SINAMICS G120

Control Units CU230P-2

Parameter Manual · 03/2009

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SINAMICS G120
Control Units CU230P-2

Parameter Manual

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Valid for

Control Units	Firmware version
CU230P-2 HVAC	4.2
CU230P-2 CAN	4.2
CU230P-2 DP	4.2

A5E02297932B AA

03/2009

Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

Danger

indicates that death or severe personal injury **will** result if proper precautions are not taken.

Warning

indicates that death or severe personal injury **may** result if proper precautions are not taken.

Caution

with a safety alert symbol, indicates that minor personal injury **can** result if proper precautions are not taken.

Caution

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

Notice

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be 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 device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

Warning

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens.

Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Parameters 1

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1.1 Introduction to Parameters

1.1.1 Explanation of list of parameters

The layout of the parameter description is as follows.

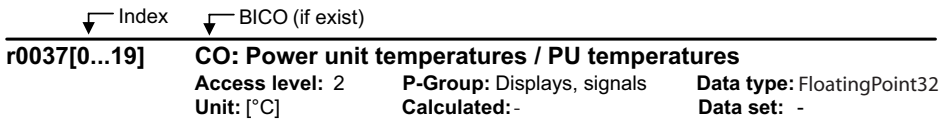

Fig. 1-1 Read-only parameter

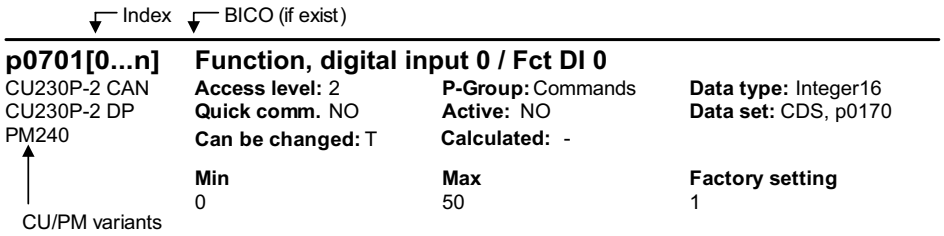

Fig. 1-2 Write parameter

Parameter number

Indicates the relevant parameter number. The numbers used are 4-digit numbers in the range 0000 to 9999. Numbers prefixed with an “r” indicate that the parameter is a “read-only” parameter, which displays a particular value but cannot be changed directly by specifying a different value via this parameter number.

All other parameters are prefixed with a “p”. The values of these parameters can be changed directly in the range indicated by the “Min” and “Max” settings in the header. If these values have a physical unit, it is shown in brackets.

[index] indicates that the parameter is an indexed parameter and specifies the range of indices available.

.0...15 indicates that the parameter has several bits, which can be evaluated or connected individually.

CU/PM variants

Indicates for which Control Units and/or Power Modules the parameter is valid. If no CUs or PMs are listed the parameter is valid for all variants.

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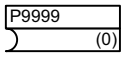
Parameter text (Long name/Short name)

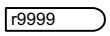
Indicates the name of the relevant parameter.

Certain parameter names include the following abbreviated prefixes: BI, BO, CI, CO and CO/BO followed by a colon.

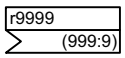
These abbreviations have the following meanings:

BI = 

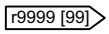
Binector input, i.e. parameter selects the source of a binary signal

BO = 

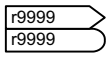
Binector output, i.e. parameter connects as a binary signal

CI = 

Connector input, i.e. parameter selects the source of an analog signal

CO = 

Connector output, i.e. parameter connects as an analog signal

CO/BO = 

Connector/Binector output, i.e. parameter connects as an analog signal and/or as a binary signal

CoBo.pdf

To make use of BICO you will need access to the full parameter list. At this level many new parameter settings are possible, including BICO functionality. BICO functionality is a different, more flexible way of setting and combining input and output functions. It can be used in most cases in conjunction with the simple, access level 2 settings.

The BICO system allows complex functions to be programmed. Boolean and mathematical relationships can be set up between inputs (digital, analog, serial etc.) and outputs (inverter current, frequency, analog output, relays, etc.).

At BI and CI parameters the parameter number is specified under Factory setting with which this parameter is connected. In this case the Min and Max values have dashes.

Access level (refers only to access via Operator Panel (OP))

Indicates the level of user access. There are four access levels: Standard, Extended, Expert and Service. The number of parameters that appear in each functional group depends on the access level set in p0003 (user access level).

P-Group (refers only to access via Operator Panel (OP))

Specifies the functional group to which the parameter belongs.

Note:

Parameter p0004 (parameter filter) acts as a filter and focuses access to parameters according to the functional group selected.

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Data type

The data types available are shown in the table below.

Table 1-1 Available data types

Notation	Meaning
Unsigned8 (U8)	8-bit unsigned
Unsigned16 (U16)	16-bit unsigned
Unsigned32 (U32)	32-bit unsigned
Integer16 (I16)	16-bit integer
Integer32 (I32)	32-bit integer
FloatingPoint32 (Float)	32-bit floating point number

The information of the data types for binector and connector inputs can be composed of two specifications (discreated by a slash):

- First specification: data type of the parameter
- Second specification: data type of the signal source preferably to be connected (binector or connector output)

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 1-2 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: Unsigned32	x	x	–	–
CO: Integer16	x	x	r2050	–
CO: Integer32	x	x	–	–
CO: FloatingPoint32	x	x	x	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
BO: Unsigned32	–	–	–	x
BO: Integer16	–	–	–	x
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–
Legend:	x: BICO interconnection permitted –: BICO interconnection not permitted			

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Quick Comm

Indicates whether or not (Yes or No) a parameter can only be changed during quick commissioning, i.e. when p0010 (parameter groups for commissioning) is set to 1 (quick commissioning).

Calculated

Specifies whether the parameter is influenced by automatic calculations.

p0340 defines the following calculations:

- p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5.
- p0340 = 2 calculates the motor parameters (p0350 ... p0360, p0625).
- p0340 = 3 contains the calculations of p0340 = 4, 5.
- p0340 = 4 only calculates the controller parameters.
- p0340 = 5 only calculates the controller limits.

Note:

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

After p1900 = 1, 2, p0340 = 3 is automatically called.

These a reference to p0340 stands behind "Calculated", parameters are dependent from the used Power Modules and motors. In this case the values under "Factory setting" do not correspond to the actual values since these are found out during the commissioning. This also applies to the motor parameters.

Active

- YES changes to the parameter values take effective immediately after they have been entered.
- No the “P” button on the Operator Panel must be pressed before the changes take effect.

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Data Set

Parameters which are dependent on a data set are identified as follows:

- **CDS (Command Data Set)**

They are always indexed with [0 ... n] with n = 0 ... 3 depending on setting in p0170.

[0] = Command Data Set 0

[1] = Command Data Set 1

etc.

- **DDS (Drive Data Set)**

They are always indexed with [0 ... n] with n = 0 ... 3 depending on setting in p0180.

[0] = Drive Data Set 0

[1] = Drive Data Set 1

etc.

- **MDS (Motor Data Set) and PDS (Power unit Data Set)**

They are always indexed with [0 ... n] with n = 0 ... 3 depending on setting in p0180). The Motor Data Sets and Power unit Data Sets are allocated to the Drive Data Sets, i.e. they are automatically addressed with the selection of a Drive Data Set (e.g. Drive Data Set 1 includes Motor Data Set 1 and Power unit Data Set 1).

Data sets can only be applied and cleared when p0010 = 15 is set.

Can be changed

Inverter state in which the parameter is changeable. Three states are possible:

- Commissioning C(x)
- Run U
- Ready to runt T

This indicates when the parameter can be changed. One, two or all three states may be specified. If all three states are specified, this means that it is possible to change this parameter setting in all three inverter states. (x) shows, that the parameter is only changeable when p0010 = x.

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Unit

Indicates the unit of measure applicable to the parameter values.

The term speed (n_xxx) is used in the parameter names or descriptions although the speed-dependent values as frequency [Hz] are indicated at the SINAMICS G120. For the parameter substantial is the physical unity being in square brackets.

Min

Indicates the minimum value to which the parameter can be set.

Max

Indicates the maximum value to which the parameter can be set.

Factory setting

Indicates the default value, i.e. the value which applies if the user does not specify a particular value for the parameter (see also "Calculated“).

Description

Explanation of the function of a parameter.

Values

Lists the possible values of a parameter.

Index

The name and meaning of each individual index is specified for indexed parameters, except indexed parameters which belong to a data set (see "Data Set").

Bit field

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

- Bit number and signal name
- Meaning with signal states 0 and 1
- Function diagram (optional). The signal is shown on this function diagram.

Dependency

Conditions which need to be fulfilled in connection with this parameter. Also includes special effects which can occur between this parameter and others.

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1.1.2 Numerical ranges of parameters

Note:

The following numerical ranges of the parameters describe a generell overview of the SINAMICS parameters. The specific parameters are listed in Chapter 1.2.

Table 1-3 Numerical ranges of parameters

Range		Description
from	to	
0000	0099	Operation and visualization
0100	0199	Commissioning
0200	0299	Power Module
0300	0399	Motor
0500	0599	Technology and units
0600	0699	Thermal motor protection and motor model, maximum current
0700	0799	Command sources and terminals on Control Unit
0800	0839	CDS, DDS data sets (e.g. switch over, copy)
0840	0879	Sequential control (e.g. source for ON/OFF1)
0880	0899	Control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint channel
1200	1299	Functions (e.g. motor holding brake)
1300	1399	V/f control
1400	1799	Closed-loop control
1800	1899	Gating unit
1900	1999	Power Module and motor identification
2000	2099	Communication (PROFIBUS)
2100	2199	Faults and alarms, monitoring functions
2200	2399	Technology controller
3100	3299	Messages
3800	3899	Compound braking
3900	3999	Management parameters
7800	7899	EEPROM read/write parameters
8500	8599	Daten- und Makroverwaltung
8800	8899	Communication Board
9400	9499	Parameter consistency and storage
9900	9949	Topology
9950	9999	Diagnostics (internal)

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1.2 List of Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng
Objects: CU230P-2 CAN, CU230P-2 DP, CU230P-2 HVAC

r0002 Drive operating display / Drv op_display

Access level: 2 **P-Group:** - **Data type:** Integer16
Unit: - **Calculated:** - **Data set:** -

Description: Operating display for the drive.

Value:
0: [00] Operation - everything enabled
10: [10] Operation - set "setpoint enable" = "1" (p1142)
12: [12] Operation - RFG frozen, set "RFG start" = "1" (p1141)
13: [13] Operation - set "enable RFG" = "1" (p1140)
14: [14] Oper. - MotID, excit. running
16: [16] Oper - withdraw braking w/ OFF1 using "ON/OFF1" = "1"
17: [17] Oper - braking w/ OFF3 can only be interrupted w/ OFF2
18: [18] Operation - brake on fault remove fault acknowledge
19: [19] Operation - DC brake active (p1230, p1231)
21: [21] Ready for operation - set "Operation enable" = "1" (p0852)
22: [22] Ready for operation - de-magnetizing running (p0347)
31: [31] Ready for switching on - set "ON/OFF1" = "0/1" (p0840)
35: [35] Switching on inhib - Carry out first commissioning (p0010)
41: [41] Switching on inhibited - set "ON/OFF1" = "0" (p0840)
42: [42] Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845)
43: [43] Switching on inhibited - set "OC/OFF3" = "1" (p0848, p0849)
45: [45] Switching on inhib - rectify fault, acknowledge fault, STO
46: [46] Switching on inhibited - exit comm mode (p0010)

Dependency: Refer to: r0046

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

Note: OC: Operating condition
RFG: Ramp-function generator
COMM: Commissioning
MotID: Motor data identification

p0003 Access level / Access level

Access level: 1 **P-Group:** - **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: C, U, T **Calculated:** -

Min	Max	Factory setting
1	4	1

Description: Sets the access level to read and write parameters.

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

Note: Access level 1 (standard):
Parameters for the simple operator control possibility (e.g. p1120 = ramp-function generator, ramp-up time).
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).

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p0004 Display filter / Disp_filter

Access level: 1	**P-Group:** -	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1), U, T	**Calculated:** -	

Min	Max	Factory setting
0	99	0

Description: Sets the display filter for parameters.

Value:

0: All parameters
1: Displays, signals
2: Power unit
3: Motor
5: Technology/units
7: Digital inputs/outputs commands sequence control
8: Analog inputs/outputs
10: Setpoint channel/ramp-fct generator
12: Functions
13: V/f control
14: Control
15: Data sets
18: Gating unit
19: Motor identification
20: Communication
21: Faults, alarms, monitoring functions
28: Free function blocks
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 p0010 = 0.

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

Examples (assumption: p0010 = 0):

p0003 = 1, p0004 = 3

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

p0003 = 2, p0004 = 3

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

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p0010 Drive commissioning parameter filter / Drv comm. par_filt

Access level: 1	**P-Group:** -	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1), T	**Calculated:** -	

Min	Max	Factory setting
0	49	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
5: Technological application/units
15: Data sets
29: Download with parameter reset
30: Parameter reset
39: Download without parameter reset
49: Interrupt download

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.

Once the Control Unit has been booted up for the first time, the motor parameters suitable for the power unit have been defined, and the control parameters have been calculated accordingly, p0010 is automatically reset to 0.

p0010 = 3 is used for the subsequent commissioning of additional drive data sets (creating data sets: see p0010 = 15).

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p0014 Buffer memory mode / Buf mem mode

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	2	0

Description: Sets the mode for the buffer memory.

Value:
0: Save in a non-volatile fashion (RAM)
1: Buffer memory active (non-volatile)
2: Clear buffer memory

Dependency: Refer to: A01066, A01067

Caution: For p0014 = 2, entries in the buffer memory are lost and cannot be retrieved.

Note: Re p0014 = 0:

Parameter changes are saved in the volatile memory (RAM).

Non-volatile storage from RAM to ROM is carried out in the following cases:

- p0971 = 1
- Change from p0014 = 0 to 1

Re p0014 = 1:

With this setting, alarm A01066 followed by alarm A01067 can occur if parameters are continually changed via a fieldbus system.

Parameter changes are entered in the volatile memory (RAM) and also in the non-volatile buffer memory.

In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:

- p0971 = 1
- power down/power up the Control Unit
- Change from p0014 = 1 to 0

Re p0014 = 2:

The procedure to clear the entries in the buffer memory is initiated.

p0014 is automatically set to 0 after the entries have been cleared.

r0018 Control Unit Firmware-Version / CU FW version

Access level: 3	**P-Group:** -	**Data type:** Unsigned32
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the firmware version of the Control Unit.

Dependency: Refer to: r0197, r0198

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0020 Speed setpoint smoothed / n_set smth

Access level: 2	**P-Group:** Displays, signals	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

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

Dependency: Refer to: r0060

Note: Smoothing time constant = 100 ms

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

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

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r0021 CO: Actual speed smoothed / n_act smooth

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the smoothed actual value of the motor speed.
Dependency: Refer to: r0063
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The value displayed in r0021 is the smoothed value of r0063.

r0022 Speed actual value rpm smoothed / n_ist rpm smooth

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [rpm] **Calculated:** - **Data set:** -

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.
Dependency: Refer to: r0063
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The value displayed in r0022 is the smoothed value of r0063.

r0024 Output frequency smoothed / f_outp smooth

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the smoothed converter frequency.
Dependency: Refer to: r0066
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The output frequency is available smoothed (r0024) and unsmoothed (r0066).

r0025 CO: Output voltage smoothed / V_outp smooth

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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 process quantity and may only be used as display quantity.
The output voltage is available smoothed (r0025) and unsmoothed (r0072).

r0026 CO: DC link voltage smoothed / Vdc smooth

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [V] **Calculated:** - **Data set:** -

Description: Displays the smoothed actual value of the DC link voltage.
Dependency: Refer to: r0070
Notice: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM240) 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 in the display parameter.
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

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

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

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: Smoothing time constant = 300 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

r0028 Modulation depth smoothed / Modulat depth smth

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the smoothed actual value of the modulation depth.
Dependency: Refer to: r0074
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

r0029 Current actual value field-generating smoothed / Id_act smooth

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the smoothed field-generating actual current.
Dependency: Refer to: r0076
Note: Smoothing time constant = 300 ms
The signal is not suitable as process quantity and may only be used as 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

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the smoothed torque-generating actual current.
Dependency: Refer to: r0078
Note: Smoothing time constant = 300 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

r0031 Actual torque smoothed / M_act smooth

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays the smoothed torque actual value.
Dependency: Refer to: r0080
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The active current actual value is available smoothed (r0031) and unsmoothed (r0080).

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r0032 CO: Active power actual value smoothed / P_actv_act smth

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [kW] **Calculated:** - **Data set:** -

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: Power delivered at the motor shaft.
The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0033 Torque utilization smoothed / M_util smooth

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the smoothed torque utilization as a percentage.
The torque utilization is obtained from the required smoothed torque referred to the torque limit, scaled using p2196.
Dependency: This parameter is only available for vector control. For V/f control r0033 = 0 %.
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as 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 Motor utilization / Motor utilization

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the motor utilization from the thermal I2t motor model.
Dependency: The motor utilization is only determined for permanent-magnet synchronous motors and if the I2t motor model is activated.
The motor utilization is formed from the ratio between the I2t motor model temperature (minus 40 Kelvin) and the reference value p0605 (motor overtemperature, fault threshold) - 40 Kelvin. If p0605 is reduced, r0034 increases and the motor temperature remains the same.
Refer to: p0611, p0612, p0615
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
A value of r0034 = -200.0% indicates an invalid display, for example, because the thermal I2t motor model was not activated or was incorrectly parameterized.

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r0035 CO: Motor temperature / Mot_temp

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** -

Description: Displays 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.
- for induction motors, the thermal motor model is activated (p0601 = 0).

For r0035 equal to -200.0 °C, the following applies:
- this temperature display is not valid (temperature sensor error).
- a PTC sensor is connected.
- for synchronous motors, the thermal motor model is activated (p0601 = 0).

r0036 CO: Power unit overload I2t / PU overload I2t

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

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

Refer to: F30005

r0037[0...19] CO: Power unit temperatures / PU temperatures

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** -

Description: Displays the temperatures in the power unit.

Index:
[0] = Inverter
[1] = Depletion layer
[2] = Reserved
[3] = Reserved
[4] = Electronics module in the power unit
[5] = Inverter 1
[6] = Reserved
[7] = Reserved
[8] = Reserved
[9] = Reserved
[10] = Reserved
[11] = Reserved
[12] = Reserved
[13] = Depletion layer 1
[14] = Reserved
[15] = Reserved
[16] = Reserved
[17] = Reserved
[18] = Reserved
[19] = Reserved

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

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r0038 Power factor smoothed / Cos phi smooth

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the smoothed actual power factor.
Note: Smoothing time constant = 300 ms
The signal is not suitable as process quantity and may only be used as display quantity.
Significance for the motor: Motor power factor
Significance for the infeed: Power factor at the connection point (p3470, p3471)

r0039 Energy consumption / Energy consumption

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [kWh] **Calculated:** - **Data set:** -

Description: Displays the electrical energy used since the last reset.
Dependency: Refer to: p0040

p0040 Reset energy consumption display / Energy usage reset

Access level: 3 **P-Group:** Displays, signals **Data type:** Unsigned8
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	1	0

Description: Resets the energy consumption display.
Parameter should be changed from 0 to 1 to reset. The parameter automatically resets.
Dependency: Refer to: r0039

p0045 Smoothing time constant, display values / T_smth display

Access level: 3 **P-Group:** - **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.00 [ms]	1000.00 [ms]	4.00 [ms]

Description: Sets the smoothing time constant for the following display values:
r0063[1], r0068[1], r0080[1], r0082[1].

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

Access level: 1 **P-Group:** Displays, signals **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** -

Description: Displays 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	-
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Operation enable missing	Yes	No	-
04	DC current brake, 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	-
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	DC current brake, internal enable missing	Yes	No	-
21	PU enab. missing	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
27	De-magnetizing not completed	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 (DC brake active) when:

- the signal source in p1230 has a 1 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.

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 (p0010 > 0).
- there is an OFF2 fault response.
- the drive is not operational.

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not be completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:

- sequence control does not have a finished message.

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Bit 20 = 1 (internal DC brake active), if:
- the drive is not in the state "Operation" or in "OFF1/3".
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:
- the power unit does not issue an enable signal (e.g. because DC link voltage is too low).

Bit 26 = 1 (enable signal missing), if:
- the drive is not operational.

Bit 27 = 1 (enable signal missing), if:
- de-magnetization not completed.

Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
- 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 ident. routine and speed controller optimization / MotID and n_opt

Access level: 1 **P-Group:** Displays, signals **Data type:** Integer16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the actual status for the motor data identification (standstill 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
195: Measurement q leakage inductance (part 1)
200: Rotating measurement 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: Standstill measurement selected

r0050.0...1 CO/BO: Command Data Set CDS effective / CDS effective

Access level: 3 **P-Group:** Displays, signals **Data type:** Unsigned8

Unit: - **Calculated:** - **Data set:** -

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	-

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...1 CO/BO: Drive Data Set DDS effective / DDS effective

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned8

Unit: - **Calculated:** - **Data set:** -

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	-

Dependency: Refer to: p0820, p0821, r0837

Note: When selecting the motor data identification routine and the rotating measurement, the drive data set changeover is suppressed.

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r0052.0...15 CO/BO: Status word 1 / ZSW 1

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays status word 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready for operation	Yes	No	-
02	Operation enabled	Yes	No	-
03	Fault present	Yes	No	-
04	Coast down active (OFF2)	No	Yes	-
05	Quick Stop active (OFF3)	No	Yes	-
06	Switching on inhibited active	Yes	No	-
07	Alarm present	Yes	No	-
08	Deviation, setpoint/actual speed	No	Yes	-
09	Control request	Yes	No	-
10	Maximum speed reached	Yes	No	-
11	I,M,P limit reached	No	Yes	-
13	Alarm motor overtemperature	No	Yes	-
14	Motor rotates forwards	Yes	No	-
15	Alarm drive converter overload	No	Yes	-

Caution: p2080 is used to define the signal sources of the PROFIdrive status word interconnection.

Note: The following status bits are displayed in r0052.

Bit 00: r0899 Bit 0

Bit 01: r0899 Bit 1

Bit 02: r0899 Bit 2

Bit 03: r2139 Bit 3 (or r1214 Bit 10, if p1210 > 0)

Bit 04: r0899 Bit 4

Bit 05: r0899 Bit 5

Bit 06: r0899 Bit 6

Bit 07: r2139 Bit 7

Bit 08: r2197 Bit 7

Bit 09: r0899 Bit 7

Bit 10: r2197 Bit 12

Bit 11: r0056 Bit 13 (negated)

Bit 12: Reserved

Bit 13: r2135 Bit 12 (negated)

Bit 14: r2197 Bit 3

Bit 15: r2135 Bit 15 (negated)

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r0053.0...11 CO/BO: Status word 2 / ZSW 2

PM240 **Access level:** 2 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays status word 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DC brake active	Yes	No	-
01	|n_act| > p1226 (n_standstill)	Yes	No	-
02	|n_act| > p1080 (n_Min)	Yes	No	-
03	I_act >= p2170	Yes	No	-
04	|n_act| > p2155	Yes	No	-
05	|n_act| <= p2155	Yes	No	-
06	|n_act| >= r1119 (n_set)	Yes	No	-
07	Vdc <= p2172	Yes	No	-
08	Vdc > p2172	Yes	No	-
09	Ramp-up/ramp-down completed	Yes	No	-
10	Technology controller output at the lower limit	Yes	No	-
11	Technology controller output at the upper limit	Yes	No	-

Caution: p2081 is used to define the signal sources of the PROFIdrive status word interconnection.

