value deviation outside the tolerance range

Message value: -
Message class: Application / technological function faulted (17)
Drive object: B_INF, TM31, VECTOR_G
Reaction: Vector: OFF1 (NONE, OFF2, OFF3)
Infeed: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The deviation between the setpoint and the output signals (track A/B) exceeds the tolerance of +/-3 %. The deviation between the internal and external measured value is too high (> 1000 pulses).
Remedy: - reduce the basic clock cycle (p0110, p0111).
- if required, replace the component (e.g. internal short-circuit).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35222 (F, N) TM: Encoder pulse number not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: B_INF, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The encoder pulse number entered does not match the permissible pulse number from a hardware perspective.
Fault value (r0949, interpret decimal):
1: Encoder pulse number is too high.
2: Encoder pulse number is too low.
4: Encoder pulse number is less than the zero mark offset (p4426).
Remedy: - enter the encoder pulse number in the permissible range (p0408).
- if necessary, replace TM41 SAC with TM41 DAC.
Note:
TM41 SAC: order no. = 6SL3055-0AA00-3PA0
TM41 DAC: order no. = 6SL3055-0AA00-3PA1
The following applies for TM41 SAC:
- minimum/maximum value for p0408: 1000/8192

	The following applies for TM41 DAC:
	- minimum/maximum value for p0408: 1000/16384
	See also: p0408 (Rotary encoder pulse number)
Reaction upon F:	Vector: OFF1 (NONE, OFF2, OFF3)
	Infeed: OFF1 (NONE, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35223 (F, N) TM: Zero mark offset not permissible

Message value:	%1
Message class:	Application / technological function faulted (17)
Drive object:	B_INF, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The entered zero mark offset is not permissible.
	Fault value (r0949, interpret decimal):
	1: Zero mark offset is too high.
Remedy:	Enter the zero mark offset in the permissible range (p4426).
Reaction upon F:	Vector: OFF1 (NONE, OFF2, OFF3)
	Infeed: OFF1 (NONE, OFF2)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F35230 TM: Hardware fault

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	Vector: NONE
	Infeed: OFF1 (NONE, OFF2)
Acknowledge:	POWER ON
Cause:	The Terminal Module (TM) used has signaled internal errors.
	Signals from this module may not be evaluated because they are very likely to be incorrect.
Remedy:	If required, replace the Terminal Module.

F35233 DRIVE-CLiQ component function not supported

Message value:	%1
Message class:	Error in the parameterization / configuration / commissioning procedure (18)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
	Fault value (r0949, interpret decimal):
	1: Terminal Module 31 does not support the function "Timer for temperature evaluation" (X522.7/8, p4103 > 0.000).
	4: The improved actual value resolution is not supported (p4401.4).
	5: The improved setpoint resolution is not supported (p4401.5).
	6: The residual value handling in the setpoint channel cannot be deactivated (p4401.6).
	7: Output frequencies greater than 750 kHz cannot be activated (p4401.7).
Remedy:	For fault value = 1:
	- De-activate timer for temperature evaluation (X522.7/8) (p4103 = 0.000).
	- Use Terminal Module 31 and the relevant firmware version to enable the "Timer for temperature evaluation" function (Order No. 6SL3055-0AA00-3AA1, firmware version 2.6 and higher).
	See also: p4103

F35400 (N, A) TM: Temperature fault/alarm threshold channel 4 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[8], p4103[4]).
or
- fault threshold exceeded (p4102[9]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies:
- if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C
- if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C
The temperature actual value is displayed via connector output r4105[4] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[9] - hysteresis (p4118[4]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35401 (N, A) TM: Temperature fault/alarm threshold channel 5 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[10], p4103[5]).
or
- fault threshold exceeded (p4102[11]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies:
- if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C
- if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C
The temperature actual value is displayed via connector output r4105[5] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[11] - hysteresis (p4118[5]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35402 (N, A) TM: Temperature fault/alarm threshold channel 6 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[12], p4103[6]).
or
- fault threshold exceeded (p4102[13]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies:
- if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C
- if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C
The temperature actual value is displayed via connector output r4105[6] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[13] - hysteresis (p4118[6]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35403 (N, A) TM: Temperature fault/alarm threshold channel 7 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: Vector: OFF2 (NONE, OFF1, OFF3)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[14], p4103[7]).
or
- fault threshold exceeded (p4102[15]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:
- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C
The temperature actual value is displayed via connector output r4105[7] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

	Fault value (r0949, interpret decimal):
	Temperature actual value at the time of initiation [0.1 °C].
Remedy:	- allow the temperature sensor to cool down to below p4102[15] - hysteresis (p4118[7]).
	- if required, set the fault response to NONE (p2100, p2101).
	See also: p4102
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F35404 (N, A) TM: Temperature fault/alarm threshold channel 8 exceeded

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	Vector: OFF2 (NONE, OFF1, OFF3)
	Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
	- alarm threshold has been exceeded longer than that set in the timer (p4102[16], p4103[8]).
	or
	- fault threshold exceeded (p4102[17]).
	Note:
	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:
	- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
	- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C
	The temperature actual value is displayed via connector output r4105[8] and can be interconnected.
	Notice:
	This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
	Fault value (r0949, interpret decimal):
	Temperature actual value at the time of initiation [0.1 °C].
Remedy:	- allow the temperature sensor to cool down to below p4102[17] - hysteresis (p4118[8]).
	- if required, set the fault response to NONE (p2100, p2101).
	See also: p4102
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F35405 (N, A) TM: Temperature fault/alarm threshold channel 9 exceeded

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	Vector: OFF2 (NONE, OFF1, OFF3)
	Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
	- alarm threshold has been exceeded longer than that set in the timer (p4102[18], p4103[9]).
	or
	- fault threshold exceeded (p4102[19]).
	Note:
	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:
	- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
	- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C

The temperature actual value is displayed via connector output r4105[9] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[19] - hysteresis (p4118[9]).

- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F35406 (N, A) TM: Temperature fault/alarm threshold channel 10 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: B_INF, TM150, VECTOR_G

Reaction: Vector: OFF2 (NONE, OFF1, OFF3)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[20], p4103[10]).

or

- fault threshold exceeded (p4102[21]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies:

- if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C
- if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C

The temperature actual value is displayed via connector output r4105[10] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[21] - hysteresis (p4118[10]).

- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F35407 (N, A) TM: Temperature fault/alarm threshold channel 11 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: B_INF, TM150, VECTOR_G

Reaction: Vector: OFF2 (NONE, OFF1, OFF3)

Infeed: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[22], p4103[11]).

or

- fault threshold exceeded (p4102[23]).

	Note:
	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies:
	- if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C
	- if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C
	The temperature actual value is displayed via connector output r4105[11] and can be interconnected.
	Notice:
	This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
	Fault value (r0949, interpret decimal):
	Temperature actual value at the time of initiation [0.1 °C].
Remedy:	- allow the temperature sensor to cool down to below p4102[23] - hysteresis (p4118[11]).
	- if required, set the fault response to NONE (p2100, p2101).
	See also: p4102
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A35410 (F, N) TM: Temperature alarm threshold channel 4 exceeded

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r4105[4]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[8]).
	Note:
	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies:
	- if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C
	- if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C
	Alarm value (r2124, interpret decimal):
	Temperature actual value at the time of initiation [0.1 °C].
Remedy:	Allow the temperature sensor to cool down to below p4102[8] - hysteresis (p4118[4]).
	See also: p4102
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35411 (F, N) TM: Temperature alarm threshold channel 5 exceeded

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r4105[5]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[10]).
	Note:
	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies:
	- if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C
	- if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C
	Alarm value (r2124, interpret decimal):
	Temperature actual value at the time of initiation [0.1 °C].
Remedy:	Allow the temperature sensor to cool down to below p4102[10] - hysteresis (p4118[5]).
	See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35412 (F, N) TM: Temperature alarm threshold channel 6 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[6]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[12]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies:

- if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C
- if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[12] - hysteresis (p4118[6]).

See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35413 (F, N) TM: Temperature alarm threshold channel 7 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[7]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[14]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:

- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[14] - hysteresis (p4118[7]).

See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35414 (F, N) TM: Temperature alarm threshold channel 8 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[8]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[16]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:

- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[16] - hysteresis (p4118[8]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35415 (F, N) TM: Temperature alarm threshold channel 9 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: B_INF, TM150, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r4105[9]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[18]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:

- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[18] - hysteresis (p4118[9]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35416 (F, N) TM: Temperature alarm threshold channel 10 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: B_INF, TM150, VECTOR_G

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r4105[10]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[20]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies:

- if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C
- if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[20] - hysteresis (p4118[10]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35417 (F, N) TM: Temperature alarm threshold channel 11 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[11]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[22]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies:

- if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C
- if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[22] - hysteresis (p4118[11]).