Note: The following status bits are displayed in r0053:

Bit 00: r1239 Bit 8

Bit 01: r2197 Bit 5 (negated)

Bit 02: r2197 Bit 0 (negated)

r0053.1...11 CO/BO: Status word 2 / ZSW 2

PM250/PM260 **Access level:** 2 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays status word 2.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	|n_act| > p1226 (n_standstill)	Yes	No	-
02	|n_act| > p1080 (n_Min)	Yes	No	-
03	I_act >= p2170	Yes	No	-
04	|n_act| > p2155	Yes	No	-
05	|n_act| <= p2155	Yes	No	-
06	|n_act| >= r1119 (n_set)	Yes	No	-
07	Vdc <= p2172	Yes	No	-
08	Vdc > p2172	Yes	No	-
09	Ramp-up/ramp-down completed	Yes	No	-
10	Technology controller output at the lower limit	Yes	No	-
11	Technology controller output at the upper limit	Yes	No	-

Caution: p2081 is used to define the signal sources of the PROFIdrive status word interconnection.

Note: The following status bits are displayed in r0053:

Bit 01: r2197 Bit 5 (negated)

Bit 02: r2197 Bit 0 (negated))

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r0054.0...15 CO/BO: Control word 1 / STW 1

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays control word 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	No	Yes	-
02	OC / OFF3	No	Yes	-
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	-
11	Direction reversal (setpoint)	Yes	No	-
13	Motorized potentiometer raise	Yes	No	-
14	Motorized potentiometer lower	Yes	No	-
15	CDS bit 0	Yes	No	-

Note: The following control bits are displayed in r0054:

Bit 00: r0898 Bit 0

Bit 01: r0898 Bit 1

Bit 02: r0898 Bit 2

Bit 03: r0898 Bit 3

Bit 04: r0898 Bit 4

Bit 05: r0898 Bit 5

Bit 06: r0898 Bit 6

Bit 07: r2138 Bit 7

Bit 08: r0898 Bit 8

Bit 09: r0898 Bit 9

Bit 10: r0898 Bit 10

Bit 11: r1198 Bit 11

Bit 13: r1198 Bit 13

Bit 14: r1198 Bit 14

Bit 15: r0836 Bit 0

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r0055.0...15 CO/BO: Supplementary control word / Suppl STW

PM240	**Access level:** 3	**P-Group:** Displays, signals	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays supplementary control word.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed setp bit 0	Yes	No	-
01	Fixed setp bit 1	Yes	No	-
02	Fixed setp bit 2	Yes	No	-
03	Fixed setp bit 3	Yes	No	-
04	DDS select. bit 0	Yes	No	-
05	DDS select. bit 1	Yes	No	-
08	Technology controller enable	Yes	No	-
09	DC brake enable	Yes	No	-
11	Droop enable	Yes	No	-
12	Torque control active	Yes	No	-
13	External fault 1 (F07860)	No	Yes	-
15	CDS bit 1	Yes	No	-

Note: The following control bits are displayed in r0055:

Bit 00: r1198 Bit 0

Bit 01: r1198 Bit 1

Bit 02: r1198 Bit 2

Bit 03: r1198 Bit 3

Bit 04: r0837 Bit 0

Bit 05: r0837 Bit 1

Bit 08: r2349 Bit 0 (negated)

Bit 09: r1239 Bit 11

Bit 11: r1406 Bit 11

Bit 12: r1406 Bit 12

Bit 13: r2138 Bit 13

Bit 15: r0836 Bit 1

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r0055.0...15 CO/BO: Supplementary control word / Suppl STW

PM250/PM260 **Access level:** 3 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays supplementary control word.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed setp bit 0	Yes	No	-
01	Fixed setp bit 1	Yes	No	-
02	Fixed setp bit 2	Yes	No	-
03	Fixed setp bit 3	Yes	No	-
04	DDS select. bit 0	Yes	No	-
05	DDS select. bit 1	Yes	No	-
08	Technology controller enable	Yes	No	-
11	Droop enable	Yes	No	-
12	Torque control active	Yes	No	-
13	External fault 1 (F07860)	No	Yes	-
15	CDS bit 1	Yes	No	-

Note: The following control bits are displayed in r0055:

Bit 00: r1198 Bit 0

Bit 01: r1198 Bit 1

Bit 02: r1198 Bit 2

Bit 03: r1198 Bit 3

Bit 04: r0837 Bit 0

Bit 05: r0837 Bit 1

Bit 08: r2349 Bit 0 (negated)

Bit 11: r1406 Bit 11

Bit 12: r1406 Bit 12

Bit 13: r2138 Bit 13

Bit 15: r0836 Bit 1

r0056.0...13 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl

PM250/PM260 **Access level:** 3 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays 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 present	Yes	No	-
03	Soft starting present	Yes	No	-
04	Magnetizing completed	Yes	No	-
05	Voltage boost when starting	Active	Inactive	6300
06	Acceleration voltage	Active	Inactive	6300
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

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

PM240 **Access level:** 3 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays 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 present	Yes	No	-
03	Soft starting present	Yes	No	-
04	Magnetizing completed	Yes	No	-
05	Voltage boost when starting	Active	Inactive	6300
06	Acceleration voltage	Active	Inactive	6300
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.

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the actual speed setpoint at the input of the speed controller or V/f characteristic (after the interpolator).
Dependency: Refer to: r0020
Note: The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

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

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the actual speed setpoint after the setpoint filters.

r0063[0...2] CO: Actual speed value / n_ist

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the actual speed of the closed-loop speed control and the V/f control.
Index: [0] = Unsmoothed
[1] = Smoothed with p0045
[2] = Calculated from f_set - f_slip
Dependency: Refer to: r0021
Note: 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.

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r0064 **CO: Speed controller system deviation / n_ctrl system dev**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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

r0065 **Slip frequency / f_Slip**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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

r0066 **CO: Output frequency / f_outp**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the output frequency of the power unit.
Dependency: Refer to: r0024
Note: The output frequency is available smoothed (r0024) and unsmoothed (r0066).

r0067 **CO: Output current, maximum / I_outp max**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays 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[0...1] **CO: Absolute current actual value / I_act abs val**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

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**

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [A] **Calculated:** - **Data set:** -

Description: Displays 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.

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r0070 CO: Actual DC link voltage / Vdc act val

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [V] **Calculated:** - **Data set:** -

Description: Displays the measured actual value of the DC link voltage.
Dependency: Refer to: r0026
Notice: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM240) 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: The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0071 Maximum output voltage / V_output max

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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 / V_output

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

Description: Displays the actual output voltage of the power unit.
Dependency: Refer to: r0025
Note: The output voltage is available smoothed (r0025) and unsmoothed (r0072).

r0073 Maximum modulation depth / Modulat_depth max

Access level: 4 **P-Group:** Modulation **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the maximum modulation depth.
Dependency: Refer to: p1803

r0074 CO: Modulat_depth / Modulat_depth

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

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 * r0070) / (sqrt(2) * 100 %).
The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

r0075 CO: Current setpoint field-generating / Id_set

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the field-generating current setpoint (Id_set).
Note: This value is irrelevant for the V/f control mode.

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r0076 **CO: Current actual value field-generating / Id_act**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the field-generating current actual value (Id_act).
Dependency: Refer to: r0029
Note: This value is irrelevant for the V/f control mode.
The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

r0077 **CO: Current setpoint torque-generating / Iq_set**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the torque/force generating current setpoint.
Note: This value is irrelevant for the V/f control mode.

r0078 **CO: Current actual value torque-generating / Iq_act**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the torque-generating current actual value (Iq_act).
Dependency: Refer to: r0030
Note: This value is irrelevant for the V/f control mode.
The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

r0079 **CO: Torque setpoint total / M_set total**

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays the torque setpoint at the output of the speed controller (before clock cycle interpolation).

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

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays the actual torque value.
Index: [0] = Unsmoothed
[1] = Smoothed with p0045
Dependency: Refer to: r0031
Note: The torque actual value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).

r0081 **CO: Torque utilization / M_Utilization**

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the torque utilization as a percentage.
The torque utilization is obtained from the required smoothed torque referred to the torque limit.
Dependency: This parameter is only available for vector control. For V/f control r0081 = 0 %.
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 %

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

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [kW] **Calculated:** - **Data set:** -

Description: Displays the instantaneous active power.
Index: [0] = Unsmoothed
[1] = Smoothed with p0045
[2] = Power drawn
Dependency: Refer to: r0032
Note: The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).
The unsmoothed electric motor active power is displayed in r0082[2] without taking into account the motor losses.

r0083 CO: Flux setpoint / Flux setpoint

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the flux setpoint.

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

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the flux actual value.
Index: [0] = Unsmoothed
[1] = Smoothed

r0087 CO: Actual power factor / Cos phi act

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the actual active power factor.

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

Access level: 4 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [V] **Calculated:** - **Data set:** -

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.

r0094 CO: Transformation angle / Transformat_angle

Access level: 3 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [°] **Calculated:** - **Data set:** -

Description: Displays the transformation angle.
Dependency: Refer to: r1778
Note: The transformation angle corresponds to the electrical commutation angle.

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

Access level: 4	**P-Group:** Converter	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1)	**Calculated:** -	

Min	Max	Factory setting
0	0	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.

The following applies for IEC drives: The power factor (p0308) should be parameterized.

The following applies for NEMA drives: The efficiency (p0309) should be parameterized.

Value: 0: IEC-Motor (50 Hz, SI 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, r0333, r0334, p0341, p0344, r1969).

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

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

The extension of the parameter to p0100 = 1 (NEMA) will be realized in a later software version.

p0170 Number of Command Data Sets (CDS) / CDS count

Access level: 2	**P-Group:** Data sets	**Data type:** Unsigned8
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: C(15)	**Calculated:** -	

Min	Max	Factory setting
2	4	2

Description: Sets the number of Command Data Sets (CDS).

Dependency: Refer to: p0010

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

Access level: 3	**P-Group:** Data sets	**Data type:** Unsigned8
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: C(15)	**Calculated:** -	

Min	Max	Factory setting
1	4	1

Description: Sets the number of Drive Data Sets (DDS).

Dependency: Refer to: p0010

r0197 Loader 1 version / Loader 1 version

Access level: 4	**P-Group:** Closed-loop control	**Data type:** Unsigned32
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the version of loader 1 (first level loader).

Dependency: Refer to: r0018, r0198

Note: Example:

The value 1010100 should be interpreted as V01.01.01.00.

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r0198[0...1] Loader 2 version / Loader 2 version

Access level: 4 **P-Group:** Closed-loop control **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the version of loader 2 (second level loader).
Dependency: Refer to: r0018, r0197
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0199[0...24] Drive object name / DO name

Access level: 4 **P-Group:** - **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: C **Calculated:** -

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.

r0200[0...n] Power unit code number actual / PU code no. act

Access level: 3 **P-Group:** Converter **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** PDS

Description: Displays the unique code number of the power unit.
Note: r0200 = 0: No power unit data found

p0201[0...n] Power unit code number / PU code no

Access level: 3 **P-Group:** Converter **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** PDS
Can be changed: C(2) **Calculated:** -

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).
When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.

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r0203[0...n] Actual power unit type / PU actual type

Access level: 3 **P-Group:** Converter **Data type:** Integer16

Unit: - **Calculated:** - **Data set:** PDS

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)
112: PM220 (SINAMICS G120)
113: PM230 (SINAMICS G120)
114: PM240 (SINAMICS G120)
115: PM250 (SINAMICS G120)
116: PM260 (SINAMICS G120)
118: SINAMICS G120 Px
120: PM340 (SINAMICS S120)
150: SINAMICS G
200: SINAMICS GM
250: SINAMICS SM
300: SINAMICS GL
350: SINAMICS SL
400: SINAMICS DCM

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

r0204[0...n] Power unit hardware properties / PU HW property

Access level: 3 **P-Group:** Converter **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** PDS

Description: Displays the properties supported by the power unit hardware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	RFI filter available	Yes	No	-
07	F3E regenerative feedback into the line supply	Yes	No	-
08	Internal Braking Module	Yes	No	-
12	Safe Brake Control (SBC) supported	No	Yes	-
14	Internal LC output filter	Yes	No	-

p0205 Power unit application / PU application

Access level: 1 **P-Group:** Converter **Data type:** Integer16

Quick comm. YES **Active:** NO **Data set:** -

Can be changed: C(1, 2) **Calculated:** -

Min	Max	Factory setting
0	1	0

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.

Value:

0: Load duty cycle with high overload for vector drives
1: Load duty cycle with low overload for vector drives

Notice: Its value is not reset when factory values are restored (see p0010 = 30, p0970).

Note: When the parameter is changed, all of the motor parameters, the technological application and the control mode are pre-assigned according to the selected application. The parameter has not influence when calculating the thermal overload.

p0205 can only be changed to the settings that are saved in the power unit EEPROM.

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r0206[0...4] Rated power unit power / PU P_rated

Access level: 2 **P-Group:** Converter **Data type:** FloatingPoint32
Unit: [kW] **Calculated:** - **Data set:** -

Description: Displays the rated power unit power for various load duty cycles.

Index: [0] = Rating plate
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = Reserved
[4] = Reserved

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

Access level: 3 **P-Group:** Converter **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the rated power unit power for various load duty cycles.

Index: [0] = Rating plate
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = Reserved
[4] = Reserved

Dependency: Refer to: p0205

r0208 Rated power unit line supply voltage / PU V_rated

Access level: 2 **P-Group:** Converter **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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 %

r0209[0...4] Power unit, maximum current / PU I_max

Access level: 3 **P-Group:** Converter **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the maximum output current of the power unit.

Index: [0] = Catalog
[1] = Load duty cycle with high overload
[2] = Load duty cycle with low overload
[3] = Reserved
[4] = Reserved

Dependency: Refer to: p0205

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p0210 Drive unit line supply voltage / Supply voltage

Access level: 3	**P-Group:** Converter	**Data type:** Unsigned16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: C(2), T	**Calculated:** -	

Min	Max	Factory setting
1 [V]	63000 [V]	400 [V]

Description: Sets the drive unit supply voltage (rms value of the phase-to-phase line supply voltage).

Dependency: Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0.

The switch-in thresholds of the Vdc_max controller are then directly determined using p0210.

Caution: If the line 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. In this case, an appropriate alarm is output.

Note: Setting ranges for p0210 as a function of the rated power unit voltage:

V_rated = 230 V:

- p0210 = 200 ... 240 V

V_rated = 400 V:

- p0210 = 380 ... 480 V

V_rated = 500 V:

- p0210 = 500 ... 600 V

V_rated = 690 V:

- p0210 = 660 ... 690 V

The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210:

Vdc_pre = p0210 * 0.82 * 1.35

The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage:

V_rated = 400 V:

- U_min = p0210 * 0.78 > 360 V

V_rated = 500 V:

- V_min = p0210 * 0.76

V_rated = 690 V:

- U_min = p0210 * 0.74 > 450 V

p0215[0...3] Power Module Data / PM Data

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	65535	0

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p0230 Drive filter type, motor side / Drv filt type mot

Access level: 1	**P-Group:** Converter	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1, 2)	**Calculated:** -	

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

p0230 = 4:

--> p0290 (power unit overload response) = inhibit pulse frequency reduction

--> p1802 (modulator modes) = space vector modulation without overcontrol

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 the power unit (e.g. PM260) is equipped with an internal sine-wave filter, the parameter cannot be changed.

if a filter type cannot be selected, then this filter type is not permitted for the Motor Module.

p0230 = 1:

Power units with output reactor are limited to output frequencies of 120 Hz.

p0230 = 3:

Power units with sine-wave filter are limited to output frequencies of 200 Hz.

r0231[0...1] Power cable length, maximum / Cable length max

Access level: 3	**P-Group:** Converter	**Data type:** Unsigned16
Unit: [m]	**Calculated:** -	**Data set:** -

Description: Displays the maximum permissible cable lengths between the drive unit and motor.

Index:
[0] = Unshielded
[1] = Shielded

Note: The display value is used to provide information for service and maintenance.

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p0233 Power unit motor reactor / PU mot reactor

Access level: 2	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: C(2), U, T	**Calculated:** -	
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 defaulted 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.

The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter.

p0234 Power unit sine-wave filter capacitance / PU sine filter C

Access level: 2	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: C(2), U, T	**Calculated:** -	
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 defaulted 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).

The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter.

p0278 DC link voltage undervoltage threshold reduction / Vdc V_under red

Access level: 3	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	
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

Refer to: F30003

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.

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.

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p0287[0...1] Ground fault monitoring thresholds / Grnd flt thresh

Access level: 3	**P-Group:** -	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0.0 [%]	100.0 [%]	6.0 [%]

Description: Sets the shutdown thresholds for the ground fault monitoring.
The setting is made as a percentage of the maximum power unit current (r0209).

Index: [0] = Threshold for pulse inhibit
[1] = Threshold for pulse enable

Dependency: Refer to: F30021

Note: De-activating the ground fault monitoring:
- Sequence: --> p0287[1] = 0 --> p0287[0] = 0

r0289 CO: Maximum power unit output current / PU I_outp max

Access level: 3	**P-Group:** Displays, signals	**Data type:** FloatingPoint32
Unit: [Arms]	**Calculated:** -	**Data set:** -

Description: Displays the actual maximum output current of the power unit taking into account de-rating factors.

p0290 Power unit overload response / PU overld response

Access level: 3	**P-Group:** Converter	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	3	2

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 or torque control) or the output frequency (for V/f control) indirectly via the output current limit and the intervention of the current limiting controller).
- reduce the pulse frequency.

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)

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).
If a fault or alarm is present, then r2135.13 or r2135.15 is set.
Refer to: r0036, r0037, p0230, r2135
Refer to: A05000, A05001, A07805

Caution: 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, the I2t overload detection of the power unit does not influence the responses.
When the motor data identification routine is selected, p290 cannot be changed.

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p0292[0...1] Power unit temperature alarm threshold / PU T_alrm thresh

Access level: 3	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0 [°C]	25 [°C]	5 [°C]

Description: Sets the alarm threshold for power unit overtemperatures. The value is set as a difference to the tripping (shut-down) temperature.

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.

Index: [0] = Heat sink temperature
[1] = Power semiconductor (chip) temperature

Dependency: Refer to: r0037, p0290

Refer to: A05000

p0294 Power unit alarm with I2t overload / PU I2t alrm thresh

Access level: 4	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
10.0 [%]	100.0 [%]	95.0 [%]

Description: Sets the alarm threshold for the I2t power unit overload. If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.

Dependency: Refer to: r0036, p0290

Refer to: A07805

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

Access level: 3	**P-Group:** Converter	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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 effective.

r0296 DC link voltage undervoltage threshold / Vdc V_lower_thresh

Access level: 3	**P-Group:** Converter	**Data type:** Unsigned16
Unit: [V]	**Calculated:** -	**Data set:** -

Description: If the DC link voltage falls below this threshold, the power unit is shut down due to a DC link undervoltage condition (F30003).

Dependency: Refer to: p0278

Refer to: F30003

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r0297 DC link voltage overvoltage threshold / Vdc V_upper_thresh

Access level: 3 **P-Group:** Converter **Data type:** Unsigned16
Unit: [V] **Calculated:** - **Data set:** -

Description: If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.
Dependency: Refer to: F30002

p0300[0...n] Motor type selection / Mot type sel

Access level: 2 **P-Group:** Motor **Data type:** Integer16
Quick comm. YES **Active:** NO **Data set:** MDS
Can be changed: C(1, 3) **Calculated:** -

Min	Max	Factory setting
0	204	0

Description: Selecting the motor type.
The first digit of the parameter value always defines the general motor type and corresponds to the unlisted motor belonging to a motor list:
1 = Rotating induction motor
2 = Rotating synchronous motor
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/IOP).

Value:
0: No motor
1: Induction motor (rotating)
2: Synchronous motor (rotating, permanent-magnet)
17: 1LA7 standard induction motor
204: 1LE4 synchronous motor

Dependency: When selecting a motor type from the 1LA7 series, parameters p0335, p0626, p0627, and p0628 of the thermal motor model are pre-assigned as a function of p0307 and p0311.
Note: Once the CU has been booted up for the first time or if the factory settings have been defined accordingly, the motor type is automatically set to 1 (induction motor).
If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.

p0301[0...n] Motor code number selection / Mot code No. sel

Access level: 2 **P-Group:** Motor **Data type:** Unsigned16
Quick comm. YES **Active:** NO **Data set:** MDS
Can be changed: C(1, 3), U **Calculated:** -

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: Only code numbers for motor types can be selected that correspond to the motor type selected in p0300.
Refer to: p0300
Note: The motor code number can only be changed if the matching list motor was first selected in p0300.
When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected.

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p0304[0...n] Rated motor voltage / Mot V_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	
Min	**Max**	**Factory setting**
0 [Vrms]	20000 [Vrms]	0 [Vrms]

Description: Sets the rated motor voltage (rating plate).

Caution: This parameter is automatically preset 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.

Note: When the parameter value is entered the connection type of the motor (star/delta) must be taken into account.

Once the CU has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

p0305[0...n] Rated motor current / Mot I_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the rated motor current (rating plate).

Caution: This parameter is automatically preset 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.

Notice: If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned.

Note: When the parameter value is entered the connection type of the motor (star/delta) must be taken into account.

Once the CU has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

p0307[0...n] Rated motor power / Mot P_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	
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

Caution: This parameter is automatically preset 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.

Note: The parameter is automatically preset for motors from the motor list (p0301).

Once the CU has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

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p0308[0...n] Rated motor power factor / Mot cos_phi_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	

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, r0332

Caution: This parameter is automatically preset 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.

Note: The parameter is not used for synchronous motors (p0300 = 2xx).
Once the CU has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

p0310[0...n] Rated motor frequency / Mot f_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	650.00 [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

Caution: This parameter is automatically preset 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.

Notice: If p0310 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned.

Note: Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

p0311[0...n] Rated motor speed / Mot n_rated

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	

Min	Max	Factory setting
0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the rated motor speed (rating plate).
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 V/f control.

Dependency: If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.
Refer to: p0310, r0313, p0314

Caution: This parameter is automatically preset 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.

Notice: If p0311 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned.

Note: Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.

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r0313[0...n] Motor pole pair number, actual (or calculated) / Mot PolePairNo act

Access level: 3 **P-Group:** Motor **Data type:** Unsigned8

Unit: - **Calculated:** - **Data set:** MDS

Description: Displays the number of motor pole pairs. The value is used for internal calculations.
Values:
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.

Access level: 3 **P-Group:** Motor **Data type:** Unsigned8

Quick comm. YES **Active:** NO **Data set:** MDS

Can be changed: C(1, 3) **Calculated:** -

Min	Max	Factory setting
0	255	0

Description: Sets the motor pole pair number.
Values:
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), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned.
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

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32

Quick comm. YES **Active:** NO **Data set:** MDS

Can be changed: C(1, 3), U, T **Calculated:** -

Min	Max	Factory setting
0.00 [Nm/A]	100.00 [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

Caution: This parameter is automatically preset 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.

Note: This parameter is not used for induction motors (p0300 = 1xx).

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p0318[0...n] Motor stall current / Mot I_standstill

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3)	**Calculated:** -	
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the stall current for synchronous motors (p0300 = 2xx).

Caution: This parameter is automatically preset 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.

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

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
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.

Caution: This parameter is automatically preset 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.

Note: The magnetizing current p0320 for induction motors is reset when quick commissioning is exited with p3900 > 0.

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

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [rpm]	210000.0 [rpm]	0.0 [rpm]

Description: Sets the maximum motor speed.

Dependency: Refer to: p1082

Caution: This parameter is automatically preset 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.

Notice: If p0322 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned.

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p0323[0...n] Maximum motor current / Mot I_max

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3)	**Calculated:** -	

Min	Max	Factory setting
0.00 [Arms]	20000.00 [Arms]	0.00 [Arms]

Description: Set the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).

Caution: This parameter is automatically preset 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.

Notice: If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned.

Note: The parameter is automatically preset for motors from the motor list (p0301).

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.

p0325[0...n] Motor pole position identification current, 1st phase / Mot PolID I 1st ph

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: U, T	**Calculated:** -	

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, r1984, r1985, r1987

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).

p0326[0...n] Motor stall torque correction factor / Mot M_stall_corr

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
5 [%]	300 [%]	100 [%]

Description: Sets the correction factor for the stall torque/force at a 600 V DC link voltage.

Caution: This parameter is automatically preset 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.

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0327[0...n] Optimum motor load angle / Mot phi_load opt

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [°]	135.0 [°]	90.0 [°]

Description: Sets the optimum load angle for synchronous motors with reluctance torque.
This parameter has no significance for induction motors.
The load angle is measured at the rated motor current.

Caution: This parameter is automatically preset 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.

Note: 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 (refer to p0300).

p0328[0...n] Motor reluctance torque constant / Mot kT_reluctance

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
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.

Caution: This parameter is automatically preset 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.

Note: For synchronous motors without reluctance torque, the value 0 must be set.

p0329[0...n] Motor pole position identification current / Mot PolID current

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the current for the pole position identification routine.
For a two-stage technique, the current is set for the second phase.

Dependency: Refer to: p0325, p1980, r1984, r1985, r1987

Caution: This parameter is automatically preset 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.

r0330[0...n] Rated motor slip / Mot slip_rated

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** MDS

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).

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r0331[0...n] Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** MDS

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.

r0332[0...n] Rated motor power factor / Mot cos_phi_rated

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** MDS

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):
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

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** MDS

Description: Displays the rated motor torque.

Dependency: IEC drives (p0100 = 0): unit Nm
NEMA drives (p0100 = 1): unit lbf ft

Note: For induction motors, r0333 is calculated from p0307 and p0311.
For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328.

r0334[0...n] Actual motor-torque constant / Mot kT act

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [Nm/A] **Calculated:** - **Data set:** MDS

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

Note: This parameter is not used for induction motors (p0300 = 1xx).
For synchronous motors, parameter r0334 is calculated from p0305, p0307 and p0311.

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p0335[0...n] Motor cooling type / Motor cooling type

Access level: 2	**P-Group:** Motor	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** MDS
Can be changed: C(1, 3), T	**Calculated:** -	

Min	Max	Factory setting
0	128	0

Description: Sets the motor cooling system used.

Value:
0: Non-ventilated
1: Forced cooling
2: Liquid cooling
128: No fan

Dependency: For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.

Caution: This parameter is automatically preset 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.

Note: The parameter influences the thermal 3-mass motor model.
1LA7 motors, frame size 56 are operated without fan.

r0337[0...n] Rated motor EMF / Mot EMF_rated

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Vrms]	**Calculated:** -	**Data set:** MDS

Description: Displays the rated EMF of the motor.

Note: EMF: Electromagnetic force

p0340[0...n] Automatic calculation, motor/control parameters / Calc auto par

Access level: 2	**P-Group:** Motor	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(3), T	**Calculated:** -	

Min	Max	Factory setting
0	5	0

Description: Setting to automatically calculate motor parameters and V/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

Note: p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5.
p0340 = 2 calculates the motor parameters (p0350 ... p0360).
p0340 = 3 contains the calculations of p0340 = 4, 5.
p0340 = 4 only calculates the controller parameters.
p0340 = 5 only calculates the controller limits.
When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1.
At the end of the calculations, p0340 is automatically set to 0.

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Notice: The following parameters are influenced using p0340:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341, p0342, p0344, p0612, p0640, p1082, p1231, p1232, p1333, p1349, p1654, p1726, p1825, p1828 ... p1832, p1909, p1959, p2000, p2001, p2002, p2003, p3927, p3928

p0340 = 2:

--> p0350, p0354 ... p0360

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0622, p1320 ... p1327, p1582, p1584, p1616, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1338, p1339, p1340, p1341, p1345, p1346, p1461, p1463, p1464, p1465, p1470, p1472, p1703, p1715, p1717, p1740, p1756, p1764, p1767, p1781, p1783, p1785, p1786, p1795

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1802, p1803, p2140, p2142, p2148, p2150, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p2390, p2392, p2393

p0341[0...n] Motor moment of inertia / Mot M_mom of inert

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32

Quick comm. NO | **Active:** YES | **Data set:** MDS

Can be changed: C(3), U, T | **Calculated:** p0340 = 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

Caution: This parameter is automatically preset 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.

Note: 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

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32

Quick comm. NO | **Active:** YES | **Data set:** MDS

Can be changed: C(3), U, T | **Calculated:** p0340 = 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

Note: The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

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p0344[0...n] Motor weight (for the thermal motor model) / Mot weight th mod

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), T	**Calculated:** p0340 = 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

Caution: This parameter is automatically preset 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.

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

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [s]	**Calculated:** -	**Data set:** MDS

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, p0341, p0342

p0346[0...n] Motor excitation build-up time / Mot t_excitation

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 1,3	
Min	**Max**	**Factory setting**
0.000 [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: For insufficient magnetizing under load or if the acceleration rate is too high, then an induction motor can stall (refer to the note).

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.

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p0347[0...n] Motor de-excitation time / Mot t_de-excitat.

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 1,3	
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).

p0350[0...n] Motor stator resistance, cold / Mot R_stator cold

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 1,2	
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.

Dependency: Refer to: p0625, r1912

Caution: This parameter is automatically preset 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.

Note: The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).

p0352[0...n] Cable resistance / Mot R_cable cold

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.00000 [Ohm]	120.00000 [Ohm]	0.00000 [Ohm]

Description: Resistance of the power cable between the power unit and motor.

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.

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.

The cable resistance is reset when quick commissioning is exited with p3900 > 0.

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p0354[0...n] Motor rotor resistance cold / Mot R_r cold

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** p0340 = 1,2

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.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Dependency: Refer to: p0625

Caution: This parameter is automatically preset 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.

Note: The parameter is not used for synchronous motors (p0300 = 2).

p0356[0...n] Motor stator leakage inductance / Mot L_stator leak.

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** p0340 = 1,2

Min	Max	Factory setting
0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: Induction machine: sets the stator leakage inductance of the motor.

Synchronous motor: Sets the stator quadrature axis inductance of the motor.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Caution: This parameter is automatically preset 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.

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

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** p0340 = 1,2

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: For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is ideal for a low current.

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p0358[0...n] Motor rotor leakage inductance / Mot L_rot leak

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 1,2	
Min	**Max**	**Factory setting**
0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

Description: Sets the rotor/secondary section leakage inductance of the motor.

The value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Caution: This parameter is automatically preset 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.

Note: If the stator 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).

p0360[0...n] Motor magnetizing inductance / Mot Lh

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 1,2	
Min	**Max**	**Factory setting**
0.00000 [mH]	10000.00000 [mH]	0.00000 [mH]

Description: Sets the magnetizing inductance of the motor.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

Caution: This parameter is automatically preset 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.

Note: The parameter is not used for synchronous motors (p0300 = 2).

p0362[0...n] Saturation characteristic flux 1 / Mot saturat.flux 1

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
10.0 [%]	300.0 [%]	60.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.

This parameter specifies the y coordinate (flux) for the 1st value pair of the characteristic.

Sets the first flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).

Dependency: The following applies for the flux values:

p0362 < p0363 < p0364 < p0365

Refer to: p0366

Note: For induction motors, p0362 = 100 % corresponds to the rated motor flux.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0363[0...n] Saturation characteristic flux 2 / Mot saturat.flux 2

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
10.0 [%]	300.0 [%]	85.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the y coordinate (flux) for the 2nd value pair of the characteristic.
Sets the second flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).

Dependency: The following applies for the flux values:
p0362 < p0363 < p0364 < p0365
Refer to: p0367

Note: For induction motors, p0363 = 100 % corresponds to the rated motor flux.
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0364[0...n] Saturation characteristic flux 3 / Mot saturat.flux 3

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
10.0 [%]	300.0 [%]	115.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the y coordinate (flux) for the 3rd value pair of the characteristic.
Sets the third flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).

Dependency: The following applies for the flux values:
p0362 < p0363 < p0364 < p0365
Refer to: p0368

Note: For induction motors, p0364 = 100 % corresponds to the rated motor flux.
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0365[0...n] Saturation characteristic flux 4 / Mot saturat.flux 4

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
10.0 [%]	300.0 [%]	125.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the y coordinate (flux) for the 4th value pair of the characteristic.
Sets the fourth flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).

Dependency: The following applies for the flux values:
p0362 < p0363 < p0364 < p0365
Refer to: p0369

Note: For induction motors, p0365 = 100 % corresponds to the rated motor flux.
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0366[0...n] Saturation characteristic I_mag 1 / Mot sat. I_mag 1

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	50.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the x coordinate (magnetizing current) for the 1st value pair of the characteristic.
Sets the first magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

Dependency: The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0362

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0367[0...n] Saturation characteristic I_mag 2 / Mot sat. I_mag 2

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	75.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the x coordinate (magnetizing current) for the 2nd value pair of the characteristic.
Sets the second magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

Dependency: The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0363

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0368[0...n] Saturation characteristic I_mag 3 / Mot sat. I_mag 3

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
5.0 [%]	800.0 [%]	150.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the x coordinate (magnetizing current) for the 3rd value pair of the characteristic.
Sets the third magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

Dependency: The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0364

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0369[0...n] Saturation characteristic I_mag 4 / Mot sat. I_mag 4

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
5.0 [%]	800.0 [%]	210.0 [%]

Description: The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.
This parameter specifies the x coordinate (magnetizing current) for the 4th value pair of the characteristic.
Sets the fourth magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

Dependency: The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0365

Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

r0370[0...n] Motor stator resistance, cold / Mot R_stator cold

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Ohm]	**Calculated:** -	**Data set:** MDS

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

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Ohm]	**Calculated:** -	**Data set:** MDS

Description: Displays the resistance of the cable between the power unit and motor.

Dependency: Refer to: p0352

r0373[0...n] Motor rated stator resistance / Mot R_stator rated

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Ohm]	**Calculated:** -	**Data set:** MDS

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 / Mot R_r cold

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Ohm]	**Calculated:** -	**Data set:** MDS

Description: Displays the motor rotor resistance at an ambient temperature p0625.

Dependency: Refer to: p0625

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0376[0...n] Rated motor rotor resistance / Mot R_rotor rated

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Unit: [Ohm]	**Calculated:** -	**Data set:** MDS

Description: Displays the rated motor rotor resistance at rated temperature (total of p0625 and p0628).

Dependency: Refer to: p0628

Note: The parameter is not used for synchronous motors (p0300 = 2xx).

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r0377[0...n] Motor leakage inductance, total / Mot L_leak total

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** MDS

Description: Displays the stator leakage inductance of the motor including the motor reactor (p0233).

r0378[0...n] Motor stator inductance, d axis / Mot L_stator_d

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** MDS

Description: Displays the stator longitudinal inductance of the synchronous motor including the motor reactor (p0233).

r0382[0...n] Motor magnetizing inductance transformed / Mot L_magn transf

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** MDS

Description: Displays the magnetizing inductance of the motor.
Note: The parameter is not used for synchronous motors (p0300 = 2xx).

r0384[0...n] Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [ms] **Calculated:** - **Data set:** MDS

Description: Displays the rotor time constant.
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 resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.

r0386[0...n] Motor stator leakage time constant / Mot T_stator leak

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [ms] **Calculated:** - **Data set:** MDS

Description: Displays the stator leakage time constant.
Note: The value is calculated from the total of all leakage inductances (p0233, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account.

r0395[0...n] Actual stator resistance / R_stator act

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [Ohm] **Calculated:** - **Data set:** MDS

Description: Displays the actual stator resistance (phase value).
The parameter is influenced by the temperature model and includes the temperature-independent cable resistance.
Dependency: 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

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [Ohm] **Calculated:** - **Data set:** MDS

Description: Displays the actual rotor resistance (phase value).
The parameter is influenced by the 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).

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p0500 Technology application / Tec application

Access level: 2	**P-Group:** Applications	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1, 5), T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Sets the technology application.

The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0340 = 5.

Value:
0: Standard drive
1: Pumps and fans

Notice: If the technological application is set to p0500 = 0, 1 during commissioning (p0010 = 1, 5, 29, 30, 39), the operating mode is preset to p1300 = 0, 2 for all drive data sets.

Note: The calculation of parameters dependent on the technology application can be called up as follows:

- when exiting the quick commissioning using p3900 > 0
- when writing p0340 = 1, 3, 5

For p0500 = 0 and the calculation is initiated, the following parameters are set:

- p1574 = 10 V
- p1802 = 4 (SVM/FLB without overcontrol)
- p1803 = 106 %

For p0500 = 1 and the calculation is initiated, the following parameters are set:

- p1574 = 2 V
- 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.

p0573 Inhibit automatic reference value calculation / Inhibit calc

Access level: 3	**P-Group:** Applications	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Inhibits the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and control parameters (p0340, p3900).

Value:
0: No
1: Yes

Notice: The inhibit for the reference value calculation is canceled when new motor parameters (e.f. 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 (see p3900, p0340), the inhibit for the reference value calculation is automatically reactivated.

Note: 0: The automatic calculation (p0340, p3900) overwrites the reference parameters.

1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters.

p0596 Reference quantity, technological units / Ref tech units

Access level: 4	**P-Group:** -	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

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 595 to absolute units, all of the parameters involved refer to the reference quantity.

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p0601[0...n] Motor temperature sensor type / Mot_temp_sens type

Access level: 2	**P-Group:** Motor	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0	4	0

Description: Sets the sensor type for the motor temperature monitoring.

Value:
0: No sensor
1: PTC alarm & timer
2: KTY84
4: Bimetallic NC contact alarm & timer

Dependency: The thermal motor model is only calculated when p0612 bit 1 is set.

Caution: If, for a selected KTY temperature sensor (p0601 = 2), the motor temperature sensor is not connected but another encoder, then the temperature adaptation of the motor resistances must be switched out (p0620 = 0). Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.

Note: PTC thermistor (p0601 = 1): Tripping resistance = 1650 Ohm.

p0604[0...n] Motor overtemperature alarm threshold / Mot TempAlrmThresh

Access level: 2	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [°C]	240.0 [°C]	130.0 [°C]

Description: Sets the alarm threshold for monitoring the motor temperature.

Dependency: Refer to: p0606

Caution: This parameter is automatically preset 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.

Note: The hysteresis for canceling the alarm is 2 Kelvin.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0605[0...n] Motor overtemperature fault threshold / MotTempFaultThresh

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [°C]	240.0 [°C]	145.0 [°C]

Description: Sets the fault threshold to monitor the motor temperature.

Caution: This parameter is automatically preset 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.

Note: The hysteresis for canceling the fault is 2 Kelvin.

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0606[0...n] Motor overtemperature timer / Mot TempTimeStage

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
0.000 [s]	600.000 [s]	0.000 [s]

Description: Sets the timer for the alarm threshold for the motor temperature monitoring function.

This timer is started when the temperature alarm threshold (p0604) is exceeded.

If the timer expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output.

If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output.

As long as the motor temperature has still not exceeded the fault threshold and the alarm thresholds have again been undershot, the fault can be acknowledged.

Dependency: Refer to: p0604, p0605

Refer to: F07011, A07910

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

Access level: 4	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

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 message is output.

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.

p0610[0...n] Motor overtemperature response / Mot temp response

Access level: 3	**P-Group:** Motor	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), T	**Calculated:** -	

Min	Max	Factory setting
0	2	1

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: Alarm with reduction of I_max and fault
2: Alarm and fault no reduction of I_max

Dependency: Refer to: p0601, p0604, p0605

Refer to: F07011, A07910

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.

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p0611[0...n] I2t motor model thermal time constant / I2t mot_mod T

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

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 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).

Refer to: r0034, p0612, p0615

Refer to: F07011, A07012, A07910

Caution: This parameter is automatically preset 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.

Note: When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (also 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] Thermal motor model configuration / Therm Mot_mod conf

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: U, T	**Calculated:** p0340 = 1	

Min	Max	Factory setting
-	-	0010 bin

Description: Sets the configuration for the thermal motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Activate I2t motor model	Yes	No	-
01	Activate motor temperature model	Yes	No	-

Dependency: Bit 0 is only used for permanent-magnet synchronous motors (p0300 = 2xx). It is only possible to switch in the thermal I2t monitoring if time constant p0611 is not zero.

Bit 1 is used to activate/deactivate the thermal motor model for induction motors.

Refer to: r0034, p0611, p0615

p0615[0...n] I2t motor model fault threshold / I2t mot_mod thresh

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	

Min	Max	Factory setting
0.0 [°C]	220.0 [°C]	180.0 [°C]

Description: Sets the fault threshold for monitoring using the thermal I2t motor model.

Dependency: The parameter is only used for permanent-magnet synchronous motors (p0300 = 2xx).

Refer to: r0034, p0611, p0612

Refer to: F07011, A07012

Caution: This parameter is automatically preset 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.

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p0620[0...n] Thermal adaptation, stator and rotor resistance / Mot therm_adapt R

Access level: 4	**P-Group:** Motor	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** p0340 = 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. The rotor temperature to adapt the rotor resistance is calculated as follows from the stator temperature (r0035):
theta_R = (r0628 + r0625) / (r0627 + r0625) * r0035

p0621[0...n] Identification stator resistance after restart / Rst_ident Restart

Access level: 2	**P-Group:** Motor	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** MDS
Can be changed: C(3), T	**Calculated:** -	

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 temperature identification
1: Temperature identification after restart
2: Temperature identification after each power-up

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.

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p0622[0...n] Motor excitation time for Rs_ident after powering up again / t_excit Rs_id

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** p0340 = 1,3

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: The parameter is internally limited to the magnetizing time p0346.

r0623 Stator resistance of Rs identification after powering up again / R_Stator Reset_Id

Access level: 4 | **P-Group:** Motor identification | **Data type:** FloatingPoint32
Unit: [Ohm] | **Calculated:** - | **Data set:** -

Description: Displays the identified stator resistance after the Rs identification after powering up again.
Dependency: Refer to: p0621, p0622

p0625[0...n] Motor ambient temperature / Mot T_ambient

Access level: 3 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** p0340 = 1,2

Min	Max	Factory setting
-40 [°C]	80 [°C]	20 [°C]

Description: Defines the ambient temperature of the motor to calculate the temperature model.
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

Access level: 4 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** -

Min	Max	Factory setting
20 [K]	200 [K]	50 [K]

Description: Defines the rated overtemperature of the stator core referred to the ambient temperature.
Dependency: For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.
Refer to: p0625
Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

p0627[0...n] Motor overtemperature, stator winding / Mot T_over stator

Access level: 4 | **P-Group:** Motor | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** MDS
Can be changed: C(3), U, T | **Calculated:** -

Min	Max	Factory setting
20 [K]	200 [K]	80 [K]

Description: Defines the rated overtemperature of the stator winding referred to the ambient temperature.
Dependency: For 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.
Refer to: p0625
Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

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p0628[0...n] Motor overtemperature rotor winding / Mot T_over rotor

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** MDS
Can be changed: C(3), U, T **Calculated:** -

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 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.
Refer to: p0625
Note: When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).

r0630[0...n] Motor temperature model ambient temperature / MotTMod T_amb.

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** MDS

Description: Displays the ambient temperature of the motor temperature model.

r0631[0...n] Motor temperature model, stator core temperature / MotTMod T_core

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** MDS

Description: Displays the stator core temperature of the motor temperature model.

r0632[0...n] Motor temperature model, stator winding temperature / MotTMod T_copper

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** MDS

Description: Displays the stator winding temperature of the motor temperature model.

r0633[0...n] Motor temperature model, rotor temperature / MotTMod T_rotor

Access level: 4 **P-Group:** Motor **Data type:** FloatingPoint32
Unit: [°C] **Calculated:** - **Data set:** MDS

Description: Displays the rotor temperature of the motor temperature model.

p0634[0...n] Q flux flux constant unsaturated / PSIQ KPSI UNSAT

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** MDS
Can be changed: C(3), U, T **Calculated:** -

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

Access level: 3 **P-Group:** Motor **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** MDS
Can be changed: C(3), U, T **Calculated:** -

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

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p0636[0...n] Q flux direct axis current constant unsaturated / PSIQ KID UNSAT

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
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

Access level: 3	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** MDS
Can be changed: C(3), U, T	**Calculated:** -	
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

Access level: 2	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1, 3), U, T	**Calculated:** p0340 = 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. The current limit p0640 is limited to r0209.

The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the power unit.

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.

p0640 is limited to 4.0 * p0305.

p0640 is pre-assigned for the automatic self commissioning routine (e.g.to 1.5 * 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).

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p0700[0...n] Command source selection / Cmd src sel

CU230P-2 HVAC

Access level: 1 **P-Group:** Commands **Data type:** Integer16
Quick comm. YES **Active:** NO **Data set:** CDS, p0170
Can be changed: C(1), T **Calculated:** -

Min	Max	Factory setting
2	6	2

Description: Setting the command source.

Value:
2: Terminals
6: Fieldbus

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

p0700[0...n] Command source selection / Cmd src sel

CU230P-2 DP

Access level: 1 **P-Group:** Commands **Data type:** Integer16
Quick comm. YES **Active:** NO **Data set:** CDS, p0170
Can be changed: C(1), T **Calculated:** -

Min	Max	Factory setting
2	6	6

Description: Setting the command source.

Value:
2: Terminals
6: Fieldbus

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

p0700[0...n] Command source selection / Cmd src sel

CU230P-2 CAN

Access level: 1 **P-Group:** Commands **Data type:** Integer16
Quick comm. YES **Active:** NO **Data set:** CDS, p0170
Can be changed: C(1), T **Calculated:** -

Min	Max	Factory setting
2	2	2

Description: Setting the command source.