See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

N35800 (F) TM: Group signal

Message value: -
Message class: General drive fault (19)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowledge: NONE
Cause: The Terminal Module has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Infeed: OFF2 (NONE, OFF1)
Acknowl. upon F: IMMEDIATELY

A35801 (F, N) TM DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved.

Fault cause:

10 (= 0A hex):

The sign-of-life bit in the receive telegram is not set.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the DRIVE-CLiQ connection.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A35802 (F, N) TM: Time slice overflow

Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A time slice overflow has occurred on the Terminal Module.
Remedy:	Replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35803 (F, N) TM: Memory test

Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred during the memory test on the Terminal Module.
Remedy:	- check whether the permissible ambient temperature for the Terminal Module is being maintained. - replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F35804 (N, A) TM: CRC

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A checksum error has occurred when reading-out the program memory on the Terminal Module. Fault value (r0949, interpret hexadecimal): Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the Terminal Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A35805 (F, N) TM: EEPROM checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Internal parameter data is corrupted. Alarm value (r2124, interpret hexadecimal): 01: EEPROM access error. 02: Too many blocks in the EEPROM.
Remedy:	- check whether the permissible ambient temperature for the component is maintained. - replace the Terminal Module 31 (TM31).

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35807 (F, N) TM: Sequence control time monitoring

Message value: -
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: Error, timeout, sequence control on the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35820 TM DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35835 **TM DRIVE-CLiQ: Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved. The nodes do not send and receive in synchronism.

Fault cause:

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.

- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35836 **TM DRIVE-CLiQ: Send error for DRIVE-CLiQ data**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved. Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F35837 **PTM DRIVE-CLiQ: Component fault**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

A35840 TM DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.

	67 (= 43 hex):
	Send error: The telegram buffer memory contains an error.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35845 TM DRIVE-CLiQ: Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module (TM) involved.
	Fault cause:
	11 (= 0B hex):
	Synchronization error during alternating cyclic data transfer.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
	See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35850 TM: Internal software error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	Vector: OFF1 (NONE, OFF2, OFF3)
	Infeed: OFF1 (NONE, OFF2)
Acknowledge:	POWER ON
Cause:	An internal software error in the Terminal Module (TM) has occurred.
	Fault value (r0949, interpret decimal):
	1: Background time slice is blocked.
	2: Checksum over the code memory is not OK.
Remedy:	- replace the Terminal Module (TM).
	- if required, upgrade the firmware in the Terminal Module.
	- contact the Hotline.

F35851 TM DRIVE-CLiQ (CU): Sign-of-life missing

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
	The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
	Fault cause:
	10 (= 0A hex):
	The sign-of-life bit in the receive telegram is not set.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Upgrade the firmware of the component involved.

F35860	TM DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. 17 (= 11 hex): CRC error and the receive telegram is too early. 18 (= 12 hex): The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex): The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex): The length of the receive telegram does not match the receive list and the receive telegram is too early. 21 (= 15 hex): The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35875	**TM DRIVE-CLiQ (CU): Supply voltage failed**
Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause: 9 (= 09 hex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...). - check the dimensioning of the power supply for the DRIVE-CLiQ component.

F35885	**TM DRIVE-CLiQ (CU): Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35886	**TM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. Data were not able to be sent.

	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

F35887 TM DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component (Terminal Module) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F35895 TM DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35896	**TM DRIVE-CLiQ (CU): Inconsistent component properties**
Message value:	Component number: %1
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	Vector: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) Infeed: OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.
Remedy:	- carry out a POWER ON. - when a component is replaced, the same component type and if possible the same firmware version should be used. - when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F35899 (N, A)	**TM: Unknown fault**
Message value:	New message: %1
Message class:	General drive fault (19)
Drive object:	B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction:	Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. Note: If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the Terminal Module by an older firmware version (r0158). - upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A35903 (F, N)	**TM: I2C bus error occurred**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred while accessing the internal I2C bus of the Terminal Module.
Remedy:	Replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35904 (F, N)	**TM: EEPROM**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error has occurred accessing the non-volatile memory on the Terminal Module.
Remedy:	Replace the Terminal Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35905 (F, N)	**TM: Parameter access**
Message value:	-
Message class:	Hardware / software error (1)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Control Unit attempted to write an illegal parameter value to the Terminal Module.
Remedy:	- check whether the firmware version of the Terminal Module (r0158) matches the firmware version of Control Unit (r0018). - if required, replace the Terminal Module. Note: The firmware versions that match each other are in the readme.txt file on the memory card.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35906 (F, N)	**TM: 24 V power supply missing**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply for the digital outputs is missing. Alarm value (r2124, interpret hexadecimal): 01: TM17 24 V power supply for DI/DO 0 ... 7 missing. 02: TM17 24 V power supply for DI/DO 8 ... 15 missing. 04: TM15 24 V power supply for DI/DO 0 ... 7 (X520) missing. 08: TM15 24 V power supply for DI/DO 8 ... 15 (X521) missing. 10: TM15 24 V power supply for DI/DO 16 ... 23 (X522) missing. 20: TM41 24 V power supply for DI/DO 0 ... 3 missing.
Remedy:	Check the terminals for the power supply voltage (L1+, L2+, L3+, M or +24 V_1 for TM41).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35907 (F, N) TM: Hardware initialization error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The Terminal Module was not successfully initialized.
Alarm value (r2124, interpret hexadecimal):
01: TM17 or TM41 - incorrect configuration request.
02: TM17 or TM41 - programming not successful.
04: TM17 or TM41 - invalid time stamp
Remedy: Carry out a POWER ON.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35910 (F, N) TM: Module overtemperature

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The temperature in the module has exceeded the highest permissible limit.
Remedy: - reduce the ambient temperature.
- replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35911 (F, N) TM: Clock synchronous operation sign-of-life missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
When the alarm is output, the module outputs are reset up to the next synchronization.
Remedy: - check the physical bus configuration (terminating resistor, shielding, etc.).
- check the interconnection of the master sign-of-life (r4201 via p0915).
- check whether the master correctly sends the sign-of-life (e.g. set up a trace with r4201.12 ... r4201.15 and trigger signal r4301.9).
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35920 (F, N) **TM: Error temperature sensor channel 0**

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35921 (F, N) **TM: Error temperature sensor channel 1**

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35922 (F, N) **TM: Error temperature sensor channel 2**

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35923 (F, N) TM: Error temperature sensor channel 3

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35924 (F, N) TM: Error temperature sensor channel 4

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35925 (F, N) TM: Error temperature sensor channel 5

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: B_INF, TM150, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:	- make sure that the sensor is connected correctly. - replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35926 (F, N) TM: Error temperature sensor channel 6

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy:	- make sure that the sensor is connected correctly. - replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35927 (F, N) TM: Error temperature sensor channel 7

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy:	- make sure that the sensor is connected correctly. - replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35928 (F, N) TM: Error temperature sensor channel 8

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm

	2: Measured resistance too low.
	PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy:	- make sure that the sensor is connected correctly.
	- replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35929 (F, N) TM: Error temperature sensor channel 9

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred.
	Alarm value (r2124, interpret decimal):
	1: Wire breakage or sensor not connected.
	KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
	2: Measured resistance too low.
	PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy:	- make sure that the sensor is connected correctly.
	- replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35930 (F, N) TM: Error temperature sensor channel 10

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred.
	Alarm value (r2124, interpret decimal):
	1: Wire breakage or sensor not connected.
	KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
	2: Measured resistance too low.
	PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy:	- make sure that the sensor is connected correctly.
	- replace the sensor.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A35931 (F, N) TM: Error temperature sensor channel 11

Message value:	%1
Message class:	External measured value / signal state outside the permissible range (16)
Drive object:	B_INF, TM150, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the temperature sensor, an error occurred.

Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35950 TM: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: B_INF, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: OFF2 (NONE)
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Information about the fault source.
Only for internal Siemens troubleshooting.
Remedy: - If necessary, upgrade the firmware in the Terminal Module to a later version.
- contact the Hotline.

A35999 (F, N) TM: Unknown alarm

Message value: New message: %1
Message class: General drive fault (19)
Drive object: B_INF, TM150, TM31, TM54F_MA, TM54F_SL, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Terminal Module by an older firmware version (r0158).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F36207 (N, A) Hub: Overtemperature component

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: B_INF, HUB, VECTOR_G
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The temperature on the DRIVE-CLiQ Hub Module has exceeded the fault threshold.
Fault value (r0949, interpret decimal):
Actual temperature in 0.1 °C resolution.

Remedy:	- Check ambient temperature at component installation location. - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A36211 (F, N) Hub: Overtemperature alarm component

Message value:	%1
Message class:	Overtemperature of the electronic components (6)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature on the DRIVE-CLiQ Hub Module has exceeded the alarm threshold. Alarm value (r2124, interpret decimal): Actual temperature in 0.1 °C resolution.
Remedy:	- Check ambient temperature at component installation location. - replace the component involved.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F36214 (N, A) Hub: overvoltage fault 24 V supply

Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The 24 V power supply on the DRIVE-CLiQ Hub Module has exceeded the fault threshold. Fault value (r0949, interpret decimal): Actual operating voltage in 0.1 °C resolution
Remedy:	- check the supply voltage of the component involved. - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F36216 (N, A) Hub: undervoltage fault 24 V supply

Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The 24 V power supply on the DRIVE-CLiQ Hub Module has undershot the fault threshold. Fault value (r0949, interpret decimal): Actual operating voltage in 0.1 °C resolution
Remedy:	- check the supply voltage of the component involved. - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A36217 (N)	**Hub: undervoltage alarm 24 V supply**
Message value:	%1
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 24 V power supply on the DRIVE-CLiQ Hub Module has undershot the alarm threshold. Alarm value (r2124, interpret decimal): Actual operating voltage in 0.1 °C resolution
Remedy:	- check the supply voltage of the component involved. - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

N36800 (F)	**Hub: Group signal**
Message value:	-
Message class:	General drive fault (19)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The DRIVE-CLiQ Hub Module has detected at least one fault.
Remedy:	Evaluates other actual messages.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY

A36801 (F, N)	**Hub DRIVE-CLiQ: Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the DRIVE-CLiQ Hub Module involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ connection. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F36802 (N, A)	**Hub: Time slice overflow**
Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	Vector: NONE Infeed: OFF2 (NONE)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A time slice overflow has occurred on the DRIVE-CLiQ Hub Module.

	Fault value (r0949, interpret decimal):
	xx: Time slice number xx
Remedy:	- reduce the current controller frequency.
	- carry out a POWER ON (power off/on) for all components.
	- upgrade firmware to later version.
	- contact the Hotline.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F36804 (N, A) Hub: Checksum error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A checksum error has occurred when reading out the program memory on the DRIVE-CLiQ Hub Module.
	Alarm value (r2124, interpret hexadecimal):
	Difference between the checksum at POWER ON and the actual checksum.
Remedy:	- check whether the permissible ambient temperature for the component is maintained.
	- replace the DRIVE-CLiQ Hub Module.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A36805 (F, N) Hub: EEPROM checksum incorrect

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The internal parameter data on the DRIVE-CLiQ Hub Module is incorrect.
	Alarm value (r2124, interpret hexadecimal):
	01: EEPROM access error.
	02: Too many blocks in the EEPROM.
Remedy:	- check whether the permissible ambient temperature for the component is maintained.
	- replace the DRIVE-CLiQ Hub Module.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY (POWER ON)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F36820 Hub DRIVE-CLiQ: Telegram error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the DRIVE-CLiQ Hub Module involved.
	Fault cause:
	1 (= 01 hex):
	Checksum error (CRC error).

	2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36835 Hub DRIVE-CLiQ: Cyclic data transfer error

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the DRIVE-CLiQ Hub Module involved. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36836 Hub DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the DRIVE-CLiQ Hub Module involved. Data were not able to be sent.

Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F36837 Hub DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, HUB, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

A36840 Hub DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36845 Hub DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, HUB, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the DRIVE-CLiQ Hub Module involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36851 **Hub DRIVE-CLiQ (CU): Sign-of-life missing**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, HUB, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Upgrade the firmware of the component involved.

F36860 **Hub DRIVE-CLiQ (CU): Telegram error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: B_INF, HUB, TM150, TM31, VECTOR_G
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

	25 (= 19 hex):
	The error bit in the receive telegram is set and the receive telegram is too early.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on).
	- check the electrical cabinet design and cable routing for EMC compliance
	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F36875	**HUB DRIVE-CLiQ (CU): Supply voltage failed**
Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
	Fault cause:
	9 (= 09 hex):
	The power supply voltage for the components has failed.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on).
	- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
	- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F36885	**Hub DRIVE-CLiQ (CU): Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to the Control Unit.
	The nodes do not send and receive in synchronism.
	Fault cause:
	26 (= 1A hex):
	Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
	33 (= 21 hex):
	The cyclic telegram has not been received.
	34 (= 22 hex):
	Timeout in the telegram receive list.
	64 (= 40 hex):
	Timeout in the telegram send list.
	98 (= 62 hex):
	Error at the transition to cyclic operation.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the supply voltage of the component involved.
	- carry out a POWER ON.
	- replace the component involved.

F36886	**Hub DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.

F36887	**Hub DRIVE-CLiQ (CU): Component fault**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module) involved. Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.

F36895	**Hub DRIVE-CLiQ (CU): Alternating cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer.

	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON.
	See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F36896 Hub DRIVE-CLiQ (CU): Inconsistent component properties

Message value:	Component number: %1
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	B_INF, HUB, TM150, TM31, VECTOR_G
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
	Fault value (r0949, interpret decimal):
	Component number.
Remedy:	- carry out a POWER ON.
	- when a component is replaced, the same component type and if possible the same firmware version should be used.
	- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F36899 (N, A) Hub: Unknown fault

Message value:	New message: %1
Message class:	General drive fault (19)
Drive object:	B_INF, HUB, VECTOR_G
Reaction:	Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
	Infeed: NONE (OFF1, OFF2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	A fault occurred on the DRIVE-CLiQ Hub Module that cannot be interpreted by the Control Unit firmware.
	This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
	Fault value (r0949, interpret decimal):
	Fault number.
	Note:
	If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:	- replace the firmware on the DRIVE-CLiQ Hub Module with older firmware (r0158).
	- upgrade the firmware on the Control Unit (r0018).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F36950 Hub: Internal software error

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	OFF2 (NONE)
Acknowledge:	POWER ON
Cause:	An internal software error has occurred.
	Fault value (r0949, interpret decimal):
	Information about the fault source.
	Only for internal Siemens troubleshooting.
Remedy:	- if required, upgrade the firmware in the DRIVE-CLiQ hub module to a more recent version.
	- contact the Hotline.

A36999 (F, N) Hub: Unknown alarm

Message value: New message: %1
Message class: General drive fault (19)
Drive object: B_INF, HUB, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: An alarm occurred on the DRIVE-CLiQ Hub Module that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the DRIVE-CLiQ Hub Module with older firmware (r0158).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: Vector: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F40000 Fault at DRIVE-CLiQ socket X100

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X100.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40001 Fault at DRIVE-CLiQ socket X101

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X101.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40002 Fault at DRIVE-CLiQ socket X102

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X102.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40003	**Fault at DRIVE-CLiQ socket X103**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X103. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.

F40004	**Fault at DRIVE-CLiQ socket X104**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X104. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.

F40005	**Fault at DRIVE-CLiQ socket X105**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A fault has occurred at the drive object at the DRIVE-CLiQ socket X105. Fault value (r0949, interpret decimal): First fault that has occurred for this drive object.
Remedy:	Evaluate the fault buffer of the specified object.

A40100	**Alarm at DRIVE-CLiQ socket X100**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X100. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

A40101	**Alarm at DRIVE-CLiQ socket X101**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X101. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

A40102	**Alarm at DRIVE-CLiQ socket X102**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X102. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

A40103	**Alarm at DRIVE-CLiQ socket X103**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X103. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

A40104	**Alarm at DRIVE-CLiQ socket X104**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X104. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

A40105	**Alarm at DRIVE-CLiQ socket X105**
Message value:	%1
Message class:	General drive fault (19)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An alarm has occurred at the drive object at the DRIVE-CLiQ socket X105. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object.
Remedy:	Evaluate the alarm buffer of the specified object.

F40799	**CX32: Configured transfer end time exceeded**
Message value:	-
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The configured transfer end time when transferring the cyclic actual values was exceeded.
Remedy:	- carry out a POWER ON (power off/on) for all components. - contact the Hotline.

F40801	**CX32 DRIVE-CLiQ: Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40820	**CX32 DRIVE-CLiQ: Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40825 CX32 DRIVE-CLiQ: Supply voltage failed

Message value: Component number: %1, fault cause: %2

Message class: Supply voltage fault (undervoltage) (3)

Drive object: All objects

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).

- check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the DRIVE-CLiQ component power supply.

F40835 CX32 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. The nodes do not send and receive in synchronism.

Fault cause:

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (power off/on).

- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40836 CX32 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON (power off/on).

F40837	**CX32 DRIVE-CLiQ: Component fault**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.