Value:
2: Terminals

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

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p0701[0...n] Pre-assignment digital input 0 / Pre-assignment DI0

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 CAN	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
CU230P-2 HVAC	**Can be changed:** T	**Calculated:** -	

Min	Max	Factory setting
0	50	1

Description: Selects the function for digital input 0.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0701[0...n] Pre-assignment digital input 0 / Pre-assignment DI0

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 CAN	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
CU230P-2 HVAC	**Can be changed:** T	**Calculated:** -	

Min	Max	Factory setting
0	50	1

Description: Selects the function for digital input 0.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0701[0...n] Pre-assignment digital input 0 / Pre-assignment DI0

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 DP	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	50	0

Description: Selects the function for digital input 0.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0701[0...n] Pre-assignment digital input 0 / Pre-assignment DI0

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 DP	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	50	0

Description: Selects the function for digital input 0.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note: When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0702[0...n] Pre-assignment digital input 1 / Pre-assignment DI1

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 CAN	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
CU230P-2 HVAC	**Can be changed:** T	**Calculated:** -	

Min	Max	Factory setting
0	50	12

Description: Selects the function for digital input 1.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0702[0...n] Pre-assignment digital input 1 / Pre-assignment DI1

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 CAN	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
CU230P-2 HVAC	**Can be changed:** T	**Calculated:** -	

Min	Max	Factory setting
0	50	12

Description: Selects the function for digital input 1.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0702[0...n] Pre-assignment digital input 1 / Pre-assignment DI1

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 DP	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	50	0

Description: Selects the function for digital input 1.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0702[0...n] Pre-assignment digital input 1 / Pre-assignment DI1

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
CU230P-2 DP	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	50	0

Description: Selects the function for digital input 1.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note: When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0703[0...n] Pre-assignment digital input 2 / Pre-assignment DI2

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	9

Description: Selects the function for digital input 2.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0703[0...n] Pre-assignment digital input 2 / Pre-assignment DI2

PM250/PM260

Access level: 2 **P-Group:** Commands **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	50	9

Description: Selects the function for digital input 2.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0704[0...n] Pre-assignment digital input 3 / Pre-assignment DI3

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	15

Description: Selects the function for digital input 3.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0704[0...n] Pre-assignment digital input 3 / Pre-assignment DI3

PM250/PM260

Access level: 2 **P-Group:** Commands **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	50	15

Description: Selects the function for digital input 3.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0705[0...n] Pre-assignment digital input 4 / Pre-assignment DI4

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	16

Description: Selects the function for digital input 4.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0705[0...n] Pre-assignment digital input 4 / Pre-assignment DI4

PM250/PM260

Access level: 2 **P-Group:** Commands **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	50	16

Description: Selects the function for digital input 4.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0706[0...n] Pre-assignment digital input 5 / Pre-assignment DI5

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	17

Description: Selects the function for digital input 5.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0706[0...n] Pre-assignment digital input 5 / Pre-assignment DI5

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	17

Description: Selects the function for digital input 5.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0712[0...n] Pre-assignment digital input 11 / Pre-assign. DI11

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	0

Description: Selects the function for digital input 11.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0712[0...n] Pre-assignment digital input 11 / Pre-assign. DI11

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	0

Description: Selects the function for digital input 11.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0713[0...n] Pre-assignment digital input 12 / Pre-assign. DI12

PM240	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	0

Description: Selects the function for digital input 12.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
25: Activate DC brake
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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p0713[0...n] Pre-assignment digital input 12 / Pre-assign. DI12

PM250/PM260	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	50	0

Description: Selects the function for digital input 12.

Value:

0: No pre-assignment
1: ON/OFF1
3: 2. OFF2
4: 2. OFF3
9: 2. Acknowledge faults
10: Jog bit 0
11: Jog bit 1
12: Direction reversal
13: Motorized potentiometer setpoint raise
14: Motorized potentiometer lower setpoint
15: Fixed speed setpoint selection Bit 0
16: Fixed speed setpoint selection Bit 1
17: Fixed speed setpoint selection Bit 2
18: Fixed speed setpoint selection Bit 3
27: Enable technology controller
29: External fault 1
35: Command data set selection CDS bit 0
50: Load monitoring failure detection

Warning:

It is possible to interconnect the digital input with several signal sinks using BICO parameterization without this parameter providing a message. As a result of the corresponding BICO parameterization, for example, the drive could undesirably accelerate without this function having been selected in this parameter.

Note:

When changing the function within the selection possibilities, the previously selected interconnection is disconnected by resetting the signal sink.

However, the selected function is protected against being changed by BICO parameterization, i.e. the signal sink must first be enabled using "no pre-assignment" before it can be interconnected again.

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r0720[0...4] CU number of inputs and outputs / CU I/O count

Access level: 3 **P-Group:** Commands **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the number of inputs and outputs

Index:
[0] = Number of digital inputs
[1] = Number of digital outputs
[2] = Number of digital input/outputs bidirectional
[3] = Number of analog inputs
[4] = Number of analog outputs

r0721 CU digital inputs, terminal actual value / CU DI actual value

Access level: 2 **P-Group:** Commands **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

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 (p0795.x = 1) to the terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (T. 5)	High	Low	-
01	DI 1 (T. 6)	High	Low	-
02	DI 2 (T. 7)	High	Low	-
03	DI 3 (T. 8)	High	Low	-
04	DI 4 (T. 16)	High	Low	-
05	DI 5 (T. 17)	High	Low	-
11	DI 11 (T. 3, 4) AI 0	High	Low	-
12	DI 12 (T. 10, 11) AI 1	High	Low	-

Note:
DI: Digital input
AI: Analog Input
T: Terminal

r0722.0...12 CO/BO: CU digital inputs, status / CU DI status

Access level: 2 **P-Group:** Commands **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (T. 5)	High	Low	-
01	DI 1 (T. 6)	High	Low	-
02	DI 2 (T. 7)	High	Low	-
03	DI 3 (T. 8)	High	Low	-
04	DI 4 (T. 16)	High	Low	-
05	DI 5 (T. 17)	High	Low	-
11	DI 11 (T. 3, 4) AI 0	High	Low	-
12	DI 12 (T. 10, 11) AI 1	High	Low	-

Dependency: Refer to: r0723
Note:
DI: Digital input
AI: Analog Input
T: Terminal

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r0723.0...12 CO/BO: CU digital inputs, status inverted / CU DI status inv

Access level: 3 **P-Group:** Commands **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the inverted status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (T. 5)	High	Low	-
01	DI 1 (T. 6)	High	Low	-
02	DI 2 (T. 7)	High	Low	-
03	DI 3 (T. 8)	High	Low	-
04	DI 4 (T. 16)	High	Low	-
05	DI 5 (T. 17)	High	Low	-
11	DI 11 (T. 3, 4) AI 0	High	Low	-
12	DI 12 (T. 10, 11) AI 1	High	Low	-

Dependency: Refer to: r0722

Note: DI: Digital input
AI: Analog Input
T: Terminal

p0724 CU digital inputs debounce time / CU DI t_debounce

Access level: 3 **P-Group:** Commands **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.000 [ms]	20.000 [ms]	4.000 [ms]

Description: Sets the debounce time for the digital inputs.

Note: The digital inputs are cyclically read in every 2 ms (DI11, DI12 every 4 ms).
To debounce the signals, the debounce time p0724 is converted into integer multiple debounce clock cycles Tp (Tp = p0724 / 2 ms).

p0730 BI: CU signal source for terminal DO 0 / CU S_src DO 0

Access level: 2 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	52.3

Description: Sets the signal source for terminal DO 0 (NO: T. 19 / NC: T. 18)

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: DO: Digital Output
T: Terminal
Relay output: NO = normally open, NC = normally closed

p0731 BI: CU signal source for terminal DO 1 / CU S_src DO 1

Access level: 2 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	52.7

Description: Sets the signal source for terminal DO 1 (NO: T. 21).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: DO: Digital Output
T: Terminal
Relay output: NO = normally open, NC = normally closed

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p0732 BI: CU signal source for terminal DO 2 / CU S_src DO 2

Access level: 2 **P-Group:** Commands **Data type:** U32 / Binary

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	52.2

Description: Sets the signal source for terminal DO 2 (NO: T. 24 / NC: T. 23).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: DO: Digital Output

T: Terminal

Relay output: NO = normally open, NC = normally closed

r0747 CU, digital outputs status / CU DO status

Access level: 3 **P-Group:** Commands **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** -

Description: Displays the status of digital outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (NO: T. 19 / NC: T. 18)	High	Low	-
01	DO 1 (NO: T. 21)	High	Low	-
02	DO 2 (NO: T. 24 / NC: T. 23)	High	Low	-

Note: DO: Digital Output

T: Terminal

Relay output: NO = normally open, NC = normally closed

Inversion using p0748 has been taken into account.

p0748 CU, invert digital outputs / CU DO invert

Access level: 3 **P-Group:** Commands **Data type:** Unsigned32

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	0000 bin

Description: Setting to invert the signals at the digital outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (NO: T. 19 / NC: T. 18)	Inverted	Not inverted	-
01	DO 1 (NO: T. 21)	Inverted	Not inverted	-
02	DO 2 (NO: T. 24 / NC: T. 23)	Inverted	Not inverted	-

Notice: If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.

Note: DO: Digital Output

T: Terminal

Relay output: NO = normally open, NC = normally closed

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r0751.0...10 BO: CU analog inputs status word / CU AI status word

Access level: 3 **P-Group:** Commands **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the status of analog inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Analog input AI0 wire breakage	Yes	No	-
01	Analog input AI1 wire breakage	Yes	No	-
02	Analog input AI2 wire breakage	Yes	No	-
08	Analog input AI0 no wire breakage	Yes	No	-
09	Analog input AI1 no wire breakage	Yes	No	-
10	Analog input AI2 no wire breakage	Yes	No	-

Note: AI: Analog Input

r0752[0...3] CO: CU analog inputs input voltage/current actual / CU AI inp_V/I

Access level: 2 **P-Group:** Terminals **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

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.
Displays the actual temperature in °C when set as temperature sensor and the voltage divider is switched in.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Dependency: The type of analog input AIx (voltage, current or temperature input) is set using p0756.
Refer to: p0756

Note: AI: Analog Input
T: Terminal

p0753[0...3] CU analog inputs smoothing time constant / CU AI T_smooth

Access level: 3 **P-Group:** Terminals **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

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.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: AI: Analog Input
T: Terminal

r0755[0...3] CO: CU analog inputs actual value in percent / CU AI value in %

Access level: 2 **P-Group:** Terminals **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the currently referred input value of the analog inputs.
When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: AI: Analog Input
T: Terminal

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p0756[0...3] CU analog inputs type / CU AI type

Access level: 2	**P-Group:** Terminals	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	8	4

Description: Sets the type of analog inputs.

p0756[0...1] = 0, 1, 4 corresponds to a voltage input (r0752, p0757, p0759 are displayed in V).

p0756[0...2] = 2, 3 corresponds to a current input (r0752, p0757, p0759 are displayed in mA).

p0756[2...3] = 6, 7 corresponds to a resistor input for temperature measurement (r0752, p0757, p0759 are displayed in °C).

p0756[2...3] = 8 No temperature sensor connected. Mode for de-activating sensor monitoring (alarm A03520).

In addition, the associated DIP switch must be set.

For the voltage input, DIP switch AI0/1 must be set to "U".

For the current input, DIP switch AI0/1 or AI2 must be set to "I".

For the temperature input, DIP switch AI2 must be set to "TEMP".

Value:

0: Unipolar voltage input (0 V ... +10 V)
1: Unipolar voltage input monitored (+2 V ... +10 V)
2: Unipolar current input (0 mA ... +20 mA)
3: Unipolar current input monitored (+4 mA ... +20 mA)
4: Bipolar voltage input (-10 V ... +10 V)
6: Temperature sensor Ni1000
7: Temperature sensor PT1000
8: No sensor connected

Index:

[0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Dependency: Refer to: A03520

Warning: The maximum voltage difference between analog input terminals AI+, AI-, and the ground must not exceed 35 V.

If the system is operated when the load resistor is switched on (DIP switch set to "I"), the voltage between differential inputs AI+ and AI- must not exceed 10 V or the injected 80 mA current otherwise the input will be damaged.

Note: When changing p0756 , the parameters of the normalization characteristic (p0757, p0758, p0759, p0760) are overwritten with the following default values:

For p0756 = 0, 1, 4, p0757 is set to 0.0 V, p0758 = 0.0 %, p0759 = 10.0 V and p0760 = 100.0 %.

For p0756 = 2, p0757 is set to 0.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %.

For p0756 = 3, p0757 is set to 4.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %.

For p0756 = 6, 7, p0757 is set to 0 °C, p0758 = 0.0 %, p0759 = 100 °C and p0760 = 100.0 %.

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p0757[0...3] CU analog inputs characteristic value x1 / CU AI char x1

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-50.000	160.000	0.000

Description: Sets the normalization characteristic for the analog inputs.
The normalization characteristic for the analog inputs is defined using two points.
This parameter specifies the x coordinate (V, mA, °C) of the 1st value pair of the characteristic.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: The parameters for the characteristic do not have a limiting effect.

p0758[0...3] CU analog inputs characteristic value y1 / CU AI char y1

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the normalization characteristic for the analog inputs.
The normalization characteristic for the analog inputs is defined using two points.
This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: The parameters for the characteristic do not have a limiting effect.

p0759[0...3] CU analog inputs characteristic value x2 / CU AI char x2

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-50.000	160.000	10.000

Description: Sets the normalization characteristic for the analog inputs.
The normalization characteristic for the analog inputs is defined using two points.
This parameter specifies the x coordinate (V, mA, °C) of the 2nd value pair of the characteristic.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: The parameters for the characteristic do not have a limiting effect.

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p0760[0...3] CU analog inputs characteristic value y2 / CU AI char y2

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the normalization characteristic for the analog inputs.
The normalization characteristic for the analog inputs is defined using two points.
This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Note: The parameters for the characteristic do not have a limiting effect.

p0761[0...3] CU analog inputs wire breakage monitoring response threshold / CU WireBrkThresh

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00	20.00	2.00

Description: Sets the response threshold for the wire breakage monitoring of the analog inputs.
The unit for the parameter value depends on the set analog input type.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Dependency: For the following analog input type, the wire breakage monitoring is active:
p0756[0...1] = 1 (unipolar voltage input monitored (+2 V ... +10 V)), unit [V]
p0756[0...2] = 3 (unipolar current input monitored (+4 mA ... +20 mA)), unit [mA]
p0756[3]: Wire breakage monitoring is not supported for this analog input.
Refer to: p0756

Note: When p0761 = 0, wire breakage monitoring is not carried out.

p0762[0...3] CU analog inputs wire breakage monitoring delay time / CU wire brk t_del

Access level: 3	**P-Group:** Terminals	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0 [ms]	1000 [ms]	100 [ms]

Description: Sets the delay time for the wire breakage monitoring of the analog inputs.

Index: [0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

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p0771[0...1] CI: CU analog outputs signal source / CU AO sig_source

Access level: 2	**P-Group:** Terminals	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the analog outputs.

Index: [0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note: AO: Analog Output
T: Terminal

r0772[0...1] CU analog outputs, output value currently referred / CU AO outp_val

Access level: 3	**P-Group:** Terminals	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

Description: Displays the actual referred output value of the analog outputs.

Index: [0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note: AO: Analog Output
T: Terminal

p0773[0...1] CU analog outputs smoothing time constant / CU AO T_smooth

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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.

Index: [0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note: AO: Analog Output
T: Terminal

r0774[0...1] CU analog outputs output voltage/current actual / CU AO V/I_outp

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the actual output voltage or output current at the analog outputs.

Index: [0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Dependency: Refer to: p0776

Note: AO: Analog Output
T: Terminal

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p0775[0...1] CU analog outputs activate absolute value generation / CU AO absVal act

Access level: 2	**P-Group:** Terminals	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Activates the absolute value generation for the analog outputs.

Value:
0: No absolute value generation
1: Absolute value generation switched in

Index:
[0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note:
AO: Analog Output
T: Terminal

p0776[0...1] CU analog outputs type / CU AO type

Access level: 2	**P-Group:** Terminals	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	2	0

Description: Sets the analog output type.
p0776[x] = 1 corresponds to a voltage output (p0774, p0778, p0780 are displayed in V).
p0776[x] = 0, 2 corresponds to a current output (p0774, p0778, p0780 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)

Index:
[0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note: When changing p0776, the parameters of the normalization characteristic (p0777, p0778, p0779, p0780) are overwritten with the following default values:
For p0776 = 0, p0777 is set to 0.0 %, p0778 = 0.0 mA, p0779 = 100.0 % and p0780 to 20.0 mA.
For p0776 = 1, p0777 is set to 0.0 %, p0778 = 0.0 V, p0779 = 100.0 % and p0780 to 10.0 V.
For p0776 = 2, p0777 is set to 0.0 %, p0778 = 4.0 mA, p0779 = 100.0 % and p0780 to 20.0 mA.

p0777[0...1] CU analog outputs characteristic value x1 / CU AO char x1

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the normalization characteristic for the analog outputs.
The normalization 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] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Dependency: Refer to: p0776

Notice: This parameter is automatically overwritten when the analog output type is changed (p0776).

Note: This parameter is automatically overwritten if p0776 (type of analog output) is changed.
The parameters for the characteristic do not have a limiting effect.

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p0778[0...1] CU analog outputs characteristic value y1 / CU char y1

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-20.000 [V]	20.000 [V]	0.000 [V]

Description: Sets the normalization characteristic for the analog outputs.
The normalization 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] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.
Refer to: p0776

Notice: This parameter is automatically overwritten when the analog output type is changed (p0776).

Note: This parameter is automatically overwritten if p0776 (type of analog output) is changed.
The parameters for the characteristic do not have a limiting effect.

p0779[0...1] CU analog outputs characteristic value x2 / CU char x2

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the normalization characteristic for the analog outputs.
The normalization 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] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Dependency: Refer to: p0776

Notice: This parameter is automatically overwritten when the analog output type is changed (p0776).

Note: This parameter is automatically overwritten if p0776 (type of analog output) is changed.
The parameters for the characteristic do not have a limiting effect.

p0780[0...1] CU analog outputs characteristic value y2 / CU char y2

Access level: 2	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-20.000 [V]	20.000 [V]	20.000 [V]

Description: Sets the normalization characteristic for the analog outputs.
The normalization 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] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.
Refer to: p0776

Notice: This parameter is automatically overwritten when the analog output type is changed (p0776).

Note: This parameter is automatically overwritten if p0776 (type of analog output) is changed.
The parameters for the characteristic do not have a limiting effect.

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p0782[0...1] BI: CU analog outputs signal source for inversion / CU AO invert

Access level: 3 | **P-Group:** Terminals | **Data type:** U32 / Binary

Quick comm. NO | **Active:** NO | **Data set:** -

Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to invert the analog output signals.

Index: [0] = AO0 (T 12/13)
[1] = AO1 (T 26/27)

Note: AO: Analog Output
T: Terminal

r0785.0...1 BO: CU analog outputs status word / CU AO status word

Access level: 3 | **P-Group:** Terminals | **Data type:** Unsigned16

Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the status of analog outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Analog output AO0 is negative	Yes	No	-
01	Analog output AO1 is negative	Yes	No	-

Note: AO: Analog Output

p0795 CU digital inputs simulation mode / CU DI simulation

Access level: 3 | **P-Group:** Commands | **Data type:** Unsigned32

Quick comm. NO | **Active:** NO | **Data set:** -

Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the simulation mode for digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (T. 5)	Simulation	Terminal eval.	-
01	DI 1 (T. 6)	Simulation	Terminal eval.	-
02	DI 2 (T. 7)	Simulation	Terminal eval.	-
03	DI 3 (T. 8)	Simulation	Terminal eval.	-
04	DI 4 (T. 16)	Simulation	Terminal eval.	-
05	DI 5 (T. 17)	Simulation	Terminal eval.	-
11	DI 11 (T. 3, 4) AI 0	Simulation	Terminal eval.	-
12	DI 12 (T.10, 11) AI 1	Simulation	Terminal eval.	-

Dependency: The setpoint for the input signals is specified using p0796.
Refer to: p0796

Note: This parameter is not saved when data is backed up (p0971).
DI: Digital input
AI: Analog Input
T: Terminal

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p0796 CU digital inputs simulation mode setpoint / CU DI simul setp

Access level: 3 | **P-Group:** Commands | **Data type:** Unsigned32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	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 (T. 5)	High	Low	-
01	DI 1 (T. 6)	High	Low	-
02	DI 2 (T. 7)	High	Low	-
03	DI 3 (T. 8)	High	Low	-
04	DI 4 (T. 16)	High	Low	-
05	DI 5 (T. 17)	High	Low	-
11	DI 11 (T. 3, 4) AI 0	High	Low	-
12	DI 12 (T. 10, 11) AI 1	High	Low	-

Dependency: The simulation of a digital input is selected using p0795.
Refer to: p0795

Note: This parameter is not saved when data is backed up (p0971).
DI: Digital input
AI: Analog Input
T: Terminal

p0797[0...3] CU analog inputs simulation mode / CU AI sim_mode

Access level: 3 | **P-Group:** Terminals | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	1	0

Description: Sets the simulation mode for the analog inputs.

Value:
0: No simulation mode for analog input x
1: Simulation mode for analog input x

Index:
[0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Dependency: The setpoint for the input voltage is specified via p0798.
Refer to: p0798

Note: This parameter is not saved when data is backed up (p0971).
AI: Analog Input

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p0798[0...3] CU analog inputs simulation mode setpoint / CU AI sim setp

Access level: 3	**P-Group:** Terminals	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-50.000 [V]	2000.000 [V]	0.000 [V]

Description: Sets the setpoint for the input value in the simulation mode of the analog inputs.

Index:
[0] = AI0 (T 3/4)
[1] = AI1 (T 10/11)
[2] = AI2 (T 50/51)
[3] = AI3 (T 52/53)

Dependency: The simulation of an analog input is selected using p0797.
If AI x is parameterized as a voltage input (p0756), the setpoint is a voltage in V.
If AI x is parameterized as a current input (p0756), the setpoint is a current in mA.
Refer to: p0756, p0797

Note: This parameter is not saved when data is backed up (p0971).
AI: Analog Input

p0802 Data transfer: memory card as source/target / mem_card src/targ

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	100	0

Description: Sets the number for data transfer of a parameter backup from/to memory card.
Transfer of memory card to device memory (p0804 = 1):
- Sets the source of parameter backup (e.g. p0802 = 48 --> PS048xxx.ACX is the source).
Transfer of non-volatile device memory to memory card (p0804 = 2):
- Sets the target of parameter backup (e.g. p0802 = 23 --> PS023xxx.ACX is the target).

Dependency: Refer to: p0803, p0804

Notice: If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1).

p0803 Data transfer: device memory as source/target / Dev_mem src/targ

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	12	0

Description: Sets the number for data transfer of a parameter backup from/to device memory.
Transfer of memory card to device memory (p0804 = 1):
- Sets the target for the parameter backup (e.g. p0803 = 10 --> PS010xxx.ACX is the target).
Transfer of non-volatile device memory to memory card (p0804 = 2):
- Sets the source of the parameter backup (e.g. p0803 = 11 --> PS011xxx.ACX is the source).