F40845	**CX32 DRIVE-CLiQ: Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON (power off/on). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40851	**CX32 DRIVE-CLiQ (CU): Sign-of-life missing**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	Upgrade the firmware of the component involved.

F40860	**CX32 DRIVE-CLiQ (CU): Telegram error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. 17 (= 11 hex): CRC error and the receive telegram is too early. 18 (= 12 hex): The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex): The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex): The length of the receive telegram does not match the receive list and the receive telegram is too early. 21 (= 15 hex): The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F40875	**CX32 DRIVE-CLiQ (CU): Supply voltage failed**
Message value:	Component number: %1, fault cause: %2
Message class:	Supply voltage fault (undervoltage) (3)
Drive object:	All objects
Reaction:	OFF1 (OFF2)
Acknowledge:	IMMEDIATELY
Cause:	The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause: 9 (= 09 hex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- carry out a POWER ON (power off/on). - check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...). - check the dimensioning of the DRIVE-CLiQ component power supply.

F40885	**CX32 DRIVE-CLiQ (CU): Cyclic data transfer error**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON (power off/on). - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F40886	**CX32 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**
Message value:	Component number: %1, fault cause: %2
Message class:	Internal (DRIVE-CLiQ) communication error (12)
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. Data were not able to be sent.

	Fault cause:
	65 (= 41 hex):
	Telegram type does not match send list.
	Note regarding the message value:
	The individual information is coded as follows in the message value (r0949/r2124):
	0000yyxx hex: yy = component number, xx = error cause
Remedy:	Carry out a POWER ON (power off/on).

F40887 CX32 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40895 CX32 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (power off/on).
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F49150	**Cooling unit: Fault occurred**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The cooling unit signals a general fault.
Remedy:	- check the wiring between the cooling unit and the input terminal (Terminal Module). - check the external control device for the cooling unit. See also: p0266 (Cooling unit feedback signals signal source)

F49151	**Cooling unit: Conductivity has exceeded the fault threshold**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The conductivity of the cooling liquid has exceeded the selected fault threshold (p0269[2]). See also: p0261 (Cooling unit starting time 2), p0262 (Cooling unit fault conductivity delay time), p0266 (Cooling unit feedback signals signal source)
Remedy:	Check the device to de-ionize the cooling liquid.

F49152	**Cooling unit: ON command feedback signal missing**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The feedback signal of the ON command of the cooling unit is missing. - after the ON command, the feedback signal has not been received within the selected starting time (p0260). - the feedback signal has failed in operation. See also: p0260 (Cooling unit starting time 1), r0267 (Cooling unit status word)
Remedy:	- check the wiring between the cooling unit and the input terminal (Terminal Module). - check the external control device for the cooling unit.

F49153	**Cooling unit: Liquid flow too low**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The drive converter cooling unit signals that the cooling liquid flow is too low. - after the ON command, the feedback signal has not been received within the selected starting time (p0260). - in operation, the feedback signal has failed for longer than the permitted failure time (p0263). See also: p0260 (Cooling unit starting time 1), p0263 (Cooling unit fault liquid flow delay time), r0267 (Cooling unit status word)
Remedy:	- check the wiring between the cooling unit and the input terminal (Terminal Module). - check the external control device for the cooling unit.

F49154 (A)	**Cooling unit: Liquid leak is present**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The liquid leakage monitoring function has responded. Caution: If this fault is re-parameterized as an alarm then using other monitoring functions it must be ensured that when cooling water is lost, the drive is powered down! See also: r0267 (Cooling unit status word)
Remedy:	- check the cooling system for leaks in the cooling circuit. - check the wiring of the input terminal (Terminal Module) used to monitor leaking fluid.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F49155	**Cooling unit: Power Stack Adapter, firmware version too old**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The firmware version in the Power Stack Adapter (PSA) is too old and does not support the liquid cooling.
Remedy:	Upgrade the firmware. Check EEPROM data.

F49156	**Cooling unit: Cooling liquid temperature has exceeded the fault threshold**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The cooling liquid intake temperature has exceeded the specified fault threshold. Note: The value for the fault threshold depends on the power unit (hardware descriptive data, e.g. 52 ... 55 °C).
Remedy:	Check the cooling system and the ambient conditions.

A49170	**Cooling unit: Alarm has occurred**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The cooling unit signals a general alarm.
Remedy:	- check the wiring between the cooling unit and the input terminal (Terminal Module). - check the external control device for the cooling unit.

A49171	**Cooling unit: Conductivity has exceeded the alarm threshold**
Message value:	-
Message class:	Auxiliary unit faulted (20)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	Conductivity monitoring is set for the cooling liquid (r0267.7, from p0266[7]). See also: p0261 (Cooling unit starting time 2), p0262 (Cooling unit fault conductivity delay time), p0266 (Cooling unit feedback signals signal source), r0267 (Cooling unit status word)

Remedy: Check the device to de-ionize the cooling liquid.

A49171 Cooling unit: Conductivity has exceeded the alarm threshold

Message value: -
Message class: Auxiliary unit faulted (20)
Drive object: B_INF
Reaction: NONE
Acknowledge: NONE
Cause: The conductivity of the cooling liquid has exceeded the selected alarm threshold (p0269[1]).
Note:
The threshold cannot be set higher than the fault threshold specified in the equipment description.
Remedy: Check the device to de-ionize the cooling liquid.

A49172 Cooling unit: Conductivity actual value is not valid

Message value: -
Message class: Auxiliary unit faulted (20)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: When monitoring the conductivity of the cooling liquid, there is a fault in the wiring or in the sensor.
Remedy: - check the wiring between the cooling unit and the Power Stack Adapter (PSA).
- check the function of the sensor to measure the conductivity.

A49173 Cooling unit: Cooling liquid temperature has exceeded the alarm threshold

Message value: -
Message class: Auxiliary unit faulted (20)
Drive object: B_INF, VECTOR_G
Reaction: NONE
Acknowledge: NONE
Cause: The cooling liquid intake temperature has exceeded the specified alarm threshold.
Note:
The value for the alarm threshold depends on the power unit (hardware descriptive data, e.g. 42 ... 50 °C).
Remedy: Check the cooling system and the ambient conditions.

F49200 Excitation group signal fault

Message value: %1
Message class: General drive fault (19)
Drive object: VECTOR_G
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The excitation sequence control signals a fault.
Fault value (r0949, interpret hexadecimal):
Bit 0:
When powered down or when powering down the excitation, the signal "excitation ready feedback signal" was not received within the monitoring time.
Bit 1:
After an ON command, the signal "excitation ready feedback signal" was not received within the monitoring time.
Bit 2:
After the pulses were enabled, the signal "excitation operational feedback signal" was not received within the monitoring time.
Bit 3:
The "excitation group signal fault" signal is present.
Bit 4:
The switch-on command for the excitation was reset, although pulse enable (r0899.11) is still available, or the excitation current actual value has still not fallen below a minimum value.

	Note: message can also come from p6500[59].
Remedy:	- check the excitation. - check commands, feedback signals and BICO interconnections. - re bit 4: increase the switch-off delay time p1647

A49201 (F) Excitation group signal alarm

Message value:	-
Message class:	General drive fault (19)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	The "excitation group signal alarm" signal is present. Note: message can come from p6500[58].
Remedy:	Check the excitation equipment.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY

A49204 (N) Excitation switch-off alarm

Message value:	-
Message class:	Hardware / software error (1)
Drive object:	VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	When switching off the excitation, after the delay time p1647 has expired, the excitation current has still not decayed to zero.
Remedy:	Extend the switch-off delay time in p1647. The alarm is reset if p1647 is adapted. See also: p1647 (Excitation switch-off delay time)
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A49998 Recorder trigger event occurred

Message value:	%1
Message class:	Hardware / software error (1)
Drive object:	B_INF, VECTOR_G
Reaction:	NONE
Acknowledge:	NONE
Cause:	A recorder trigger event has occurred. The data are then written to the memory card, specifying the event number. Alarm value (r2124, interpret decimal): Event number.
Remedy:	Not necessary. This message disappears automatically.

A50001 (F) PN/COMM BOARD: Configuration error

Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	CBE20: A PROFINET controller attempts to establish a connection using an incorrect configuring telegram. The "Shared Device" function has been activated (p8829 = 2). Alarm value (r2124, interpret decimal): 10: A CPU sends a PROFIsafe telegram. 11: F CPU sends a PZD telegram. 12: F CPU without an A CPU.