Value:
0: Source/target standard
10: Source/target with setting 10
11: Source/target with setting 11
12: Source/target with setting 12

Dependency: Refer to: p0802, p0804

Notice: If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1).

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p0804 Data transfer start / Data transf start

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	1100	0

Description: Sets the transfer direction and start of data transfer between the memory card and non-volatile device memory.

Example 1:

The parameter backup is to be transferred from the device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22.

p0802 = 22 (parameter backup stored on memory card as target with setting 22)

p0803 = 0 (parameter backup stored in device memory as source with setting 0)

p0804 = 2 (start data transfer from device memory to memory card)

--> PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX.

Example 2:

The parameter backup is to be transferred from the memory card to the device memory with setting 22. The parameter backup is to be stored in the device memory as setting 0.

p0802 = 22 (parameter backup stored on memory card as source with setting 22)

p0803 = 0 (parameter backup stored in device memory as target with setting 0)

p0804 = 1 (start data transfer from memory card to device memory)

--> PS022xxx.ACX is transferred from memory card to device memory and stored as PS000xxx.ACX.

Value:

0: Inactive
1: Memory card to device memory
2: Device memory to memory card
1001: File on memory card cannot be opened
1002: File in device memory cannot be opened
1003: Memory card not found
1100: File cannot be transferred

Dependency: Refer to: p0802, p0803

Notice: The memory card must not be removed while data is being transferred.

Note: Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value > 1000.

If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory.

When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM").

p0806 BI: Inhibit master control / PcCtrl inhibit

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

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.

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r0807.0 BO: Master control active / PcCtrl active

Access level: 3 | **P-Group:** Displays, signals | **Data type:** Unsigned8
Unit: - | **Calculated:** - | **Data set:** -

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 master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).

p0809[0...2] Copy Command Data Set CDS / Copy CDS

Access level: 2 | **P-Group:** Commands | **Data type:** Unsigned8
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
0	3	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

Access level: 2 | **P-Group:** Commands | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

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.

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p0811 BI: Command data set selection CDS bit 1 / CDS select., bit 1

Access level: 2	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

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

Access level: 2	**P-Group:** Data sets	**Data type:** Unsigned8
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: C(15)	**Calculated:** -	

Min	Max	Factory setting
0	3	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

Access level: 3	**P-Group:** Data sets	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: C(15), T	**Calculated:** -	

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, p0826, 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

Access level: 3	**P-Group:** Data sets	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: C(15), T	**Calculated:** -	

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.

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p0826[0...n] Motor changeover, motor number / Mot_chng mot No.

Access level: 3 **P-Group:** Motor **Data type:** Unsigned16

Quick comm. NO **Active:** NO **Data set:** MDS

Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0	3	0

Description: Sets the freely-assignable motor number for the drive data set changeover. If the same motor is driven by different drive data sets, the same motor number must also be entered in these data sets.

If the motor is also switched with the drive data set, different motor numbers must be used. In this case, the data set can only be switched when the pulse inhibit is set.

Note: If the motor numbers are identical, the same thermal motor model is used for calculation after data set changeover. If different motor numbers are used, different models are also used for calculating (the inactive motor cools down in each case).

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).

r0836.0...1 CO/BO: Command Data Set CDS selected / CDS selected

Access level: 3 **P-Group:** Displays, signals **Data type:** Unsigned8

Unit: - **Calculated:** - **Data set:** -

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	-

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...1 CO/BO: Drive Data Set DDS selected / DDS selected

Access level: 3 **P-Group:** Displays, signals **Data type:** Unsigned8

Unit: - **Calculated:** - **Data set:** -

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	-

Dependency: Refer to: r0051, p0820, p0821

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.

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p0840[0...n] BI: ON/OFF1 / ON/OFF1

CU230P-2 CAN	**Access level:** 3	**P-Group:** Commands	**Data type:** U32 / Binary
CU230P-2 HVAC	**Quick comm.** NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	722.0

Description: Sets the signal source for control word 1 bit 0 (ON/OFF1).

Dependency: Refer to: p1055, p1056

Notice: For BI: p0840 = 0 signal, the motor can be moved, 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 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), the following applies:
- Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse suppression and switching on inhibited)
For drives with closed-loop torque control (p1300 = 22), the following applies:
- Bit 0 = 0: Immediate pulse suppression
For drives with closed-loop torque control (activated using p1501), the following applies:
- Bit 0 = 0: No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227)
For drives with closed-loop speed/torque control, the following applies:
- Bit 0 = 0/1: ON (pulses can be enabled)

p0840[0...n] BI: ON/OFF1 / ON/OFF1

CU230P-2 DP	**Access level:** 3	**P-Group:** Commands	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2090.0

Description: Sets the signal source for control word 1 bit 0 (ON/OFF1).

Dependency: Refer to: p1055, p1056

Notice: For BI: p0840 = 0 signal, the motor can be moved, 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 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), the following applies:
- Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse suppression and switching on inhibited)
For drives with closed-loop torque control (p1300 = 22), the following applies:
- Bit 0 = 0: Immediate pulse suppression
For drives with closed-loop torque control (activated using p1501), the following applies:
- Bit 0 = 0: No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227)
For drives with closed-loop speed/torque control, the following applies:
- Bit 0 = 0/1: ON (pulses can be enabled)

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p0844[0...n] BI: 1. OFF2 / 1. OFF2

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 1st OC/OFF2.
The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

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: Bit 1 = 0: BB/OFF2 (immediate pulse suppression and switching on inhibited)
Bit 1 = 1: No BB/OFF2 (enable is possible)
OC: Operating condition

p0844[0...n] BI: 1. OFF2 / 1. OFF2

CU230P-2 DP

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	2090.1

Description: Sets the signal source for the 1st OC/OFF2.
The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

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: Bit 1 = 0: BB/OFF2 (immediate pulse suppression and switching on inhibited)
Bit 1 = 1: No BB/OFF2 (enable is possible)
OC: Operating condition

p0845[0...n] BI: 2. OFF2 / 2. OFF2

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 2nd OC/OFF2.
The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

Note: Bit 1 = 0: BB/OFF2 (immediate pulse suppression and switching on inhibited)
Bit 1 = 1: No BB/OFF2 (enable is possible)
OC: Operating condition

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p0848[0...n] BI: 1. OFF3 / 1. OFF3

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 1st OC/OFF3.
The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

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: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
Bit 2 = 1: No OFF3 (enable is possible)
OC: Operating condition

p0848[0...n] BI: 1. OFF3 / 1. OFF3

CU230P-2 DP

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	2090.2

Description: Sets the signal source for the 1st OC/OFF3.
The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

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: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
Bit 2 = 1: No OFF3 (enable is possible)
OC: Operating condition

p0849[0...n] BI: 2. OFF3 / 2. OFF3

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 2nd OC/OFF3.
The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

Note: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
Bit 2 = 1: No OFF3 (enable is possible)
OC: Operating condition

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p0852[0...n] BI: Operation enable / Operation enable

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3 | **P-Group:** Commands | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for control word 1 bit 3 (enable operation)

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: Bit 3 = 0: Inhibit operation (cancel pulses)
Bit 3 = 1: Enable operation (pulses can be enabled)

p0852[0...n] BI: Operation enable / Operation enable

CU230P-2 DP

Access level: 3 | **P-Group:** Commands | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	2090.3

Description: Sets the signal source for control word 1 bit 3 (enable operation)

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: Bit 3 = 0: Inhibit operation (cancel pulses)
Bit 3 = 1: Enable operation (pulses can be enabled)

p0854[0...n] BI: Master ctrl by PLC / Master ctrl by PLC

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3 | **P-Group:** Commands | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for control word 1 bit 10 (master control by PLC).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Bit 10 = 0: No master control by PLC
Bit 10 = 1: Master control by PLC
This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then BI: p0854 should be set to a 1 signal.

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p0854[0...n] BI: Master ctrl by PLC / Master ctrl by PLC

CU230P-2 DP

Access level: 3 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	2090.10

Description: Sets the signal source for control word 1 bit 10 (master control by PLC).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Bit 10 = 0: No master control by PLC

Bit 10 = 1: Master control by PLC

This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then BI: p0854 should be set to a 1 signal.

p0857 Power unit monitoring time / PU t_monit

Access level: 3 **P-Group:** Commands **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
100.0 [ms]	60000.0 [ms]	10000.0 [ms]

Description: Sets the monitoring time for the power unit.

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, fault F07802 is output.

Dependency: Refer to: F07802, F30027

Notice: The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum pre-charging duration depends on the power unit.

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 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.

r0898.0...10 CO/BO: Control word sequence control / STW seq_ctrl

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays 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	Freeze ramp-function generator	No	Yes	-
06	Speed setpoint enable	Yes	No	-
08	Jog 1	Yes	No	-
09	Jog 2	Yes	No	-
10	Master ctrl by PLC	Yes	No	-

Note: OC: Operating condition

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r0899.0...11 CO/BO: Status word sequence control / ZSW seq_ctrl

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the status word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching 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	-

Note: Re bit 0, 1, 2, 4, 5, 6, 9:
For PROFIdrive, these signals are used for status word 1.

p0918 PROFIBUS address / PB address

CU230P-2 DP **Access level:** 2 **P-Group:** Communications **Data type:** Unsigned16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: T **Calculated:** -

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 DIP 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 all of the DIP switches are set to ON or OFF.
--> 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
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0922 PROFIdrive telegram selection / PD Telegr_sel

CU230P-2 DP **Access level:** 1 **P-Group:** Communications **Data type:** Unsigned16

Quick comm. YES **Active:** NO **Data set:** -

Can be changed: C(1), T **Calculated:** -

Min	Max	Factory setting
1	999	1

Description: Sets the send and receive telegram.

Value:
1: Standard telegram 1, PZD-2/2
20: Standard telegram 20, PZD-2/6
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Dependency: Refer to: F01505, F01506

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.

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r0944 CO: Counter for fault buffer changes / Fault buff change

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays fault buffer changes. This counter is incremented every time the fault buffer changes.
Dependency: Refer to: r0945, r0947, r0948, r0949, r2109

r0945[0...63] Fault code / Fault code

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the numbers of faults that have occurred.
Dependency: Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136
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] --> actual fault case, fault 1
. . .
r0945[7], r0949[7], r0948[7], r2109[7] --> actual fault case, fault 8
r0945[8], r0949[8], r0948[8], r2109[8] --> 1st acknowledged fault case, fault 1
. . .
r0945[15], r0949[15], r0948[15], r2109[15] --> 1st acknowledged fault case, fault 8
. . .
r0945[56], r0949[56], r0948[56], r2109[56] --> 7th acknowledged fault case, fault 1
. . .
r0945[63], r0949[63], r0948[63], r2109[63] --> 7th acknowledged fault case, fault 8

r0946[0...65534] Fault code list / Fault code list

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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.
Refer to: r0951

r0947[0...63] Fault number / Fault number

Access level: 2 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: This parameter is identical to r0945.

r0948[0...63] Fault time received in milliseconds / t_fault recv ms

Access level: 3 **P-Group:** Messages **Data type:** Unsigned32
Unit: [ms] **Calculated:** - **Data set:** -

Description: Displays the system runtime in milliseconds when the fault occurred.
Dependency: Refer to: r0945, r0947, r0949, r2109, r2130, r2133, r2136, p8400
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.

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r0949[0...63] Fault value / Fault value

Access level: 3 **P-Group:** Messages **Data type:** Integer32
Unit: - **Calculated:** - **Data set:** -

Description: Displays additional information about the fault that occurred (as integer number).
Dependency: Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136
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.

r0951[0...65534] Fault number list / Fault number list

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Lists parameters assigned to a fault.
Dependency: Refer to: r0946

p0952 Fault cases, counter / Fault cases qty

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

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

CU230P-2 DP **Access level:** 3 **P-Group:** Communications **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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

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r0964[0...6] Device identification / Device ident.

Access level: 3	**P-Group:** Communications	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

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] = 5703 --> SINAMICS G120 CU230P
r0964[2] = 401 --> first part of the firmware version V04.01 (for second part, refer to index 6)
r0964[3] = 2008 --> year 2008
r0964[4] = 1410 --> October 14
r0964[5] = 1 --> 1 drive object
r0964[6] = 200 --> second part, firmware version (complete version: V04.01.02.00)

r0965 PROFIdrive profile number / PD profile number

CU230P-2 DP

Access level: 3	**P-Group:** Communications	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

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

Access level: 3	**P-Group:** Displays, signals	**Data type:** Unsigned32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

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.

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p0970 Reset drive parameters / Drive par reset

Access level: 1	**P-Group:** Factory settings	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: C(30)	**Calculated:** -	

Min	Max	Factory setting
0	100	0

Description: The parameter is used to initiate the reset of the drive parameters.

Parameters p0100, p0205 are not reset. The following motor parameters are defined in accordance with the power unit: p0300 ... p0311.

When downloading setting 1x, the buffer memory mode is automatically deactivated (p0014 = 0).

Value:
- 0: Inactive
- 1: Starts a parameter reset
- 10: Starts to download setting 10
- 11: Starts to download setting 11
- 12: Starts to download setting 12
- 100: Starts a BICO interconnection reset

Caution: When the buffer memory is active (see p0014), the actual parameters are backed up from RAM to ROM when a parameter set is loaded (p0970 = 1x).

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.

p0971 Save parameters / Save par

Access level: 1	**P-Group:** Factory settings	**Data type:** Unsigned16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	12	0

Description: Setting to save parameters in the non-volatile memory.

Value:
- 0: Inactive
- 1: Save drive object
- 10: Save in non-volatile memory as setting 10
- 11: Save in non-volatile memory as setting 11
- 12: Save in non-volatile memory as setting 12

Dependency: Refer to: p1960, r3996

Caution: Memory card inserted: The drive parameterization is also saved on the card. Any backed-up data is overwritten!!!

Caution: 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).

Notice: Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

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p0972 Drive unit reset / Drv_unit reset

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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 of the Control Unit must not be accessed.

Notice: For SIMOTION or SINUMERIK with integrated SINAMICS, the hardware reset acts on the complete system and depends on the state of the control.

Note: Re value = 1:
Reset is immediately executed and communications interrupted. After communications have been established, check the reset operation (refer below).

Re 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).

Re 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 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 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.

r0980[0...199] List of existing parameters 1 / List avail par 1

Access level: 4	**P-Group:** -	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0981, r0989

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here. In a long list, index 199 contains the parameter number at which position the list continues.
This list completely comprises the following parameters:
r0980[0...199], r0981[0...199] ... r0989[0...199]
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...199] List of existing parameters 2 / List avail par 2

Access level: 4	**P-Group:** -	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here. In a long list, index 199 contains the parameter number at which position the list continues.
This list completely comprises the following parameters:
r0980[0...199], r0981[0...199] ... r0989[0...199]
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).

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r0989[0...199] List of existing parameters 10 / List avail par 10

Access level: 4 **P-Group:** - **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here.

This list completely comprises the following parameters:

r0980[0...199], r0981[0...199] ... r0989[0...199]

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

Access level: 4 **P-Group:** - **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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 completely comprises 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

Access level: 4 **P-Group:** - **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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 completely comprises 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

Access level: 4 **P-Group:** - **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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 completely comprises 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).

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p1000[0...n] Speed setpoint selection / n_set sel

CU230P-2 HVAC	**Access level:** 1	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. YES	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: C(1), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	77	2

Description: Sets the source for the speed setpoint.

For single-digit values, the following applies:
The value specifies the main setpoint.

For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.

Example:
Value = 26
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:

0: No main setpoint
1: Motorized potentiometer
2: Analog setpoint
3: Fixed speed setpoint
6: Fieldbus
7: Analog setpoint 2
10: Motor potentiometer + no main setpoint
11: Motor potentiometer + motor potentiometer
12: Motor potentiometer + analog setpoint
13: Motor potentiometer + fixed speed setpoint
16: Motor potentiometer + fieldbus
17: Motor potentiometer + analog setpoint 2
20: Analog setpoint + no main setpoint
21: Analog setpoint + motor potentiometer
22: Analog setpoint + analog setpoint
23: Analog setpoint + fixed speed setpoint
26: Analog setpoint + fieldbus
27: Analog setpoint + analog setpoint 2
30: Fixed speed setpoint + no main setpoint
31: Fixed speed setpoint + motor potentiometer
32: Fixed speed setpoint + analog setpoint
33: Fixed speed setpoint + fixed speed setpoint
36: Fixed speed setpoint + fieldbus
37: Fixed speed setpoint + analog setpoint 2
60: Fieldbus + no main setpoint
61: Fieldbus + motor potentiometer
62: Fieldbus + analog setpoint
63: Fieldbus + fixed speed setpoint
66: Fieldbus+fieldbus
67: Fieldbus + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
71: Analog setpoint 2 + motor potentiometer
72: Analog setpoint 2 + analog setpoint
73: Analog setpoint 2 + fixed speed setpoint
76: Analog setpoint 2 + fieldbus
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:

Refer to: p1070, p1071, p1075, p1076

Caution: If p1000 is selected as main setpoint, the following BICO interconnections are set automatically:
p2051[1] = r0063

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command or setpoint sources can be changed.

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p1000[0...n] Speed setpoint selection / n_set sel

CU230P-2 DP	**Access level:** 1	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. YES	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: C(1), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	77	6

Description: Sets the source for the speed setpoint.

For single-digit values, the following applies:
The value specifies the main setpoint.

For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.

Example:
Value = 2
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:

0: No main setpoint
1: Motorized potentiometer
2: Analog setpoint
3: Fixed speed setpoint
6: Fieldbus
7: Analog setpoint 2
10: Motor potentiometer + no main setpoint
11: Motor potentiometer + motor potentiometer
12: Motor potentiometer + analog setpoint
13: Motor potentiometer + fixed speed setpoint
16: Motor potentiometer + fieldbus
17: Motor potentiometer + analog setpoint 2
20: Analog setpoint + no main setpoint
21: Analog setpoint + motor potentiometer
22: Analog setpoint + analog setpoint
23: Analog setpoint + fixed speed setpoint
26: Analog setpoint + fieldbus
27: Analog setpoint + analog setpoint 2
30: Fixed speed setpoint + no main setpoint
31: Fixed speed setpoint + motor potentiometer
32: Fixed speed setpoint + analog setpoint
33: Fixed speed setpoint + fixed speed setpoint
36: Fixed speed setpoint + fieldbus
37: Fixed speed setpoint + analog setpoint 2
60: Fieldbus + no main setpoint
61: Fieldbus + motor potentiometer
62: Fieldbus + analog setpoint
63: Fieldbus + fixed speed setpoint
66: Fieldbus+fieldbus
67: Fieldbus + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
71: Analog setpoint 2 + motor potentiometer
72: Analog setpoint 2 + analog setpoint
73: Analog setpoint 2 + fixed speed setpoint
76: Analog setpoint 2 + fieldbus
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:

Refer to: p1070, p1071, p1075, p1076

Caution: If p1000 is selected as main setpoint, the following BICO interconnections are set automatically:
p2051[1] = r0063

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command or setpoint sources can be changed.

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p1000[0...n] Speed setpoint selection / n_set sel

CU230P-2 CAN	**Access level:** 1	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. YES	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: C(1), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	77	2

Description: Sets the source for the speed setpoint.

For single-digit values, the following applies:
The value specifies the main setpoint.

For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.

Example:
Value = 26
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:

0: No main setpoint
1: Motorized potentiometer
2: Analog setpoint
3: Fixed speed setpoint
7: Analog setpoint 2
10: Motor potentiometer + no main setpoint
11: Motor potentiometer + motor potentiometer
12: Motor potentiometer + analog setpoint
13: Motor potentiometer + fixed speed setpoint
17: Motor potentiometer + analog setpoint 2
20: Analog setpoint + no main setpoint
21: Analog setpoint + motor potentiometer
22: Analog setpoint + analog setpoint
23: Analog setpoint + fixed speed setpoint
27: Analog setpoint + analog setpoint 2
30: Fixed speed setpoint + no main setpoint
31: Fixed speed setpoint + motor potentiometer
32: Fixed speed setpoint + analog setpoint
33: Fixed speed setpoint + fixed speed setpoint
37: Fixed speed setpoint + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
71: Analog setpoint 2 + motor potentiometer
72: Analog setpoint 2 + analog setpoint
73: Analog setpoint 2 + fixed speed setpoint
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:

Refer to: p1070, p1071, p1075, p1076

Caution: If p1000 is selected as main setpoint, the following BICO interconnections are set automatically:
p2051[1] = r0063

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command or setpoint sources can be changed.

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p1001[0...n] CO: Fixed speed setpoint 1 / n_set_fixed 1

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 1.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1002[0...n] CO: Fixed speed setpoint 2 / n_set_fixed 2

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 2.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1003[0...n] CO: Fixed speed setpoint 3 / n_set_fixed 3

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 3.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1004[0...n] CO: Fixed speed setpoint 4 / n_set_fixed 4

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 4.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

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p1005[0...n] CO: Fixed speed setpoint 5 / n_set_fixed 5

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 5.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1006[0...n] CO: Fixed speed setpoint 6 / n_set_fixed 6

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 6.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1007[0...n] CO: Fixed speed setpoint 7 / n_set_fixed 7

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 7.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1008[0...n] CO: Fixed speed setpoint 8 / n_set_fixed 8

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 8.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

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p1009[0...n] CO: Fixed speed setpoint 9 / n_set_fixed 9

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 9.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1010[0...n] CO: Fixed speed setpoint 10 / n_set_fixed 10

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 10.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1011[0...n] CO: Fixed speed setpoint 11 / n_set_fixed 11

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 11.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1012[0...n] CO: Fixed speed setpoint 12 / n_set_fixed 12

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 12.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

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p1013[0...n] CO: Fixed speed setpoint 13 / n_set_fixed 13

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 13.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1014[0...n] CO: Fixed speed setpoint 14 / n_set_fixed 14

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 14.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1015[0...n] CO: Fixed speed setpoint 15 / n_set_fixed 15

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets a value for the fixed speed / velocity setpoint 15.
Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197
Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1016 Fixed frequency mode / f_fixed mode

Access level: 2 | **P-Group:** Setpoints | **Data type:** Integer16
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
1	2	1

Description: Sets the mode to select the fixed frequency.
Value:
1: Direct selection
2: Selection binary coded
Note:
Re p1016 = 1:
In this mode, the fixed frequency is entered using p1001 ... p1004.
Re p1016 = 2:
In this mode, the fixed frequency is entered using p1001 ... p1015.

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p1020[0...n] BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	722.3

Description: Sets the signal source to select 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 a value 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

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	722.4

Description: Sets the signal source to select 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 a value 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

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	722.5

Description: Sets the signal source to select 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 a value 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

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to select 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 a value 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).

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r1024 CO: Fixed speed setpoint effective / n_set_fixed eff

Access level: 3 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the selected and effective 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).