	13: F CPU with more PROFIsafe subslots than activated with p9601.3.
	14: F CPU with fewer PROFIsafe subslots than activated with p9601.3.
	15: PROFIsafe telegram of the F-CPU does not match the setting in p60022.
	See also: p8829 (CBE2x remote controller number), p9601 (SI enable functions integrated in the drive (Control Unit))
Remedy:	CBE20:
	Check the configuration of the PROFINET controllers as well as the p8829 and p9601.3 setting.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A50002 (F) COMM BOARD: Alarm 2

Message value:	%1
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	CBE20 SINAMICS Link:
	A specific telegram word (send) is being used twice.
	Alarm value (r2124, interpret decimal):
	Telegram word used twice
	See also: p8871 (SINAMICS Link send telegram word PZD)
Remedy:	CBE20 SINAMICS Link:
	Correct the parameter assignment.
	See also: p8871 (SINAMICS Link send telegram word PZD)
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A50003 (F) COMM BOARD: Alarm 3

Message value:	Info. 1: %1, info. 2: %2
Message class:	Communication error to the higher-level control system (9)
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	CBE20 SINAMICS Link:
	A specific telegram word (receive) is being used twice.
	Alarm value (r2124, interpret hexadecimal):
	yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
	Info. 1 (decimal) = Address of sender
	Info. 2 (decimal) = Receive telegram word
	See also: p8870 (SINAMICS Link receive telegram word PZD), p8872 (SINAMICS Link address receive PZD)
Remedy:	CBE20 SINAMICS Link:
	Correct the parameter assignment.
Reaction upon F:	Vector: NONE (OFF1, OFF2, OFF3)
	Infeed: NONE (OFF1, OFF2)
Acknowl. upon F:	IMMEDIATELY

A50004 (F) COMM BOARD: Alarm 4

Message value: Info. 1: %1, info. 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
- telegram word (receive) and address of sender inconsistent. Both values have to be either equal to zero or not equal to zero.
- drive object number p8872 > 16 with p8811 = 16.

Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8870, p8872
Info. 2 (decimal) = Index from p8870, p8872
See also: p8870 (SINAMICS Link receive telegram word PZD), p8872 (SINAMICS Link address receive PZD)

Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment.

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A50005 (F) COMM BOARD: Alarm 5

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
Sender not found on SINAMICS Link.
Alarm value (r2124, interpret decimal):
Address of sender that cannot be located
See also: p8872 (SINAMICS Link address receive PZD)

Remedy: CBE20 SINAMICS Link:
Check the connection to the sender.

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A50006 (F) COMM BOARD: Alarm 6

Message value: Info. 1: %1, info. 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
The parameter assignment indicates that the sender and the receiver are one and the same. This is not permitted.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8872
Info. 2 (decimal) = Index from p8872
See also: p8836 (SINAMICS Link address), p8872 (SINAMICS Link address receive PZD)

Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment. All p8872[index] must be set to a value not equal to p8836.

Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A50010 (F) PN/COMM BOARD: Station name invalid

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20:
PROFINET Name of Station is invalid.
Remedy: CBE20:
Correct the name of the station (p8940) and activate (p8945 = 2).
See also: p8940 (CBE2x Name of Station)
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

A50020 (F) PNCOMM BOARD: Second controller missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20:
The PROFINET function "Shared Device" has been activated (p8829 = 2). However, only the connection to a PROFINET controller is present.
See also: p8829 (CBE2x remote controller number)
Remedy: CBE20:
Check the configuration of the PROFINET controllers as well as the p8829 setting.
Reaction upon F: Vector: NONE (OFF1, OFF2, OFF3)
Infeed: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY

Appendix A

Content

A.1 ASCII table (characters that can be displayed)

The following table includes the decimal and hexadecimal notation of ASCII characters that can be displayed (printable).

Table A-1 ASCII table (characters that can be displayed)

Character	Decimal	Hexadecimal	Meaning
	32	20	Space
!	33	21	Exclamation mark
"	34	22	Quotation mark
#	35	23	Number sign
$	36	24	Dollar
%	37	25	Percent
&	38	26	Ampersand
’	39	27	Apostrophe, closing single quotation mark
(	40	28	Opening parenthesis
)	41	29	Closing parenthesis
*	42	2A	Asterisk
+	43	2B	Plus
,	44	2C	Comma
-	45	2D	Hyphen, minus
.	46	2E	Period, decimal point
/	47	2F	Slash, slant
0	48	30	Digit 0
1	49	31	Digit 1
2	50	32	Digit 2
3	51	33	Digit 3
4	52	34	Digit 4
5	53	35	Digit 5
6	54	36	Digit 6
7	55	37	Digit 7
8	56	38	Digit 8
9	57	39	Digit 9
:	58	3A	Colon
;	59	3B	Semicolon
<	60	3C	Less than
=	61	3D	Equals
>	62	3E	Greater than
?	63	3F	Question mark
@	64	40	Commercial At

Table A-1 ASCII table (characters that can be displayed), continued

Character	Decimal	Hexadecimal	Meaning
A	65	41	Capital letter A
B	66	42	Capital letter B
C	67	43	Capital letter C
D	68	44	Capital letter D
E	69	45	Capital letter E
F	70	46	Capital letter F
G	71	47	Capital letter G
H	72	48	Capital letter H
I	73	49	Capital letter I
J	74	4A	Capital letter J
K	75	4B	Capital letter K
L	76	4C	Capital letter L
M	77	4D	Capital letter M
N	78	4E	Capital letter N
O	79	4F	Capital letter O
P	80	50	Capital letter P
Q	81	51	Capital letter Q
R	82	52	Capital letter R
S	83	53	Capital letter S
T	84	54	Capital letter T
U	85	55	Capital letter U
V	86	56	Capital letter V
W	87	57	Capital letter W
X	88	58	Capital letter X
Y	89	59	Capital letter Y
Z	90	5A	Capital letter Z
[	91	5B	Opening bracket
\	92	5C	Backslash
]	93	5D	Closing bracket
^	94	5E	Circumflex
_	95	5F	Underline
‘	96	60	Opening single quotation mark
a	97	61	Small letter a
b	98	62	Small letter b
c	99	63	Small letter c
d	100	64	Small letter d

Table A-1 ASCII table (characters that can be displayed), continued

Character	Decimal	Hexadecimal	Meaning
e	101	65	Small letter e
f	102	66	Small letter f
g	103	67	Small letter g
h	104	68	Small letter h
i	105	69	Small letter i
j	106	6A	Small letter j
k	107	6B	Small letter k
l	108	6C	Small letter l
m	109	6D	Small letter m
n	110	6E	Small letter n
o	111	6F	Small letter o
p	112	70	Small letter p
q	113	71	Small letter q
r	114	72	Small letter r
s	115	73	Small letter s
t	116	74	Small letter t
u	117	75	Small letter u
v	118	76	Small letter v
w	119	77	Small letter w
x	120	78	Small letter x
y	121	79	Small letter y
z	122	7A	Small letter z
{	123	7B	Opening brace
		124	7C	Vertical line
}	125	7D	Closing brace
~	126	7E	Tilde

A.2 List of abbreviations

Note

The following list of abbreviations includes all abbreviations and their meanings used in the entire SINAMICS family of drives.

Abbreviation	Source of abbreviation	Meaning
A		
A…	Alarm	Alarm
AC	Alternating Current	Alternating current
ADC	Analog Digital Converter	Analog-digital converter
AI	Analog Input	Analog input
AIM	Active Interface Module	Active Interface Module
ALM	Active Line Module	Active Line Module
AO	Analog Output	Analog output
AOP	Advanced Operator Panel	Advanced Operator Panel
APC	Advanced Positioning Control	Advanced Positioning Control
AR	Automatic Restart	Automatic restart
ASC	Armature Short-Circuit	Armature short-circuit
ASCII	American Standard Code for Information Interchange	American standard code for information interchange
AS-i	AS-Interface (Actuator Sensor Interface)	AS-interface (open bus system in automation technology)
ASM	Asynchronmotor	Induction motor
B		
BB	Betriebsbedingung	Operating condition
BERO	-	Proximity switch
BI	Binector Input	Binector input
BIA	Berufsgenossenschaftliches Institut für Arbeitssicherheit	BG-Institute for Occupational Safety and Health
BICO	Binector Connector Technology	Binector connector technology
BLM	Basic Line Module	Basic Line Module
BO	Binector Output	Binector output
BOP	Basic Operator Panel	Basic Operator Panel
C		
C	Capacitance	Capacitance
C…	-	Safety message
CAN	Controller Area Network	Serial bus system
CBC	Communication Board CAN	Communication Board CAN
CBE	Communication Board Ethernet	Communication Board PROFINET (Ethernet)
CD	Compact Disk	Compact disk
CDS	Command Data Set	Command data set
CF card	CompactFlash card	CompactFlash card
CI	Connector Input	Connector input