Dependency: Selects the required fixed speed setpoint using p1020 ... p1023.
Displays the number of the actual fixed speed setpoint in r1197.
Sets a value 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).

r1025.0 BO: Fixed frequency status / f_fixed status

Access level: 3 **P-Group:** Setpoints **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: Displays the status when selecting the fixed frequencies.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed frequencies selected	Yes	No	-

p1030[0...n] Motorized potentiometer configuration / Mop configuration

Access level: 3 **P-Group:** Setpoints **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	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	-

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).

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p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise

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Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to increase the setpoint for the motorized potentiometer
Dependency: Refer to: p1036
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise

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Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	2090.13

Description: Sets the signal source to increase the setpoint for the motorized potentiometer
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

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Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to reduce the setpoint for the motorized potentiometer.
Dependency: Refer to: p1035
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

CU230P-2 DP

Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	2090.14

Description: Sets the signal source to reduce the setpoint for the motorized potentiometer.
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 / Mop n_max

Access level: 3 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

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.

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p1038[0...n] Motorized potentiometer minimum speed / Mop n_min

Access level: 3 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

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 / Mop inversion

Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

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

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

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

Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

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

Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

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

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p1043[0...n] BI: Motorized potentiometer accept setpoint / Mop accept set val

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

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

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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).

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r1050 CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG

Access level: 2 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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).
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, cancel pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).

p1055[0...n] BI: Jog bit 0 / Jog bit 0

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for jog 1.
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

Access level: 3 **P-Group:** Setpoints **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for jog 2.
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

Access level: 2 **P-Group:** Setpoints **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.
Dependency: Refer to: p1055, p1056

p1059[0...n] Jog 2 speed setpoint / Jog 2 n_set

Access level: 2 **P-Group:** Setpoints **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-650.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.
Dependency: Refer to: p1055, p1056

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p1063[0...n] Speed limit setpoint channel / n_limit setp

Access level: 3 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.000 [Hz]	650.000 [Hz]	650.000 [Hz]

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

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Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	755[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.

p1070[0...n] CI: Main setpoint / Main setpoint

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Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	2050[1]

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

Access level: 3 | **P-Group:** Setpoints | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for scaling the main setpoint.

r1073 CO: Main setpoint effective / Main setpoint eff

Access level: 3 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Unit: [Hz] | **Calculated:** - | **Data set:** -

Description: Displays the effective main setpoint. The value shown is the main setpoint after scaling.

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p1075[0...n] CI: Supplementary setpoint / Suppl setpoint

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for scaling the supplementary setpoint.

r1077 CO: Supplementary setpoint effective / Suppl setpoint eff

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.

r1078 CO: Total setpoint effective / Total setpoint eff

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.

p1080[0...n] Minimum speed / Minimum speed

Access level: 1	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1), T	**Calculated:** -	

Min	Max	Factory setting
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the lowest possible speed/velocity. This value is not undershot in operation.

Note: The parameter value applies for both motor directions of rotation.
In exceptional cases, the motor can operate below this value (e.g. when reversing).

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p1082[0...n] Maximum speed / Maximum speed

Access level: 1	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1), T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	50.000 [Hz]

Description: Sets the highest possible speed.

Dependency: Refer to: p0230, r0313, p0322

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, and p0322 are changed.

The following limits are always effective for p1082:

p1082 <= p0322, if p0322 > 0

p1082 <= 60 * Maximum(15 * r0310, 650 Hz) / r0313

p1082 <= 60 * maximum power unit pulse frequency / (k * r0313), with k = 12 (vector control), k = 6.5 (V/f control)

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). For reactors and dv/dt filters, it is limited to 120 Hz / r0313

During automatic calculation (p0340 = 1, p3900 > 0), the parameter value is assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors, the synchronous no-load speed is used as the default value (p0310 * 60 / r0313).

For synchronous motors, the following additionally applies:

During automatic calculation (p0340, p3900), p1082 is limited to speeds where the EMF does not exceed the DC link voltage.

p1082 is also available in the quick commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.

For vector control, the maximum speed is restricted to 60.0 / (8.333 * 500 µs * 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.

When using sine-wave filters (p0230 = 3, 4), the maximum speed r1084 is limited to 70 percent of the resonant frequency of the filter capacitance and the motor leakage inductance.

p1083[0...n] CO: Speed limit in positive direction of rotation / n_limit pos

Access level: 4	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	650.000 [Hz]

Description: Sets the maximum speed for the positive direction.

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

r1084 CO: Speed limit positive effective / n_limit pos eff

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the effective positive speed limit.

Dependency: Refer to: p1082, p1083, p1085

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p1085[0...n] CI: Speed limit in positive direction of rotation / n_limit pos

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	
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 negative direction of rotation / n_limit neg

Access level: 4	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-650.000 [Hz]	0.000 [Hz]	-650.000 [Hz]

Description: Sets the speed limit for the negative direction.

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

r1087 CO: Speed limit negative effective / n_limit neg eff

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the effective negative speed limit.

Dependency: Refer to: p1082, p1086, p1088

p1088[0...n] CI: Speed limit negative direction of rotation / n_limit neg

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	
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

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets skip speed 1.

Dependency: Refer to: p1092, p1093, p1094, p1101

Note: The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.

p1092[0...n] Skip speed 2 / n_skip 2

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets skip speed 2.

Dependency: Refer to: p1091, p1093, p1094, p1101

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p1093[0...n] Skip speed 3 / n_skip 3

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets skip speed 3.

Dependency: Refer to: p1091, p1092, p1094, p1101

p1094[0...n] Skip speed 4 / n_skip 4

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets skip speed 4.

Dependency: Refer to: p1091, p1092, p1093, p1101

p1101[0...n] Skip speed bandwidth / n_skip bandwidth

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

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 = 10 and p1101 = 0.3

--> Setpoint speeds between 9.7 and 10.3 [Hz] are skipped.

For the skip bandwidths, the following hysteresis behavior applies:

For a setpoint speed coming from below, the following applies:

r1170 < 9.7 [Hz] and 9.7 [Hz] <= r1114 <= 10.3 [Hz] --> r1119 = 9.7 [Hz]

For a setpoint speed coming from above, the following applies:

r1170 > 10.3 [Hz] and 9.7 [Hz] <= r1114 <= 10.3 [Hz] --> r1119 = 10.3 [Hz]

p1108[0...n] BI: Total setpoint selection / Total setp sel

Access level: 4	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source to select the total setpoint.

Dependency: The selection of the total speed setpoint is automatically interconnected to the status word of the technology controller (r2349.4) if the technology controller is selected (p2200 > 0) and operated in the mode p2251 = 0. If the hibernation function is activated (p2398 = 1), an interconnection is made to r2399 bit 7.

Refer to: p1109

Caution: If the technology controller is to supply the total setpoint using p1109, then it is not permissible to withdraw the interconnection to its status word (r2349.4). If the hibernation function is activated, then it is not permissible to withdraw the interconnection to status word r2399.

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p1109[0...n] CI: Total setpoint / Total setp

Access level: 4	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the total setpoint.

For p1108 = 1 signal, the total setpoint is read in via p1109.

Dependency: The signal source of the total setpoint is automatically interconnected to the output of the technology controller (r2294) if the technology controller is selected (p2200 > 0) and operated in the mode p2251 = 0. If the hibernation function is activated (p2398 = 1), an interconnection is made to r2397[0].

Refer to: p1108

Caution: If the technology controller is to supply the total setpoint using p1109, then it is not permissible to disable the interconnection to its output (r2294). If the hibernation function is activated, then it is not permissible to withdraw the interconnection to setpoint r2398[0].

p1110[0...n] BI: Inhibit negative direction / Inhib neg dir

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 4	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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 n. min_lim

Access level: 4	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the speed / velocity setpoint after the minimum limiting.

Dependency: Refer to: p1091, p1092, p1093, p1094, p1101

p1113[0...n] BI: Setpoint inversion / Setp inv

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Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	722.1

Dependency: Refer to: r1198

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

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p1113[0...n] BI: Setpoint inversion / Setp inv

CU230P-2 DP	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2090.11

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

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the speed/velocity setpoint after the changeover and limiting the direction.

p1115 Ramp-function generator selection / RFG selection

Access level: 3	**P-Group:** Setpoints	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	
Min	**Max**	**Factory setting**
0	1	1

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

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

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

Access level: 1	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1), U, T	**Calculated:** -	
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, p1123

Note: 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 V/f control and encoderless vector control (see p1300), ramp-up times of 0 s are not expedient. The setting should match the startup times (r0345) of the motor.

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p1121[0...n] Ramp-function generator ramp-down time / RFG ramp-down time

Access level: 1	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1), U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [s]	999999.000 [s]	10.000 [s]

Description: 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, p1123

Note: For V/f control and encoderless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should match the startup times (r0345) of the motor.

p1122[0...n] BI: Bypass ramp-function generator / Bypass RFG

Access level: 4	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).

Caution: If the technology controller is operated in mode p2251 = 0, or the hibernation function is activated, then it is not permissible to disable the interconnection to the relevant status word (r2349, r2399).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For encoderless vector control, it is not permissible that the ramp-function generator is bypassed.

p1123[0...n] Ramp-function generator ramp-up/ramp-down time minimum / RFG t_RU/t_RD min

Access level: 4	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.000 [s]	999999.000 [s]	0.000 [s]

Description: Sets the minimum ramp-up/ramp-down time.

The ramp-up time (p1120) and ramp-down time (p1121) are limited to this minimum time.

Dependency: Refer to: p1082

Note: For V/f control and encoderless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should match the startup times (r0345) of the motor.

p1130[0...n] Ramp-function generator initial rounding-off time / RFG t_start_round

Access level: 2	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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.

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p1131[0...n] Ramp-function generator final rounding-off time / RFG t_end_delay

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

Access level: 2 | **P-Group:** Setpoints | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

Access level: 2 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. YES | **Active:** NO | **Data set:** DDS, p0180
Can be changed: C(1), U, T | **Calculated:** -

Min	Max	Factory setting
0.000 [s]	600.000 [s]	0.000 [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

Access level: 3 | **P-Group:** Setpoints | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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.

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p1137[0...n] OFF3 final rounding-off time / RFG OFF3 t_end_del

	Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** -	
	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.

p1140[0...n] BI: Ramp-function generator enable / RFG enable

CU230P-2 CAN CU230P-2 HVAC	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).
Dependency: Refer to: r0054, p1141, p1142
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero)
Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)

p1140[0...n] BI: Ramp-function generator enable / RFG enable

CU230P-2 DP	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2090.4

Description: Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).
Dependency: Refer to: r0054, p1141, p1142
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero)
Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)

p1141[0...n] BI: Start ramp-function generator / Start RFG

CU230P-2 CAN CU230P-2 HVAC	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for control word 1 bit 5 (enables ramp-function generator/stops ramp-function generator)
Dependency: Refer to: r0054, p1140, p1142
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.

Note: Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen)
Bit 5 = 1: Enable ramp-function generator

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p1141[0...n] BI: Start ramp-function generator / Start RFG

CU230P-2 DP	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2090.5

Description: Sets the signal source for control word 1 bit 5 (enables ramp-function generator/stops ramp-function generator)
Dependency: Refer to: r0054, p1140, p1142
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.

Note: Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen)
Bit 5 = 1: Enable ramp-function generator

p1142[0...n] BI: Speed setpoint enable / n_set enable

CU230P-2 CAN CU230P-2 HVAC	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	1

Description: Sets the signal source for control word 1 bit 6 (enable setpoint/disable setpoint).
Dependency: Refer to: p1140, p1141
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero)
Bit 6 = 1: Enable setpoint

p1142[0...n] BI: Speed setpoint enable / n_set enable

CU230P-2 DP	**Access level:** 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2090.6

Description: Sets the signal source for control word 1 bit 6 (enable setpoint/disable setpoint).
Dependency: Refer to: p1140, p1141
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero)
Bit 6 = 1: Enable setpoint

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p1143[0...n] BI: Ramp-function generator, accept setting value / Accept RFG set val

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Setpoints	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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

Access level: 4	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.0	50.0	0.0

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.

Note: In the V/f mode, the ramp-function generator tracking is not active.

p1148[0...n] Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act

Access level: 3	**P-Group:** Setpoints	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	33.33 [Hz]	0.66 [Hz]

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

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r1149 CO: Ramp-function generator, acceleration / RFG acceleration

Access level: 3 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [rev/s²] **Calculated:** - **Data set:** -

Description: Displays the acceleration of the ramp-function generator.

r1150 CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp

Access level: 4 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the setpoint at the output of the ramp-function generator.

p1155[0...n] CI: Speed controller speed setpoint 1 / n_ctrl n_set 1

Access level: 4 **P-Group:** Setpoints **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

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.

The signal source of the total setpoint is automatically interconnected to the output of the technology controller (r2294) if the technology controller is selected (p2200 > 0) and operated in the mode p2251 = 1. If the hibernation function is activated (p2398 = 1), an interconnection is made to r2397[1].

Refer to: r0002, p0840, p0844, p0848, p0852, p0854, r0898, p1140, p1142, p1160, r1170

Caution: If the technology controller or hibernation function is activated, then it is not permissible to withdraw the parameter interconnection.

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

Access level: 4 **P-Group:** Setpoints **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

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 (to the setpoint (r1170)) and stops the drive corresponding to the ramp-down time (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).

r1169 CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2

Access level: 4 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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).

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r1170 CO: Speed controller, setpoint sum / n_ctrl setp sum

Access level: 3 **P-Group:** Setpoints **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the speed setpoint after selecting the ramp-function generator and adding the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).

Dependency: Refer to: r1150, p1155, p1160

r1197 Fixed speed setpoint number actual / n_set_fixed No act

Access level: 4 **P-Group:** Setpoints **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

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

Access level: 3 **P-Group:** Setpoints **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the control word for the setpoint channel.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed setpoint bit 0	Yes	No	3010
01	Fixed setpoint bit 1	Yes	No	3010
02	Fixed setpoint bit 2	Yes	No	3010
03	Fixed setpoint 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...6 CO/BO: Ramp-function generator status word / RFG ZSW

Access level: 4 **P-Group:** Setpoints **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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	Ramp-function generator 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	-

Note: Re bit 02:
The bit is an OR logic operation - bit 00 and bit 01.

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p1200[0...n] FlyRest oper mode / FlyRest op_mode

Access level: 2	**P-Group:** Functions	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	4	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)
4: Flying restart always active (start only in setpoint direction)

Dependency: A differentiation is made between flying restart for V/f control and for vector control (p1300).

Flying restart, V/f control: p1202, p1203, r1204

Flying restart for vector control: p1202, p1203, r1205

Enable flying restart: p1201

For synchronous motors, flying restart cannot be activated.

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.

Note: When p1200 = 1, 4: Flying restart is active after faults, OFF1, OFF2, OFF3.

When p1200 = 1: The search is made in both directions.

When p1200 = 4: The search is only made in the setpoint direction.

For V/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 during commissioning (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

Access level: 3	**P-Group:** Functions	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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.

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p1202[0...n] FlyRest srch curr / FlyRest srch curr

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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.

Dependency: Refer to: r0331

Caution: An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

Note: Reducing the search current can improve the flying restart performance (if the system moment of inertia is not very high).

p1203[0...n] Flying restart search rate factor / FlyRst v_Srch Fact

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
10 [%]	4000 [%]	100 [%]

Description: 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.

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) we recommend that the search rate is reduced (by increasing p1203).

r1204.0...13 CO/BO: Flying restart, V/f control status / FlyRestrt Vf stat

Access level: 4 | **P-Group:** Functions | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the status for checking and monitoring flying restart states in the V/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	-

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r1205.0...15 CO/BO: Flying restart, vector control status / FlyRestrtVectStat

Access level: 4 **P-Group:** Functions **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays 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	Record angle of the speed adaptation circuit	Yes	No	-
01	Set speed adaptation circuit gain to 0	Yes	No	-
02	Isd channel enable	Yes	No	-
03	Speed control switched in	Yes	No	-
04	Quadrature arm switched in	Yes	No	-
05	Special transformation active	Yes	No	-
06	Set I comp speed adaptation circuit 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	Deviation of the speed adaptation circuit = 0	Yes	No	-
15	Speed control activated	Yes	No	-

Note: Bits 0..9: Used by the control in internal sequences during the flying restart.
Depending on the motor type (p0300), the number of active bits differs.
Bits 10..15: Are used to monitor the flying restart sequence.
For PEM, only bits 10, 11 and 15 are supported.

p1206[0...9] Set the fault number without automatic restart / Fault_No w/o AR

Access level: 3 **P-Group:** Functions **Data type:** Unsigned16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	65535	0

Description: Selects the faults for which automatic restart should not be effective.

Dependency: The setting is only effective for p1210 = 6, 16.
Refer to: p1210

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p1210 Automatic restart, mode / AR mode

Access level: 2	**P-Group:** Functions	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	16	0

Description: Sets the automatic restart mode (AR).

The parameters must be saved in the non-volatile memory p0971 = 1 in order that the setting becomes effective.

Value:
0: Disables automatic restart
1: Acknowledges all faults without restarting
4: Restart after power failure without additional start attempts
6: Restart after fault with additional start attempts
14: Restart after line failure after a manual fault acknowledgement
16: Restart after fault after manual fault acknowledgement

Dependency: The automatic restart requires an active ON command, e.g. that is available at 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

Refer to: F30003

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 CU board boots if the DC link voltage is again present. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Caution: 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: For brief line supply failures, the motor shaft can still be rotating when restarting. In order to restart while the motor shaft is still rotating, the "flying restart" function should be activated using p1200.

p1210 = 4:

An automatic restart is only performed if fault F30003 has occurred on the power unit. 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.

p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgement, then these are also automatically acknowledged again. For p1210 = 1, fault F07320 is not generated if the acknowledgement attempt was unsuccessful, for example, because the monitoring time p1213 index 0 was exceeded.

p1210 = 14:

As for p1210 = 4. However, faults that are present must be manually acknowledged.

p1210 = 16:

As for p1210 = 6. However, faults that are present must be manually acknowledged.

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p1211 Automatic restart, start attempts / AR start attempts

Access level: 3	**P-Group:** Functions	**Data type:** Unsigned16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	10	3

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6, 14, 16.

Dependency: Refer to: p1210, r1214

Refer to: F07320

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

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 blackout the start counter always starts with the counter value that applied before the blackout, and decrements this startup attempt by 1. If a further attempt to acknolwedge is started by the automatic restart function prior to blackout, e.g. when the CU remains active on blackout longer than the time p1212 / 2, the fault counter will already have been decremented by 1. In this case, the fault 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

Access level: 3	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Caution: 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 waiting time has expired and the full waiting 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 waiting time.

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p1213[0...1] Automatic restart, monitoring time / AR t_monitoring

Access level: 3	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.0 [s]	10000.0 [s]	60.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index: [0] = For restart
[1] = To reset the fault counter

Dependency: Refer to: p1210, r1214

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

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.

Note: 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).

Index 1:

The fault counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213 index 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 fault counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged.

The fault counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

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r1214.0...15 CO/BO: Automatic restart, status / AR status

Access level: 4 **P-Group:** Functions **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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 bit 7 is displayed, otherwise the effective fault r2139 bit 3.

Re bits 12 ... 15:

Actual state of the start counter (binary coded).

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p1226[0...n] Threshold for zero speed detection / n_standst n_thresh

Access level: 2	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [Hz]	650.0 [Hz]	1.0 [Hz]

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.

Dependency: Refer to: p1227

Notice: For reasons relating to the compatibility to earlier software versions, a parameter value of 0 in indices 1 to 31 is overwritten with the parameter value in index 0 when the Control Unit boots.

Note: Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - 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

Access level: 3	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	
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).

Dependency: Refer to: p1226

Notice: For p1145 > 0.0, 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 (zero speed) is detected if, during the complete monitoring time (p1227), the speed setpoint falls below the speed threshold (p1226).

For p1227 = 300.000 s, the following applies:

The 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

Access level: 3	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [s]	10.000 [s]	0.010 [s]

Description: Sets the delay time for pulse suppression.

After OFF1 or OFF3 and zero speed detection, the system waits for this time to expire and the pulses are then suppressed.

Dependency: Refer to: p1226, p1227

Note: Standstill (zero speed) is detected if, during the complete delay time (p1228), the speed actual value falls below the speed threshold (p1226).

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p1230[0...n] BI: DC brake activation / DC brk activation

PM240

Access level: 2 | **P-Group:** Functions | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to activate the DC brake.
Dependency: Refer to: p1231, p1232, p1233, p1234, r1239
Note: 1 signal: DC brake activated.
0 signal: DC brake deactivated.

p1231[0...n] DC brake configuration / DC brake config

PM240

Access level: 2 | **P-Group:** Functions | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** MDS
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	4	0

Description: Setting to activate the DC brake.
Value: 0: No function
4: DC brake
Dependency: Refer to: p0300, p1232, p1233, p1234, r1239
Note: The function is activated as soon as the activation criterion is fulfilled.
- the function can be initiated by an OFF2 response.

Activation criterion (one of the following criteria is fulfilled):
- the signal at BI: p1230 (DC brake 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).

The function can only be used for induction motors (p0300 = 1).

p1232[0...n] DC braking, braking current / DCBRK I_brake

PM240

Access level: 2 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** MDS
Can be changed: U, T | **Calculated:** -

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
Note: A change to the braking current becomes effective the next time that the DC brake is powered up.

p1232 is specified as rms value in a 3-phase system. The magnitude of the braking current is identical with the same magnitude output current at frequency zero (also refer to r0067, r0068, p0640).

For vector control, a current value of 1.4142 * p1232 is obtained in the output phase U. For V/f control, the phase angle is offset by -30 degrees to obtain a current measurement of 1.2247 * p1232 in output phase U.

For the current controller, the settings of parameters p1345 and p1346 (Imax limiting controller) are used.

p1233[0...n] DC braking time / DCBRK time

PM240

Access level: 2 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** MDS
Can be changed: U, T | **Calculated:** -

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

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p1234[0...n] Speed at the start of DC braking / DCBRK n_start

PM240

Access level: 2 **P-Group:** Functions **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** MDS
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	650.00 [Hz]

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

r1239.8...11 CO/BO: DC brake status word / DC brake ZSW

PM240

Access level: 2 **P-Group:** Functions **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Status word of the DC brake.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DC brake	Active	Inactive	7017
10	DC brake ready	Yes	No	7017
11	DC brake selected	Yes	No	-

Dependency: Refer to: p1231, p1232, p1233, p1234

p1240[0...n] Vdc controller or Vdc monitoring configuration (vector control) / Vdc_ctr config vec

PM240

Access level: 3 **P-Group:** Functions **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	3	1

Description: Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode. For V/f control: see p1280.

Value:
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

Dependency: Refer to: p1245
Refer to: A07400, A07401, A07402, F07405, F07406

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 power unit 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.

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r1242 Vdc_max controller switch-in level / Vdc_max on_level

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32

Unit: [V] | **Calculated:** - | **Data set:** -

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:
r1242 = 1.15 * sqrt(2) * V_mains = 1.15 * sqrt(2) * p0210 (supply voltage)
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)

p1243[0...n] Vdc_max controller dynamic factor / Vdc_max dyn_factor

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32

Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180

Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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.

p1245[0...n] Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32

Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180

Can be changed: U, T | **Calculated:** -

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:
r1246[V] = p1245[%] * sqrt(2) * p0210

Dependency: Refer to: p0210

Warning: An excessively high value may adversely affect normal drive operation.

r1246 Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32

Unit: [V] | **Calculated:** - | **Data set:** -

Description: Displays the switch-in level for the Vdc_min controller (kinetic buffering).

p1247[0...n] Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32

Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180

Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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.

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p1249[0...n] Vdc_max controller speed threshold / Vdc_max n_thresh

PM240

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.0 [Hz]	650.0 [Hz]	0.3 [Hz]

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

PM240

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00	100.00	1.00

Description: Sets the proportional gain for the Vdc controller (DC link voltage controller).

Dependency: The effective proportional gain is obtained taking into account p1243 (Vdc_max controller dynamic factor) and the DC link capacitance of the power unit.

p1251[0...n] Vdc controller integral time / Vdc_ctrl Tn

PM240

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the integral time for the Vdc controller (DC link voltage controller).

Dependency: The effective integral time is obtained taking into account p1243 (Vdc_max controller dynamic factor).

Note: An integral time of 0 (default) de-activates the controller.

p1252[0...n] Vdc controller rate time / Vdc_ctrl t_rate

PM240

Access level: 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the rate time constant for the Vdc controller (DC link voltage 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

PM240

Access level: 3 | **P-Group:** Functions | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

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

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p1255[0...n] Vdc_min controller time threshold / Vdc_min t_thresh

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** FloatingPoint32
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0.000 [s]	1800.000 [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.

Dependency: Refer to: F07406

p1256[0...n] Vdc_min controller response (kinetic buffering) / Vdc_min response

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** -	
	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

Dependency: Refer to: F07405, F07406

p1257[0...n] Vdc_min controller speed threshold / Vdc_min n_thresh

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** FloatingPoint32
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** p0340 = 1	
	Min	**Max**	**Factory setting**
	0.0 [Hz]	650.0 [Hz]	1.6 [Hz]

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 .

r1258 CO: Vdc controller output / Vdc_ctrl output

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** FloatingPoint32
	Unit: [Arms]	**Calculated:** -	**Data set:** -

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.

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p1280[0...n] Vdc controller or Vdc monitoring configuration (V/f) / Vdc_ctr config V/f

PM240

Access level: 3 **P-Group:** Functions **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	3	1

Description: Sets the configuration of the controller for the DC link voltage (Vdc controller) in the V/f operating mode.

Value:
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

Note: For high input voltages (see p0210), the following settings can improve the degree of ruggedness of the Vdc_max controller:

- Set the input voltage p0210 as low as possible (in so doing avoid A07401).
- Set the rounding times (p1130, p1136).
- Increase the ramp-down times (p1121).
- Reduce the integral action time of the controller (p1291) (factor 0.5).
- Activate the Vdc correction in the current controller (p1810 bit 1 = 1) or reduce the derivative action time of the controller (p1292) (factor 0.5).

In this case, we generally recommend to use vector control (p1300 = 20) (Vdc controller, see p1240).

The following measures are suitable to improve the Vdc_min controller:

- Optimize the Vdc_min controller (see p1287).
- Activate the Vdc correction in the current controller (p1810 bit 1 = 1).

r1282 Vdc_max controller switch-in level (V/f) / Vdc_max on_level

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32
Unit: [V] **Calculated:** - **Data set:** -

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:

r1282 = 1.15 * sqrt(2) * V_mains = 1.15 * sqrt(2) * p0210 (supply voltage)

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)

p1283[0...n] Vdc_max controller dynamic factor (V/f) / Vdc_max dyn_factor

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,4

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.

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p1285[0...n] Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

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:

p1286[V] = p1285[%] * sqrt(2) * p0210

Warning: An excessively high value may adversely affect normal drive operation.

r1286 Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32

Unit: [V] **Calculated:** - **Data set:** -

Description: Displays the switch-in level for the Vdc_min controller (kinetic buffering).

p1287[0...n] Vdc_min controller dynamic factor (kinetic buffering) (V/f) / Vdc_min dyn_factor

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** p0340 = 1,3,4

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 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 p1287.

p1288[0...n] Vdc_max controller feedback coupling factor ramp-fct. gen. (V/f) / Vdc_max factor RFG

Access level: 4 **P-Group:** Functions **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

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.

p1290[0...n] Vdc controller proportional gain (V/f) / Vdc_ctrl Kp

PM240

Access level: 3 **P-Group:** Functions **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** p0340 = 1,3,4

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 preset to a value that is optimally adapted to the capacitance of the power unit.

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p1291[0...n] Vdc controller integral time (V/f) / Vdc_ctrl Tn

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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 (V/f) / Vdc_ctrl t_rate

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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 (V/f) / Vdc_min outp_lim

PM240 | **Access level:** 4 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.0 [Hz]	600.0 [Hz]	600.0 [Hz]

Description: Sets the output limit for the Vdc min controller (DC link undervoltage controller).

p1294 Vdc_max controller automatic detection ON signal level (V/f) / Vdc_max SenseOnLev

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

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 deactivated, 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 (V/f) / Vdc_min t_thresh

PM240 | **Access level:** 3 | **P-Group:** Functions | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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.

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p1296[0...n] Vdc_min controller response (kinetic buffering) (V/f / Vdc_min response

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** -	
	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: 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 (V/f) / Vdc_min n_thresh

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** FloatingPoint32
	Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
	Can be changed: U, T	**Calculated:** p0340 = 1	
	Min	**Max**	**Factory setting**
	0.0 [Hz]	650.0 [Hz]	1.6 [Hz]

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 .

r1298 CO: Vdc controller output (V/f) / Vdc_ctrl output

PM240	**Access level:** 3	**P-Group:** Functions	**Data type:** FloatingPoint32
	Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the actual output of the Vdc controller (DC link voltage controller)

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p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode

Access level: 2	**P-Group:** V/f open-loop control	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1), T	**Calculated:** -	

Min	Max	Factory setting
0	22	0

Description: Sets the open and closed loop control mode of a drive.

Value:
0: V/f control with linear characteristic
1: V/f control with linear characteristic and FCC
2: V/f control with parabolic characteristic
3: V/f control with parameterizable characteristic
4: V/f control with linear characteristic and ECO
5: V/f control for drives requiring a precise freq. (e.g. textiles)
6: V/f control for drives requiring a precise frequency and FCC
7: V/f control for a parabolic characteristic and ECO
19: V/f control with independent voltage setpoint
20: Speed control (encoderless)
22: Torque control (encoderless)

Dependency: Only operation with V/f characteristic is possible if the rated motor speed is not entered (p0311).

Operation with a V/f characteristic is not supported for 1LE4 synchronous motors.

Refer to: p0300, p0311, p1501

Notice: Active slip compensation is required in the V/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. For analog setpoints, if required, for the ramp-function generator, the tolerance for ramp-up and ramp-down should be actively increased using p1148 in order to reliably signal a steady-state condition.

Note: Only by selecting closed-loop speed control (p1300 = 20) is it possible to change over in opertaion to closed-loop torque 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.

During operation (the pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing over drive data sets.

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p1310[0...n] Voltage boost permanent / V_boost perm

Access level: 2	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 * 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 V/f characteristics and is calculated as follows:

Voltage boost = 1.732 * p0305 (rated motor current) x r0395 (stator/primary section resistance) x p1310 (permanent voltage boost)

Dependency: The current limit p0640 limits the boost.

For vector control, the permanent voltage boost (p1310) has no effect as the drive converter automatically sets the optimum operating conditions.

Refer to: p1300, p1311, p1312, r1315

Notice: The voltage boost increases the motor temperature (particularly at zero speed).

Note: The voltage boost is only effective for V/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] Voltage boost at acceleration / V_boost accelerate

Access level: 2	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

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p1312[0...n] Voltage boost when starting / V_boost starting

Access level: 2	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.0 [%]	250.0 [%]	0.0 [%]

Description: p1312 causes an additional voltage boost when starting, 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 / V_boost total

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Unit: [Vrms]	**Calculated:** -	**Data set:** -

Description: Displays the total resulting voltage boost in volt (p1310 + p1311 + p1312).

Dependency: Refer to: p1310, p1311, p1312

p1320[0...n] V/f control programmable characteristic frequency 1 / Uf char f1

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the V/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 V/f characteristic.

p1321[0...n] V/f control programmable characteristic voltage 1 / Vf char U1

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the V/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 V/f characteristic.

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p1322[0...n] V/f control programmable characteristic frequency 2 / Vf char f2

Access level: 3 **P-Group:** V/f open-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the V/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] V/f control programmable characteristic voltage 2 / Vf char U2

Access level: 3 **P-Group:** V/f open-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1

Min	Max	Factory setting
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the V/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] V/f control programmable characteristic frequency 3 / Vf char f3

Access level: 3 **P-Group:** V/f open-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the V/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] V/f control programmable characteristic voltage 3 / Vf char U3

Access level: 3 **P-Group:** V/f open-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1

Min	Max	Factory setting
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the V/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

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p1326[0...n] V/f control programmable characteristic frequency 4 / Vf char f4

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3	
Min	**Max**	**Factory setting**
0.00 [Hz]	10000.00 [Hz]	0.00 [Hz]

Description: The programmable characteristic for the V/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.

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, 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 V/f characteristic.

p1327[0...n] V/f control programmable characteristic voltage 4 / Vf char U4

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3	
Min	**Max**	**Factory setting**
0.0 [Vrms]	10000.0 [Vrms]	0.0 [Vrms]

Description: The programmable characteristic for the V/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 V/f characteristic.

p1330[0...n] CI: V/f control independent voltage setpoint / Vf V_set independ.

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	0

Description: Sets the signal source for the voltage setpoint for V/f control with an independent voltage setpoint (p1300 = 19).

Dependency: Selects the V/f control with independent voltage setpoint via p1300 = 19.

Refer to: p1300

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p1333[0...n] V/f control FCC starting frequency / V/f FCC f_start

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 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] V/f control slip compensation starting frequency / Slip comp start

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 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

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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 V/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 (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).

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p1336[0...n] Slip compensation limit value / Slip comp lim val

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

Description: Displays the actual compensated slip [%] referred to r0330 (rated motor slip).

Dependency: p1335 > 0 %: Slip compensation active.
Refer to: p1335

p1338[0...n] V/f mode resonance damping gain / Vf Res_damp gain

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

Min	Max	Factory setting
0.00	100.00	0.00

Description: Sets the controller gain for resonance damping for V/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 of approximately 5 ... 90 % of the rated motor frequency (p0310), but up to a maximum of 45 Hz.

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] V/f mode resonance damping filter time constant / Vf Res_damp T

Access level: 4	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

Min	Max	Factory setting
1.00 [ms]	1000.00 [ms]	20.00 [ms]

Description: Sets the filter time constant of the controller for resonance damping with V/f control.

Dependency: Refer to: p1300, p1338, p1349

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p1340[0...n] I_max frequency controller proportional gain / I_max_ctrl Kp

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

Min	Max	Factory setting
0.000	0.500	0.000

Description: Sets the proportional gain of the I_max voltage controller.

The I_max controller reduces the drive converter output current if the maximum current (r0067) is exceeded.

In the V/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 V/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, however, overcurrent alarm messages are generated. The drive is shut down if the overcurrent limit (r0209) is 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

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

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

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the effective frequency limit.

Dependency: Refer to: p1340

r1344 I_max controller voltage output / I_max_ctrl V_outp

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** FloatingPoint32
Unit: [Vrms]	**Calculated:** -	**Data set:** -

Description: Displays the amount by which the converter output voltage is reduced.

Dependency: Refer to: p1340

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p1345[0...n] I_max voltage controller proportional gain / I_max_V_ctrl Kp

Access level: 3 | **P-Group:** V/f open-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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 brake (refer to p1232).

p1346[0...n] I_max voltage controller integral time / I_max_V_ctrl Tn

Access level: 3 | **P-Group:** V/f open-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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: p1346 = 0: Integral time of the I_max voltage controller de-activated.
The controller settings are also used in the current controller of the DC brake (refer to p1232).

r1348 CO: V/f control Eco factor actual value / V/f Eco fac act v

Access level: 4 | **P-Group:** V/f open-loop control | **Data type:** FloatingPoint32
Unit: [%] | **Calculated:** - | **Data set:** -

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] V/f mode resonance damping maximum frequency / Vf res_damp F_max

Access level: 4 | **P-Group:** V/f open-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

Description: Sets the maximum output frequency above which the resonance damping for V/f control is de-activated.
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.

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p1350[0...n] Soft starting / Soft starting

Access level: 3	**P-Group:** V/f open-loop control	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

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

p1400[0...n] Speed control configuration / n_ctrl config

Access level: 3	**P-Group:** Closed-loop control	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	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	Encoderless vector control freeze I comp	Yes	No	6040
05	Kp/Tn adaptation active	Yes	No	-
06	Free Tn adaptation active	Yes	No	-
14	Torque pre-control	Always active	For n_ctrl enab	-
15	Encoderless vector control, speed pre-control	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.

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p1401[0...n] Flux control configuration / Flux ctrl config

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0110 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
01	Flux setpoint differentiation active	Yes	No	6723
02	Flux build-up control active	Yes	No	6722, 6723
06	Quick magnetizing	Yes	No	6722
07	Pre-control speed limitation	Yes	No	6640

Note:

Re bit 00 (not for permanent-magnet synchronous 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 (not for permanent-magnet synchronous 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. When quick magnetizing (p1401.6 = 1) is selected, smooth starting is internally de-activated and alarm A07416 is displayed.

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 (not for permanent-magnet synchronous 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 impressed 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 06 (not for induction motors):

Magnetizing is performed with maximum current (0.9 * r0067). 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).

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the configuration for the closed-loop control and the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Current controller adaptation active	Yes	No	-

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r1406.4...15 CO/BO: Control word speed controller / STW n_ctrl

Access level: 3 **P-Group:** Closed-loop control **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the control word of the speed controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	Holds speed controller I component	Yes	No	6040
05	Sets speed controller I component	Yes	No	6040
11	Droop enable	Yes	No	6030
12	Torque control active	Yes	No	6060
15	Set speed adaptation controller I component	Yes	No	-

r1407.0...13 CO/BO: Status word speed controller / ZSW n_ctrl

Access level: 3 **P-Group:** Closed-loop control **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the status word of the speed controller.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	V/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	-
09	Lower torque limit active	Yes	No	-
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	-

r1408.0...12 CO/BO: Status word closed-loop current control / ZSW curr ctrl

Access level: 4 **P-Group:** Closed-loop control **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the status word of the closed-loop current control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Current ctrl 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	-
12	Motor stalled	Yes	No	6719, 8018

p1416[0...n] Speed setpoint filter 1 time constant / n_set_filt 1 T

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

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).

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r1438 CO: Speed controller, speed setpoint / n_ctrl n_set

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the speed setpoint after setpoint limiting for the P component of the speed controller.
For V/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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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.

r1444 Speed controller, speed setpoint steady-state (static) / n_ctrl n_set stat

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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, p3983).

Dependency: Refer to: r1119, p1155, p1160

r1445 CO: Actual speed smoothed / n_act smooth

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the actual smoothed actual speed for speed control.

p1452[0...n] Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC

Access level: 2 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the system deviation of the I component of the speed controller.

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p1455[0...n] CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp

Access level: 4	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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.

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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.

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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.

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p1459[0...n] Adaptation factor, upper / Adapt_factor upper

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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.

p1461[0...n] Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	
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 p1470).

Dependency: Refer to: 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.

p1463[0...n] Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	
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 p1472).

Dependency: Refer to: 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

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	
Min	**Max**	**Factory setting**
0.00 [Hz]	650.00 [Hz]	0.00 [Hz]

Description: Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.

Dependency: Refer to: p1461, p1463, p1465

Note: If the upper transition point p1465 of the speed controller adaptation is set to values less 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.

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p1465[0...n] Speed controller adaptation speed, upper / n_ctrl n upper

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	650.00 [Hz]

Description: Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed.
For P gain, p1470 * p1461 is effective. For the integral time, p1472 * p1463 is effective.

Dependency: Refer to: p1461, p1463, p1464

Note: If the upper transition point p1465 of the speed controller adaptation is set to values less 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

Access level: 4	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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_ctrl Kp eff

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the effective P gain of the speed controller.

r1469 Speed controller integral time effective / n_ctrl Tn eff

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Unit: [ms]	**Calculated:** -	**Data set:** -

Description: Displays the effective integral time of the speed controller.

p1470[0...n] Speed controller encoderless operation P-gain / n_ctrl SLVC Kp

Access level: 2	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

Min	Max	Factory setting
0.000	999999.000	0.300

Description: Sets the P gain for encoderless operation for the speed controller.

Note: The product p0341 * 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 SLVC Tn

Access level: 2	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,4	

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.

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p1476[0...n] BI: Speed controller hold integrator / n_ctrl integ stop

Access level: 4	**P-Group:** Closed-loop control	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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.

p1478[0...n] CI: Speed controller integrator setting value / n_ctr integ_setVal

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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 encoderless 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

Access level: 4	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

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r1482 CO: Speed controller I torque output / n_ctrl I-M_output

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays the torque setpoint at the output of the I speed controller.

p1486[0...n] CI: Droop compensation torque / Droop M_comp

Access level: 3 **P-Group:** Closed-loop control **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the compensation torque to be output within the droop calculation.

p1487[0...n] Droop compensation torque scaling / Droop M_comp scal

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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

Access level: 3 **P-Group:** Closed-loop control **Data type:** Integer16
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	3	0

Description: Sets the source for droop feedback.

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: p1489, r1490, p1492

p1489[0...n] Droop feedback scaling / Droop scaling

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.000	0.500	0.050

Description: Sets the scaling for the droop feedback

Dependency: Refer to: 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 %.

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r1490 CO: Droop feedback speed reduction / Droop n_reduction

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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: p1488, p1489, p1492

p1492[0...n] BI: Droop feedback enable / Droop enable

Access level: 3 **P-Group:** Closed-loop control **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Enables the droop to be applied to the speed/velocity setpoint.

Dependency: Refer to: 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 / M_inertia total

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [kgm²] **Calculated:** - **Data set:** -

Description: Displays the parameterized total moment of inertia ((p0341 * p0342) * p1496).

p1496[0...n] Acceleration pre-control scaling / a_before scaling

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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

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.

p1499[0...n] Accelerating for torque control, scaling / a for M_ctrl scal

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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

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p1500[0...n] Torque setpoint selection / M_set sel

CU230P-2 HVAC	**Access level:** 2	**P-Group:** Commands	**Data type:** Integer16
	Quick comm. YES	**Active:** NO	**Data set:** CDS, p0170
	Can be changed: C(1), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	77	2

Description: Sets the source for the torque setpoint.
For single-digit values, the following applies:
The value specifies the main setpoint.
For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.
Example:
Value = 26
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:
0: No main setpoint
2: Analog setpoint
6: Fieldbus
7: Analog setpoint 2
20: Analog setpoint + no main setpoint
22: Analog setpoint + analog setpoint
26: Analog setpoint + fieldbus
27: Analog setpoint + analog setpoint 2
60: Fieldbus + no main setpoint
62: Fieldbus + analog setpoint
66: Fieldbus+fieldbus
67: Fieldbus + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
72: Analog setpoint 2 + analog setpoint
76: Analog setpoint 2 + fieldbus
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:
Refer to: p1503, p1511

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

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p1500[0...n] Torque setpoint selection / M_set sel

CU230P-2 DP

Access level: 2 **P-Group:** Commands **Data type:** Integer16
Quick comm. YES **Active:** NO **Data set:** CDS, p0170
Can be changed: C(1), T **Calculated:** -

Min	Max	Factory setting
0	77	6

Description: Sets the source for the torque setpoint.
For single-digit values, the following applies:
The value specifies the main setpoint.
For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.
Example:
Value = 26
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:
0: No main setpoint
2: Analog setpoint
6: Fieldbus
7: Analog setpoint 2
20: Analog setpoint + no main setpoint
22: Analog setpoint + analog setpoint
26: Analog setpoint + fieldbus
27: Analog setpoint + analog setpoint 2
60: Fieldbus + no main setpoint
62: Fieldbus + analog setpoint
66: Fieldbus+fieldbus
67: Fieldbus + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
72: Analog setpoint 2 + analog setpoint
76: Analog setpoint 2 + fieldbus
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:
Refer to: p1503, p1511

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

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p1500[0...n] Torque setpoint selection / M_set sel

CU230P-2 CAN

Access level: 2 | **P-Group:** Commands | **Data type:** Integer16

Quick comm. YES | **Active:** NO | **Data set:** CDS, p0170

Can be changed: C(1), T | **Calculated:** -

Min	Max	Factory setting
0	77	0

Description: Sets the source for the torque setpoint.

For single-digit values, the following applies:

The value specifies the main setpoint.

For double-digit values, the following applies:

The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.

Example:

Value = 26

--> The analog setpoint (2) supplies the supplementary setpoint.

--> The fieldbus (6) supplies the main setpoint.

Value:

0: No main setpoint
2: Analog setpoint
7: Analog setpoint 2
20: Analog setpoint + no main setpoint
22: Analog setpoint + analog setpoint
27: Analog setpoint + analog setpoint 2
70: Analog setpoint 2 + no main setpoint
72: Analog setpoint 2 + analog setpoint
77: Analog setpoint 2 + analog setpoint 2

Dependency: When changing this parameter, the following settings are influenced:

Refer to: p1503, p1511

Note: With PROFIBUS / PROFINET Control Units, p0922 = 999 must be set so that the command and setpoint sources can be changed.

p1501[0...n] BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** U32 / Binary

Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170

Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for toggling between speed and torque control.

Dependency: The input connectors to enter the torque are provided using p1511, p1512 and p1513.

Refer to: p1300

Caution: 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).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: 0 signal: Closed-loop speed control

1 signal: Closed-loop torque control

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p1503[0...n] CI: Torque setpoint / M_set

CU230P-2 HVAC

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	755[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.

p1503[0...n] CI: Torque setpoint / M_set

CU230P-2 DP

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	2050[1]

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.

p1503[0...n] CI: Torque setpoint / M_set

CU230P-2 CAN

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

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

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Nm] | **Calculated:** - | **Data set:** -

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

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for supplementary torque 1.

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p1512[0...n] CI: Supplementary torque 1 scaling / M_suppl 1 scal

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Unit: [Nm]	**Calculated:** -	**Data set:** -

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

Access level: 2	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Unit: [Nm]	**Calculated:** -	**Data set:** -

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

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [ms]	100.00 [ms]	4.00 [ms]

Description: Sets the smoothing time constant of the accelerating torque.
Note: The acceleration pre-control is inhibited if the smoothing is set to the maximum value.

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r1518[0...1] CO: Accelerating torque / M_accel

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Nm] | **Calculated:** - | **Data set:** -

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

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

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 object 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 (refer to p0340), the torque limit is set so that it matches the current limit p0640.

p1521[0...n] CO: Torque limit lower / M_max lower

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

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 object 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 (refer to p0340), the torque limit is set so that it matches the current limit p0640.