Abbreviation	Source of abbreviation	Meaning
CLC	Clearance Control	Clearance control
CNC	Computer Numerical Control	Computer-supported numerical control
CO	Connector Output	Connector output
CO/BO	Connector Output / Binector Output	Connector/binector output
COB ID	CAN Object Identification	CAN object identification
CoL	Certificate of License	Certificate of License
COM	Common contact of a changeover relay	Center contact on a changeover contact
COMM	Commissioning	Commissioning
CP	Communications Processor	Communications processor
CPU	Central Processing Unit	Central processing unit
CRC	Cyclic Redundancy Check	Cyclic redundancy check
CSM	Control Supply Module	Control Supply Module
CU	Control Unit	Control Unit
CUA	Control Unit Adapter	Control Unit Adapter
CUD	Control Unit DC MASTER	Control Unit DC MASTER
D		
DAC	Digital Analog Converter	Digital-analog converter
DC	Direct Current	Direct current
DCB	Drive Control Block	Drive Control Block
DCBRK	DC Brake	DC braking
DCC	Drive Control Chart	Drive Control Chart
DCN	Direct Current Negative	Direct current negative
DCP	Direct Current Positive	Direct current positive
DDS	Drive Data Set	Drive data set
DI	Digital Input	Digital input
DI/DO	Digital Input / Digital Output	Bidirectional digital input/output
DMC	DRIVE-CLiQ Hub Module Cabinet	DRIVE-CLiQ Hub Module Cabinet
DME	DRIVE-CLiQ Hub Module External	DRIVE-CLiQ Hub Module External
DMM	Double Motor Module	Double Motor Module
DO	Digital Output	Digital output
DO	Drive Object	Drive object
DP	Decentralized Peripherals	Distributed peripherals
DPRAM	Dual Ported Random Access Memory	Dual-port random access memory
DQ	DRIVE-CLiQ	DRIVE-CLiQ
DRAM	Dynamic Random Access Memory	Dynamic random access memory
DRIVE-CLiQ	Drive Component Link with IQ	Drive Component Link with IQ
DSC	Dynamic Servo Control	Dynamic Servo Control
DTC	Digital Time Clock	Timer
E		
EASC	External Armature Short-Circuit	External armature short-circuit
EDS	Encoder data set	Encoder data set
EEPROM	Electrically Erasable Programmable Read-Only Memory	Electrically Erasable Programmable Read-Only-Memory

Abbreviation	Source of abbreviation	Meaning
EGB	Elektrostatisch gefährdete Baugruppen	Electrostatic sensitive devices
ELCB	Earth Leakage Circuit-Breaker	Residual current operated circuit breaker
ELP	Earth Leakage Protection	Ground-fault monitoring
EMC	Electromagnetic Compatibility	Electromagnetic compatibility
EMF	Electromotive Force	Electromotive force
EMK	Elektromotorische Kraft	Electromotive force
EMV	Elektromagnetische Verträglichkeit	Electromagnetic compatibility
EN	Europäische Norm	European standard
EnDat	Encoder-Data-Interface	Encoder interface
EP	Enable Pulses	Enable pulses
EPOS	Einfachpositionierer	Basic positioner
ES	Engineering System	Engineering system
ESB	Ersatzschaltbild	Equivalent circuit diagram
ESD	Electrostatic Sensitive Devices	Electrostatic sensitive devices
ESM	Essential Service Mode	Essential service mode
ESR	Extended Stop and Retract	Extended stop and retract
F		
F…	Fault	Fault
FAQ	Frequently Asked Questions	Frequently asked questions
FBLOCKS	Free Blocks	Free function blocks
FCC	Function Control Chart	Function control chart
FCC	Flux Current Control	Flux current control
FD	Function Diagram	Function diagram
F-DI	Fail-safe Digital Input	Fail-safe digital input
F-DO	Fail-safe Digital Output	Fail-safe digital output
FEM	Fremderregter Synchronmotor	Separately excited synchronous motor
FEPROM	Flash EPROM	Non-volatile write and read memory
FG	Function Generator	Function generator
FI	-	Residual current
FOC	Fiber-Optic Cable	Fiber-optic cable
FP	Funktionsplan	Function diagram
FPGA	Field Programmable Gate Array	Field programmable gate array
FW	Firmware	Firmware
G		
GB	Gigabyte	Gigabyte
GC	Global Control	Global control telegram (broadcast telegram)
GND	Ground	Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as M)
GSD	Generic Station Description	Generic Station Description: Describes the features of a PROFIBUS slave
GSV	Gate Supply Voltage	Gate supply voltage
GUID	Globally Unique Identifier	Globally unique identifier

Abbreviation	Source of abbreviation	Meaning
H		
HF	High Frequency	High frequency
HFD	Hochfrequenzdrossel	High-frequency reactor
HLA	Hydraulic Linear Actuator	Hydraulic linear drive
HLG	Hochlaufgeber	Ramp-function generator
HM	Hydraulic Module	Hydraulic Module
HMI	Human Machine Interface	Human machine interface
HTL	High-Threshold Logic	Logic with high fault threshold
HW	Hardware	Hardware
I		
i. V.	In Vorbereitung	Under development: This property is currently not available
I/O	Input/Output	Input/output
I2C	Inter-Integrated Circuit	Internal serial data bus
IASC	Internal Armature Short-Circuit	Internal armature short-circuit
IBN	Inbetriebnahme	Commissioning
ID	Identifier	Identification
IE	Industrial Ethernet	Industrial Ethernet
IEC	International Electrotechnical Commission	International Electrotechnical Commission
IF	Interface	Interface
IGBT	Insulated Gate Bipolar Transistor	Bipolar transistor with insulated control electrode
IGCT	Integrated Gate-Controlled Thyristor	Semiconductor power switch with integrated control electrode
IL	Impulslöschung	Pulse suppression
IP	Internet Protocol	Internet protocol
IPO	Interpolator	Interpolator
IT	Isolé Terre	Non-grounded three-phase line supply
IVP	Internal Voltage Protection	Internal voltage protection
J		
JOG	Jogging	Jogging
K		
KDV	Kreuzweiser Datenvergleich	Data cross-check
KHP	Know-How Protection	Know-how protection
KIP	Kinetische Pufferung	Kinetic buffering
Kp	-	Proportional gain
KTY	-	Special temperature sensor
L		
L	-	Symbol for inductance
LED	Light Emitting Diode	Light-emitting diode
LIN	Linear motor	Linear motor
LR	Lageregler	Position controller
LSB	Least Significant Bit	Least significant bit
LSC	Line-Side Converter	Line-side converter

Abbreviation	Source of abbreviation	Meaning
LSS	Line-Side Switch	Line-side switch
LU	Length Unit	Length unit
LWL	Lichtwellenleiter	Fiber-optic cables
M		
M	-	Symbol for torque
M	Mass	Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as GND)
MB	Megabyte	Megabyte
MCC	Motion Control Chart	Motion Control Chart
MDI	Manual Data Input	Manual data input
MDS	Motor Data Set	Motor data set
MLFB	Maschinenlesbare Fabrikatebezeichnung	Machine-readable product code
MM	Motor Module	Motor Module
MMC	Man-Machine Communication	Man-machine communication
MMC	Micro Memory Card	Micro memory card
MSB	Most Significant Bit	Most significant bit
MSC	Motor-Side Converter	Motor-side converter
MSCY_C1	Master Slave Cycle Class 1	Cyclic communication between master (class 1) and slave
MSR	Motorstromrichter	Motor-side converter
MT	Messtaster	Probe
N		
N. C.	Not Connected	Not connected
N…	No Report	No report or internal message
NAMUR	Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der chemischen Industrie	Standardization association for measurement and control in chemical industries
NC	Normally Closed (contact)	NC contact
NC	Numerical Control	Numerical control
NEMA	National Electrical Manufacturers Association	Standardization body in the US
NM	Nullmarke	Zero mark
NO	Normally Open (contact)	NO contact
NSR	Netzstromrichter	Line-side converter
NVRAM	Non-Volatile Random Access Memory	Non-volatile read/write memory
O		
OA	Open Architecture	Software component (technology package) which provides additional functions for the SINAMICS drive system
OAIF	Open Architecture Interface	Version of the SINAMICS firmware from which the OA-application can be used
OASP	Open Architecture Support Package	Expands the STARTER commissioning tool by the corresponding OA-application
OC	Operating Condition	Operating condition
OEM	Original Equipment Manufacturer	Original equipment manufacturer

Abbreviation	Source of abbreviation	Meaning
OLP	Optical Link Plug	Bus connector for fiber-optic cable
OMI	Option Module Interface	Option Module Interface
P		
p…	-	Setting parameters
P1	Processor 1	CPU 1
P2	Processor 2	CPU 2
PB	PROFIBUS	PROFIBUS
PcCtrl	PC Control	Master control
PD	PROFIdrive	PROFIdrive
PDS	Power unit Data Set	Power unit data set
PE	Protective Earth	Protective ground
PELV	Protective Extra-Low Voltage	Safety extra-low voltage
PEM	Permanenterregter Synchronmotor	Permanent-magnet synchronous motor
PG	Programmiergerät	Programming device
PI	Proportional Integral	Proportional integral
PID	Proportional Integral Differential	Proportional integral differential
PLC	Programmable Logic Controller	Programmable logic controller
PLL	Phase-Locked Loop	Phase-locked loop
PM	Power Module	Power Module
PN	PROFINET	PROFINET
PNO	PROFIBUS Nutzerorganisation	PROFIBUS user organization
PPI	Point-to-Point Interface	Point-to-point interface
PRBS	Pseudo Random Binary Signal	White noise
PROFIBUS	Process Field Bus	Serial data bus
PS	Power Supply	Power supply
PSA	Power Stack Adapter	Power Stack Adapter
PTC	Positive Temperature Coefficient	Positive temperature coefficient
PTP	Point-To-Point	Point-to-point
PWM	Pulse Width Modulation	Pulse width modulation
PZD	Prozessdaten	Process data
Q		
R		
r …	-	Display parameters (read only)
RAM	Random Access Memory	Read/write memory
RCCB	Residual Current Circuit Breaker	Residual current operated circuit breaker
RCD	Residual Current Device	Residual current operated circuit breaker
RCM	Residual Current Monitor	Residual current monitor
RFG	Ramp-Function Generator	Ramp-function generator
RJ45	Registered Jack 45	Term for an 8-pin socket system for data transmission with shielded or non-shielded multi-wire copper cables
RKA	Rückkühlanlage	Cooling unit
RLM	Renewable Line Module	Renewable Line Module

Abbreviation	Source of abbreviation	Meaning
RO	Read Only	Read only
ROM	Read-Only Memory	Read-only memory
RPDO	Receive Process Data Object	Receive process data object
RS 232	Recommended Standard 232	Interface standard for cable-connected serial data transmission between a sender and receiver (also known as EIA232)
RS485	Recommended Standard 485	Interface standard for a cable-connected differential, parallel, and/or serial bus system (data transmission between a number of senders and receivers, also known as EIA485)
RTC	Real-Time Clock	Real-time clock
RZA	Raumzeigerapproximation	Space vector approximation
S		
S1	-	Continuous duty
S3	-	Intermittent duty
SAM	Safe Acceleration Monitor	Safe acceleration monitoring
SBC	Safe Brake Control	Safe brake control
SBH	Sicherer Betriebshalt	Safe operating stop
SBR	Safe Brake Ramp	Safe brake ramp monitoring
SBT	Safe Brake Test	Safe brake test
SCA	Safe Cam	Safe cam
SD Card	SecureDigital Card	Secure digital memory card
SDI	Safe Direction	Safe motion direction
SE	Sicherer Software-Endschalter	Safe software limit switches
SG	Sicher reduzierte Geschwindigkeit	Safely-limited speed
SGA	Sicherheitsgerichteter Ausgang	Safety-related output
SGE	Sicherheitsgerichteter Eingang	Safety-related input
SH	Sicherer Halt	Safe standstill
SI	Safety Integrated	Safety Integrated
SIL	Safety Integrity Level	Safety integrity level
SLM	Smart Line Module	Smart Line Module
SLP	Safely-Limited Position	Safely limited position
SLS	Safely-Limited Speed	Safely-limited speed
SLVC	Sensorless Vector Control	Vector control without encoder
SM	Sensor Module	Sensor Module
SMC	Sensor Module Cabinet	Sensor Module Cabinet
SME	Sensor Module External	Sensor Module External
SMI	Sensor Module Integrated	SINAMICS Sensor Module Integrated
SMM	Single Motor Module	Single Motor Module
SN	Sicherer Software-Nocken	Safe software cam
SOS	Safe Operating Stop	Safe operating stop
SP	Service Pack	Service pack
SP	Safe Position	Safe position
SPC	Setpoint Channel	Setpoint channel

Abbreviation	Source of abbreviation	Meaning
SPI	Serial Peripheral Interface	Serial peripheral interface
SPS	Speicherprogrammierbare Steuerung	Programmable Logic Controller
SS1	Safe Stop 1	Safe stop 1 (monitored for time and ramp)
SS2	Safe Stop 2	Safe stop 2
SSI	Synchronous Serial Interface	Synchronous serial interface
SSM	Safe Speed Monitor	Safe feedback from speed monitor
SSP	SINAMICS Support Package	SINAMICS support package
STO	Safe Torque Off	Safe torque off
STW	Steuerwort	Control word
T		
TB	Terminal Board	Terminal Board
TIA	Totally Integrated Automation	Totally Integrated Automation
TM	Terminal Module	Terminal Module
TN	Terre Neutre	Grounded three-phase line supply
Tn	-	Integral-action time
TPDO	Transmit Process Data Object	Transmit process data object
TT	Terre Terre	Grounded three-phase line supply
TTL	Transistor-Transistor Logic	Transistor-transistor logic
Tv	-	Derivative action time
U		
UL	Underwriters Laboratories Inc.	Underwriters Laboratories Inc.
UPS	Uninterruptible Power Supply	Uninterruptible power supply
USV	Unterbrechungsfreie Stromversorgung	Uninterruptible power supply
UTC	Universal Time Coordinated	Universal time coordinated
V		
VC	Vector Control	Vector control
Vdc	-	DC-link voltage
VdcN	-	Partial DC-link voltage, negative
VdcP	-	Partial DC-link voltage, positive
VDE	Verband Deutscher Elektrotechniker	Association of German Electrical Engineers
VDI	Verein Deutscher Ingenieure	Association of German Engineers
VPM	Voltage Protection Module	Voltage Protection Module
Vpp	Volt peak to peak	Volt peak-to-peak
VSM	Voltage Sensing Module	Voltage Sensing Module
W		
WEA	Wiedereinschaltautomatik	Automatic restart
WZM	Werkzeugmaschine	Machine tool
X		
XML	Extensible Markup Language	Extensible Markup Language (standard language for Web publishing and document management)

Abbreviation	Source of abbreviation	Meaning
Y		
Z		
ZK	Zwischenkreis	DC link
ZM	Zero Mark	Zero mark
SW	Zustandswort	Status word

A.3 References

Documentation for SINAMICS

Catalogs

/D 31/	**SINAMICS and Motors for Single-Axis Drives**		
	Order number:	E86060-K5531-A101-A1	Edition: 2012
/D 31 N/	**SINAMICS Inverters for Single-Axis Drives and SIMOTICS Motors**		
	Order number:	E86060-E5531-A101-A1	Edition: 01/2013
/D 11/	**SINAMICS G130 Drive Converter Chassis Units** **SINAMICS G150 Drive Converter Cabinet Units**		
	Order number:	E86060-K5511-A101-A5	Edition: 2011
/PM 21/	**SIMOTION, SINAMICS S120 and SIMOTICS, Equipment for Production Machines**		
	Order number:	E86060-K4921-A101-A3	Edition: 2013
/D 21.3/	**SINAMICS S120 Chassis Format Units and Cabinet Modules** **SINAMICS S150 Converter Cabinet Units**		
	Order number:	E86060-K5521-A131-A3	Edition: 2011
/D 35/	**Inverters for Pumps, Fans, Compressors** **SINAMICS G120P and SINAMICS G120P Cabinet**		
	Order number:	E86060-K5535-A101-A1	Edition: 2014

Related catalogs

/ST 70/	**SIMATIC Products for Totally Integrated Automation**		
	Order number:	E86060-K4670-A101-B4	Edition: 2013
/NC 61/	**SINUMERIK & SINAMICS, Equipment for Machine Tools**		
	Order number:	E86060-K4461-A101-A3	Edition: 2010
/NC 61 N/	**SINUMERIK & SINAMICS, Equipment for Machine Tools**		
	Order number:	E86060-K4461-E101-A1	Edition: 08/2012
/NC 62/	**SINUMERIK 840D sl Type 1B, Equipment for Machine Tools**		
	Order number:	E86060-K4462-A101-A1	Edition: 2012
/NC 81.1/	**SINUMERIK 808, Equipment for Machine Tools**		
	Order number:	E86060-K4481-A111-A2-7600	Edition: 2013

/NC 82/ **SINUMERIK 828, Equipment for Machine Tools**
Order number: E86060-K4482-A101-A2-7600 Edition: 2013

Interactive catalogs

/CA 01/ **Products for Automation and Drives**
DVD
Order number: E86060-D4001-A500-D2 Edition: 10/2013

/Mall/ **Industry Mall,**
Catalog and Ordering System for Automation and Drives
http://www.siemens.com/industrymall

Electronic documentation

/CD2/ **SINAMICS Manual Collection (DOCONCD)**
SINAMICS DOCUMENTATION
Order number: A5E33959456 / 6SL3097-4CA00-0YG3 Edition: 06/2014

User documentation

/BA1/ **SINAMICS G150**
Operating instructions
Order number: On request Edition: 04/2014

/BA2/ **SINAMICS G130**
Operating instructions
Order number: On request Edition: 04/2014

/BA3/ **SINAMICS S150**
Operating instructions
Order number: On request Edition: 04/2014

/GH1/ **SINAMICS S120**
Control Units and Additional System Components Manual
Order number: 6SL3097-4AH00-0?P4 Edition: 04/2014

/GH2/ **SINAMICS S120**
Booksize Power Units Manual
Order number: 6SL3097-4AC00-0?P6 Edition: 04/2014

/GH3/ **SINAMICS S120**
Chassis Power Units Equipment Manual Air-Cooled
Order number: 6SL3097-4AE00-0?P4 Edition: 04/2014

/GH5/	**SINAMICS S120** Cabinet Modules Manual		
	Order number:	On request	Edition: 04/2014
/GH6/	**SINAMICS S120** AC Drive Manual		
	Order number:	6SL3097-4AL00-0?P4	Edition: 04/2014
/GH7/	**SINAMICS S120** Chassis Power Units Equipment Manual Liquid-Cooled		
	Order number:	6SL3097-4AM00-0?P4	Edition: 04/2014
/GH12/	**SINAMICS S120M** Distributed Drive Technology Manual		
	Order number:	6SL3097-4AW00-0?P2	Edition: 11/2013
/GS1/	**SINAMICS S120** Getting Started		
	Order number:	6SL3097-4AG00-0?P3	Edition: 04/2014
/IH1/	**SINAMICS S120** Commissioning Manual		
	Order number:	6SL3097-4AF00-0?P4	Edition: 04/2014
/IH2/	**SINAMICS S120** CANopen Commissioning Manual		
	Order number:	6SL3097-4AA00-0?P1	Edition: 04/2014
/FH1/	**SINAMICS S120** Drive Functions Function Manual		
	Order number:	6SL3097-4AB00-0?P4	Edition: 04/2014
/FHS/	**SINAMICS S120** Function Manual for Safety Integrated		
	Order number:	6SL3097-4AR00-0?P5	Edition: 04/2014
/FH4/	**SINAMICS/SIMOTION** DCC Standard Blocks Function Manual		
	Order number:	6SL3097-4AQ00-0?P3	Edition: 04/2014
/PB1/	**SINAMICS/SIMOTION** Programming and Operating Manual for DCC Editor Description		
	Order number:	6SL3097-4AN00-0?P2	Edition: 04/2014
/LH1/	**SINAMICS S120/S150** List Manual		
	Order number:	6SL3097-4AP00-0?P5	Edition: 04/2014

/MA1/	**SINAMICS/SINUMERIK** Machine Configuration Guidelines		
	Order number:	6FC5397-6CP10-0?A2	Edition: 01/2013
/SH1/	**SINAMICS S120 and SIMODRIVE 611** Control Cabinet Integration Guidelines		
	Order number:	6SL3097-0AT00-0?P0	Edition: 09/2007
/SH2/	**SINAMICS S120 High Frequency Drive** System Manual		
	Order number:	6SL3097-4AH10-0?P2	Edition: 01/2013
/PFK7S/	**SINAMICS 1FK7 Synchronous Motors** Configuration Manual		
	Order number:	6SN1197-0AD16-0?P4	Edition: 10/2011
/PFT6S/	**SINAMICS 1FT6 Synchronous Motors** Configuration Manual		
	Order number:	6SN1197-0AD12-0?P0	Edition: 12/2004
/PFT7S/	**SINAMICS 1FT7 Synchronous Motors** Configuration Manual		
	Order number:	6SN1197-0AD13-0?P4	Edition: 07/2011
/APH4S/	**SINAMICS 1PH4 Induction Motors** Configuration Manual		
	Order number:	6SN1197-0AD64-0?P1	Edition: 08/2008
/APH7P/	**SINAMICS 1PH7 Induction Motors (PM)** Production Machines Configuration Manual		
	Order number:	6SN1197-0AC71-0?P0	Edition: 05/2007
/APH7W/	**SINAMICS 1PH7 Induction Motors (MT)** Machine Tools Configuration Manual		
	Order number:	6SN1197-0AD72-0?P0	Edition: 04/2009
/PPMS/	**SINAMICS 1PM4/1PM6 Hollow-Shaft Motors** Configuration Manual		
	Order number:	6SN1197-0AD23-0?P0	Edition: 04/2008
/PKTS/	**SINAMICS 1FW3 Complete Torque Motors** Configuration Manual		
	Order number:	6SN1197-0AD70-0?P6	Edition: 04/2012
/1FW6_BE2/	**SIMOTICS 1FW6 Built-in Torque Motors** Operating instructions		
	Order number:	6SN1197-0AF02-0?P0	Edition: 02/2013

/PJTMS2/ **SIMOTICS 1FW6 Built-in Torque Motors**
Configuration Manual
Order number: 6SN1197-0AE01-0?P0 Edition: 02/2013

/PMH2/ **SINAMICS SIMAG H2 Hollow-Shaft Measuring System**
Configuration Manual
Order number: 6SN1197-0AB31-0?P8 Edition: 01/2011

/PH8S/ **SINAMICS 1PH8 Synchronous/Induction Motors**
Configuration Manual
Order number: 6SN1197-0AD74-0?P1 Edition: 08/2012

/PH1/ **EMC Installation Guidelines**
Configuration Manual
Order number: 6FC5297-0AD30-0?P3 Edition: 01/2012

Documentation for PROFIBUS/PROFINET/PROFIenergy

/P1/ **PROFIBUS-DP/DPV1 IEC 61158**
Basics, Tips and Tricks for Users
Hüthig; Manfred Popp, 2nd Edition
ISBN 3-7785-2781-9

/P2/ **PROFIBUS-DP, Getting Started**
PROFIBUS Nutzerorganisation e.V.; Manfred Popp
Order number: 4.071

/P3/ **Distributed Layouts using PROFIBUS-DP**
Architecture and Fundamentals, Configuration and Use of PROFIBUS-DP with SIMATIC S7
SIEMENS; Publicis MCD Verlag; Josef Weigmann, Gerhard Kilian
Order number: A19100-L531-B714
ISBN 3-89578-074-X

/P4/ **Manual for PROFIBUS Networks, SIEMENS**
Order number: 6GK1970-5CA20-0BA0

/P5/ **PROFIBUS and PROFINET, PROFIdrive Profile Drive Technology**
PROFIBUS Nutzerorganisation e. V.
Haid-und-Neu-Straße 7, D-76131 Karlsruhe, Germany
http://www.profibus.com – http://www.profinet.com
Order number: 3.172 Version 4.0 August 2005

/P6/ **The PROFINET IO Book**
Basics and Tips for Successful Use
VDE-Verlag Berlin; Manfred Popp
ISBN: 978-3-8007-3274-6 2nd Edition, 2010

/P7/ **PROFIenergy, Common Application Profile**
Technical Specification for PROFINET
PROFIBUS Nutzerorganisation e. V.
Haid-und-Neu-Straße 7, D-76131 Karlsruhe

http://www.profibus.com – http://www.profinet.com

Order number: 3.802 Version 1.1 August 2012

/IK PI/ **Industrial Communication for Automation and Drives**
Catalog

Order number: E86060-K6710-A101-B7 Edition: 2012

/PDP/ **PROFIBUS Installation Guidelines**
Installation Guideline for PROFIBUS FMS/DP
Installation and Wiring Recommendation for RS 485 Transmission

Order number 2.111 (German)
2.112 (English) Version 1.0

Documentation for Safety Equipment

Note

For more information on technical documentation in and around the topic of "Safety Integrated", please follow the link below:

http://www.siemens.com/safety

The following list contains some of the safety-related documentation available.

/LV1/ **SIRIUS-SENTRON-SIVACON Low-Voltage Controls and Distribution**
Catalog

Order number: E86060-K1002-A101-A5 Edition: 2006

/MRL/ **Directive 2006/42/EU of the European Parliament and Council**
Machinery Directive

Bundesanzeiger-Verlags GmbH Edition: 2006

/SISH/ **Safety Integrated**
System Manual

Order number: 6ZB5000-0AA01-0BA1 5th Edition

System Manual Appendix to 5th Edition

Order number: 6ZB5000-0AB01-0BA0

/SICD/ **Safety Integrated**
CD-ROM

Order number: E20001-F500-P210 Edition: 04/2008

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