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p1522[0...n] CI: Torque limit upper / M_max upper

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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

Access level: 3	**P-Group:** Closed-loop control	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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/motoring scaling / M_max up/mot scal

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper torque limit or the torque limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / generating

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the above significance if it is interconnected from connector input p1528.

p1525[0...n] CO: Torque limit lower scaling / M_max lower scal

Access level: 3	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

Note: This parameter can be freely interconnected.
The value has the above significance if it is interconnected from connector input p1528.

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r1526 CO: Torque limit upper without offset / M_max up. w/o offs

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays 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

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

Description: Displays 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

Access level: 4 **P-Group:** Closed-loop control **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

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

Access level: 2 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,5

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% rated motor power.

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p1531[0...n] Power limit regenerating / P_max gen

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
-100000.00 [kW]	-0.01 [kW]	-0.01 [kW]

Description: Sets the regenerative power limit.
Dependency: Refer to: r0206, 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 preset to 30% of the motoring power limit p1530 and in the ratio rated drive converter power to rated motor power.
For power units with F3E features, the parameter is limited to the negative value of r0206[2].

r1533 Current limit torque-generating total / Iq_max total

Access level: 3 | **P-Group:** Displays, signals | **Data type:** FloatingPoint32
Unit: [Arms] | **Calculated:** - | **Data set:** -

Description: Displays the maximum torque/force generating current as a result if all current limits.

r1536 Current limit maximum torque-generating current / Isq_max

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Arms] | **Calculated:** - | **Data set:** -

Description: Displays the maximum limit for the torque-generating current component.

r1537 Current limit minimum torque-generating current / Isq_min

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Arms] | **Calculated:** - | **Data set:** -

Description: Displays the minimum limit for the torque-generating current component.

r1538 CO: Upper effective torque limit / M_max upper eff

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Nm] | **Calculated:** - | **Data set:** -

Description: Displays the currently effective upper torque limit.
Note: The effective upper torque limit is reduced with respect to the upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.
This is possibly the case for rotating measurements (refer to p1960).
The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1539 CO: Lower effective torque limit / M_max lower eff

Access level: 2 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Nm] | **Calculated:** - | **Data set:** -

Description: Displays the currently 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.
This is possibly the case for rotating measurements (refer to p1960).
The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

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r1547[0...1] CO: Torque limit for speed controller output / M_max outp n_ctrl

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Nm] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the limit for the torque-generating current component using the stall calculation, the current limit of the power unit as well as the parameterization in p0640.

Index: [0] = Upper limit
[1] = Lower limit

p1570[0...n] CO: Flux setpoint / Flux setpoint

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 object 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).

p1571[0...n] CI: Supplementary flux setpoint / Suppl flux setp

Access level: 3 **P-Group:** Closed-loop control **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

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 %.

p1573[0...n] Flux threshold value magnetizing / Flux thresh magnet

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 the magnetizing display r0056 bit 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.
The parameter has no influence for flying restart (see p1200) and after DC braking (see p1231).

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p1574[0...n] Voltage reserve dynamic / V_reserve dyn

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

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 margin (reserve). Increasing the reserve reduces the steady-state maximum output voltage (r0071).

p1580[0...n] Efficiency optimization / Efficiency opt.

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [%] | **Calculated:** - | **Data set:** -

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

Min	Max	Factory setting
0 [ms]	20000 [ms]	0 [ms]

Description: Sets the smoothing time for the flux setpoint in the field-weakening range

Note: Only the flux setpoint rise is smoothed

r1589 Field-weakening current, pre-control value / FieldWkCurrPrectrl

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Arms] | **Calculated:** - | **Data set:** -

Description: Displays the pre-control value for the field weakening current.

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r1593[0...1] CO: Field weakening controller / flux controller output / Field/Fl_ctrl outp

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the output of the field weakening controller (synchronous motor).
Index: [0] = PI output
[1] = I output

p1594[0...n] Field-weakening controller, P gain / Field_ctrl Kp

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.00	1000.00	0.00

Description: Sets the P gain of the field-weakening controller.

p1596[0...n] Field weakening controller integral-action time / Field_ctrl Tn

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 output

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

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

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the effective flux setpoint.
The value is referred to the rated motor flux.

p1610[0...n] Torque setpoint static (SLVC) / M_set static

Access level: 2 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.0 [%]	200.0 [%]	50.0 [%]

Description: Sets the static torque setpoint for encoderless vector control (SLVC). This parameter is entered as a percentage referred to the rated motor torque (r0333).
For encoderless 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 (rated magnetizing current).
For p1610 = 100 %, a current setpoint is calculated that corresponds to the rated motor torque.

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p1611[0...n] Supplementary accelerating torque (SLVC) / M_suppl_accel

Access level: 2	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.0 [%]	200.0 [%]	0.0 [%]

Description: Enters the dynamic torque setpoint for the low-speed range for encoderless vector control (SLVC). 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).

p1616[0...n] Current setpoint smoothing time / I_set T_smooth

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3	

Min	Max	Factory setting
4 [ms]	10000 [ms]	40 [ms]

Description: Sets the smoothing time for the current setpoint.

The current setpoint is generated from p1610 and p1611.

Note: This parameter is only effective in the range where current is impressed for encoderless vector control.

r1623 Field-generating current setpoint (steady-state) / Id_set stationary

Access level: 4	**P-Group:** Displays, signals	**Data type:** FloatingPoint32
Unit: [Arms]	**Calculated:** -	**Data set:** -

Description: Displays the steady-state field generating current setpoint (Id_set).

r1624 Field-generating current setpoint, total / Id_setp total

Access level: 4	**P-Group:** Displays, signals	**Data type:** FloatingPoint32
Unit: [Arms]	**Calculated:** -	**Data set:** -

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.

r1650 Current setpoint torque-generating before filter / Iq_set before filt

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Unit: [Arms]	**Calculated:** -	**Data set:** -

Description: Displays the torque generating current setpoint Iqset after the torque limits and the clock cycle interpolation is ahead of the current setpoint filters.

p1654[0...n] Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW

Access level: 4	**P-Group:** Closed-loop control	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 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.

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p1702[0...n] Isd current controller pre-control scaling / Isd_ctr_prectrScal

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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-magnet synchronous motors.

p1703[0...n] Isq current controller pre-control scaling / Isq_ctr_prectrScal

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.0 [%]	200.0 [%]	60.0 [%]

Description: Sets the scaling of the dynamic current controller pre-control for the torque/force-generating current component Isq.

p1715[0...n] Current controller P gain / I_ctrl Kp

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.000	100000.000	0.000

Description: Sets the proportional gain of the current controller. This value is automatically preset using p3900 or p0340 when commissioning has been completed.

p1717[0...n] Current controller integral-action time / I_ctrl Tn

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Vrms] | **Calculated:** - | **Data set:** -

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Vrms] | **Calculated:** - | **Data set:** -

Description: Displays the integral component of the Isq current controller (torque/force-generating current, PI controller).

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r1723 **CO: Isd controller output / Isd_ctrl outp**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

Description: Displays the limit value for the integral component of the Isd current controller.

p1726[0...n] **Quadrature arm decoupling, scaling / Transv_decpl scal**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 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 encoderless 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**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 / V_dir-axis_decoupl**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

Description: Displays the actual output of the quadrature channel de-coupling for the d axis.

r1729 **De-coupling voltage, quadrature axis / V_quad_decoupl**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

Description: Displays the actual output of the quadrature channel de-coupling for the q axis.

r1732[0...1] **CO: Direct-axis voltage setpoint / Direct V set**

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

Description: Displays the direct-axis voltage setpoint Ud.
Index: [0] = Unsmoothed
[1] = Smoothed with p0045

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r1733[0...1] CO: Quadrature-axis voltage setpoint / Quad V set

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [Vrms] | **Calculated:** - | **Data set:** -

Description: Displays the quadrature-axis component of voltage setpoint Uq.
Index: [0] = Unsmoothed
[1] = Smoothed with p0045

p1740[0...n] Gain resonance damping for encoderless closed loop control / Gain res_damp

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.000	10.000	0.025

Description: Defines the gain of the controller for resonance damping for operation with encoderless vector control in the range that current is impressed.

p1745[0...n] Motor model error threshold stall detection / MotMod ThreshStall

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

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 bit 12 in status word p1408 is set.
Dependency: If a stalled drive is detected (p1408.12 set), 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

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [%] | **Calculated:** - | **Data set:** -

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)).

p1750[0...n] Motor model configuration / MotMod config

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** Unsigned8
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the configuration for the motor model.
Bit 0 = 1: Forces open-loop speed controlled starting.
Bit 1 = 1: Forces the system to pass through frequency zero, open-loop controlled.
Bit 2 reserved
Bit 3 = 1: Motor model evaluates the saturation characteristic.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Controlled start	Yes	No	-
01	Controlled through 0 Hz	Yes	No	-
02	Reserved			-
03	Motor model Lh_pre = f(PsiEst)	Yes	No	-

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r1751 Motor model status / MotMod status

Access level: 3 **P-Group:** Closed-loop control **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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	-
05	Holding angle	Yes	No	-
06	Acceleration criteria	Active	Inactive	-
07	Set angular integrator PEM	No	Yes	-
08	Stop Kt adaptation PEM	No	Yes	-
09	PolID active PEM SLVC	No	Yes	-
10	I injection PEM	No	Yes	-
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	-

p1755[0...n] Motor model changeover speed encoderless operation / MotMod n_chgSnsorl

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** p0340 = 1,3

Min	Max	Factory setting
0.0 [Hz]	650.0 [Hz]	650.0 [Hz]

Description: Sets the speed to change over the motor model to encoderless operation.

Dependency: Refer to: p1756

Notice: The changeover speed represents the steady-state minimum speed up to which the motor model can be used in steady-state operation without encoder.
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

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: U, T **Calculated:** p0340 = 1,3

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.

Dependency: Refer to: p1755

Note: The parameter value refers to p1755.

p1758[0...n] Motor model changeover delay time closed/open-loop control / MotMod t cl_op

Access level: 3 **P-Group:** Closed-loop control **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
100 [ms]	10000 [ms]	500 [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: Refer to: p1755, p1756

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p1759[0...n] Motor model changeover delay time open/closed loop control / MotMod t op_cl

Access level: 3 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	2000 [ms]	0 [ms]

Description: Sets the minimum time for exceeding the changeover speed when changing from open-loop controlled operation to closed-loop controlled operation.

Dependency: Refer to: p1755, p1756

Note: When p1759 = 2000 ms, the delay time becomes ineffective and the model changeover is determined by the output frequency only.

r1762 Motor model deviation component 1 / MotMod dev comp 1

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: - | **Calculated:** - | **Data set:** -

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 referred to PI for the speed adaptation.

r1763 Motor model deviation component 2 / MotMod dev comp 2

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: - | **Calculated:** - | **Data set:** -

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

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

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the effective proportional gain of the controller for the speed adaptation.

p1767[0...n] Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
1 [ms]	200 [ms]	4 [ms]

Description: Sets the integral time of the controller for speed adaptation without encoder

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r1768 **Motor model, speed adaptation Vi effective / MotM n_ada Vi act**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

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**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the P component of the controller for speed adaptation.

r1771 **CO: Motor model speed adaptation I comp. / MotMod n_adapt Tn**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the I component of the controller for speed adaptation.

r1773[0...1] **Motor model slip speed / MotMod slip**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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] = Estimated slip speed
[1] = Estimated speed

p1774[0...n] **Motor model, offset voltage compensation alpha / MotMod offs comp A**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 Motor Module.

Note: The value is pre-set during the rotating measurement.

p1775[0...n] **Motor model, offset voltage compensation beta / MotMod offs comp B**

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 Motor Module.

Note: The value is pre-set during the rotating measurement.

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r1776[0...2] Motor model status signals / MotMod status sig

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the internal status signals of the motor model:
r1776.0: Status, transition I/f operation in the closed-loop controlled mode.
r1776.1: Status, activation state feedback.
r1776.2: Status, frequency is zero.

Index: [0] = rampTrans
[1] = rampFB
[2] = rampFZero

r1778 Motor model flux angle difference / MotMod ang. diff.

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Unit: [°] | **Calculated:** - | **Data set:** -

Description: Displays the difference between the motor model flux angle and the transformation angle.

p1780[0...n] Motor model adaptation configuration / MotMod adapt conf

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0101 1100 bin

Description: Sets the configuration for the adaptation circuit of the motor model.
Induction motor (ASM): Rs, 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	-
06	Select pole wheel identification PEM encoderless	Yes	No	-
07	Select T(valve) with Rs adaptation	Yes	No	-

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 de-activated 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.

p1781[0...n] Motor model Rs adaptation integral time / MotMod Rs Tn

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
10 [ms]	10000 [ms]	100 [ms]

Description: Sets the integral time for the Rs adaptation of the motor model for an induction motor (ASM).

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r1782[0...n] Motor model Rs adaptation corrective value / MotMod Rs corr

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Ohm] **Calculated:** - **Data set:** DDS, p0180

Description: Displays the corrective value for the Rs adaptation of the motor model for an induction motor (ASM).
Dependency: Refer to: p0826, p1780
Note: The display of the inactive data sets is only updated when changing over the data set.

p1783[0...n] Motor model Rs adaptation Kp / MotMod Rs Kp

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.000	1.000	0.100

Description: Sets the proportional gain for the Rs adaptation of the motor model for an induction motor (ASM).

p1785[0...n] Motor model Lh adaptation Kp / MotMod Lh Kp

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,4

Min	Max	Factory setting
0.000	1.000	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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,4

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** DDS, p0180

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.

r1789 Motor model Rs adaptation switch-in frequency / MotMod Rs f_on

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the power-on stator frequency for the Rs adaptation for the induction motor (ASM).

r1790 Motor model Rs adaptation power-on slip / MotMod Rs fslip

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the power-on slip frequency for the Rs adaptation for the induction motor (ASM).

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r1791 Motor model Lh adaptation power-on frequency / MotMod Lh f_on

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,4

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

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Unit: [Nm/A] **Calculated:** - **Data set:** DDS, p0180

Description: Displays the corrective value of the kT adaptation of the motor model for a permanent-magnet synchronous motor.
Dependency: Refer to: p0826, p1780
Note: The display of the inactive data sets is only updated when changing over the data set.

p1800[0...n] Pulse frequency setpoint / Pulse freq setp

Access level: 2 **P-Group:** Modulation **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
2.000 [kHz]	16.000 [kHz]	4.000 [kHz]

Description: Sets the drive converter switching frequency.
This parameter is preset to the rated converter value when the drive is first commissioned.
Dependency: Refer to: p0230
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 (de-rating, refer to r0067). 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 during commissioning (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

Access level: 2 **P-Group:** Displays, signals **Data type:** FloatingPoint32
Unit: [kHz] **Calculated:** - **Data set:** -

Description: Displays the actual converter switching frequency.
Index: [0] = Actual
[1] = Minimum value of the modulator
Note: The selected pulse frequency (p1800) may be reduced if the drive converter has overload condition (p0290).

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p1802[0...n] Modulator mode / Modulator mode

Access level: 3 | **P-Group:** Modulation | **Data type:** Integer16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0	4	0

Description: Sets the modulator mode.

Value:
0: Automatic changeover SVM/FLB
2: Space vector modulation (SVM)
3: SVM without overmodulation
4: SVM/FLB without overcontrol

Dependency: If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only space vector modulation without overcontrol can be selected as modulation type (p1802 = 3).
Refer to: p0230

Note: When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 2), the modulation depth must be limited using p1803 (pre-assignment, p1803 = 98%). 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.

p1803[0...n] Maximum modulation depth / Modulat depth max

Access level: 3 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

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 (or an ideal drive converter without any switching delay).

p1806[0...n] Filter time constant Vdc correction / T_filt Vdc_corr

Access level: 4 | **P-Group:** Closed-loop control | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

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.

r1808 DC link voltage actual value for V_max calculation / Vdc act val V_max

Access level: 4 | **P-Group:** Displays, signals | **Data type:** FloatingPoint32
Unit: [V] | **Calculated:** - | **Data set:** -

Description: DC link voltage used to determine the maximum possible output voltage.

r1809 CO: Modulator mode actual / Modulator mode act

Access level: 4 | **P-Group:** Modulation | **Data type:** Integer16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the effective modulator mode.

Value:
1: Flat top modulation (FLB)
2: Space vector modulation (SVM)

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p1810 Modulator configuration / Modulator config

Access level: 3 | **P-Group:** Modulation | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	0010 bin

Description: Sets the configuration for the modulator.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Avg value filter for V_lim (only for Vdc_comp. in modulator)	Yes	No	-
01	DC link voltage compensation in the current control	Yes	No	-

Notice: Bit 1 = 1 can only be set under a pulse inhibit and for r0192.14 = 1.

Note: Bit 00 = 0:

Voltage limitation from the minimum of the DC link voltage (lower ripple in the output current, reduced output voltage).

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).

Bit 01 = 0:

DC link voltage compensation in the modulator.

Bit 01 = 1:

DC link voltage compensation in the current control.

p1820[0...n] Reverse the output phase sequence / Outp_ph_seq rev

Access level: 2 | **P-Group:** Converter | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: C(2), T | **Calculated:** -

Min	Max	Factory setting
0	1	0

Description: Sets the phase sequence reversal for the motor without setpoint change.

If the motor does not rotate in the required direction, then the output phase sequence can be reversed using this parameter. This means that the direction of the motor is reversed without the setpoint being changed.

Value:
0: Off
1: On

Note: This setting can only be changed when the pulses are inhibited.

p1825 Converter valve threshold voltage / Threshold voltage

Access level: 4 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** p0340 = 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.

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p1828 Compensation valve lockout time phase U / Comp t_lock ph U

Access level: 4 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [µs]	3.99 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase U.
Note: The value is automatically calculated in the motor data identification routine.

p1829 Compensation valve lockout time phase V / Comp t_lock ph V

Access level: 4 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [µs]	3.99 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase V.

p1830 Compensation valve lockout time phase W / Comp t_lock ph W

Access level: 4 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.00 [µs]	3.99 [µs]	0.00 [µs]

Description: Sets the valve lockout time to compensate for phase W.

p1832 Dead time compensation current level / t_dead_comp I_lev

Access level: 4 | **P-Group:** Modulation | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** p0340 = 1

Min	Max	Factory setting
0.0 [Arms]	10000.0 [Arms]	0.0 [Arms]

Description: 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 factor setting of p1832 is automatically set to 0.02 * rated drive converter current (r0207).

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p1900 Motor data identification and rotating measurement / MotID and rot meas

Access level: 2	**P-Group:** Motor identification	**Data type:** Integer16
Quick comm. YES	**Active:** NO	**Data set:** -
Can be changed: C(1), T	**Calculated:** -	

Min	Max	Factory setting
0	3	0

Description: Sets the motor data identification and speed controller optimization.

p1900 = 0:
Function inhibited.

p1900 = 1:
Sets p1910 = 1 and p1960 = 0, 1 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.
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:
Sets p1910 = 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.

p1900 = 3:
Sets p1960 = 0, 1 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, a speed controller optimization by making measurements at different motor speeds.

Value:
0: Inhibited
1: Identifying motor data at standstill and with motor rotating
2: Motor data identification at standstill
3: Motor data identification for rotating motor

Dependency: Refer to: p1300, p1910, p1960

Refer to: A07980, A07981, F07983, F07984, F07985, F07986, F07988, F07990, A07991

Notice: To permanently accept the settings that have been determined, they must be saved in a non-volatile fashion (p0971).

Note: The motor and control parameters are only optimally set when both measurements are carried out (initially at standstill, and then with the motor rotating). 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 / Config test puls

Access level: 4	**P-Group:** Motor identification	**Data type:** Unsigned32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the configuration for the test pulse evaluation.

Settable options:
- Bit1: short-circuit test: check for conductor-to-conductor short-circuit when pulse is enabled.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Test pulse for phase short-circuit active	Yes	No	-

Note: For short-circuit test:
If the test was successful after POWER ON (see r1902.0), it is not repeated.
If a conductor-to-conductor short-circuit is detected during the test, this is displayed in r1902.1.

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r1902 Test pulse evaluation status / Status test puls

Access level: 4 **P-Group:** - **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** -

Description: Status display of test pulse evaluation.

Short-circuit test:

Bit0: No faults detected during short-circuit test.

Bit1: Phase short-circuit detected.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Short-circuit test	Executed	Not executed	-
01	Phase short-circuit detected	Yes	no	-

p1909[0...n] Motor data identification control word / MotID STW

Access level: 3 **P-Group:** Motor identification **Data type:** Unsigned16

Quick comm. NO **Active:** NO **Data set:** MDS

Can be changed: T **Calculated:** p0340 = 1

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the configuration of the motor data identification.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Stator inductance estimate no measurement	Yes	No	-
02	Rotor time constant estimate no measurement	Yes	No	-
03	Leakage inductance estimate no measurement	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	-

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 V/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.

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p1910 Motor data identification selection / MotID selection

Access level: 3	**P-Group:** Motor identification	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	20	0

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.

p1910 = 20:

Only for internal SIEMENS use.

Value:
0: Inhibited
1: Complete identification (ID) and acceptance of motor data
2: Complete identification (ID) of motor data without acceptance
20: Voltage vector input

Dependency: "Quick commissioning" must be carried out (p0010 = 1, p3900 > 0) before executing the motor data identification routine!

When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1900

Caution: 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.

Notice: To permanently accept the settings that have been determined, they must be saved in a non-volatile fashion (p0971).

Note: When setting p1910, the following should be observed:

1. "With transfer" means:

The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.

2. "Without transfer" means:

The identified parameters are only displayed in the range r1912 ... r1926 (service parameters). The controller settings remain unchanged.

p1911 Number of phases to be identified / Qty ph to ident

Access level: 4	**P-Group:** Motor identification	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

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.

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r1912[0...2] Identified stator resistance / R_stator ident

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [Ohm] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [ms] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

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r1918[0...2] Identified stator inductance 3 / L_stator 3 ident

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [mH] **Calculated:** - **Data set:** -

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

r1925[0...2] Identified threshold voltage / V_threshold ident

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [Vrms] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [µs] **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [Ohm] **Calculated:** - **Data set:** -

Description: Displays the identified rotor resistance
Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

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p1959[0...n] Rotating measurement configuration / Rot meas config

Access level: 3	**P-Group:** Motor identification	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
-	-	0001 1110 bin

Description: Sets the configuration of the rotating measurement.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Saturation characteristic identification	Yes	No	-
02	Moment of inertia identification	Yes	No	-
03	Recalculates the speed controller parameters	Yes	No	-
04	Speed controller optimization, (vibration test)	Yes	No	-

Dependency: Refer to: F07988

Note: The following parameters are influenced for the individual optimization steps:

Bit 01: p0320, p0360, p0362 ... p0369

Bit 02: p0341, p0342

Bit 03: p1400.0, p1458, p1459, p1463, p1470, p1472, p1496

Bit 04: Dependent on p1960

p1960 = 1, 3: p1400.0, p1458, p1459, p1470, p1472, p1496

p1960 Rotating measurement selection / Rot meas sel

Access level: 3	**P-Group:** Motor identification	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	
Min	**Max**	**Factory setting**
0	3	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 (V/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.

Value:
0: Inhibited
1: Rotating measurement in encoderless operation
3: Speed controller optimization for encoderless operation

Dependency: Before the rotating measurement is carried out, the motor data identification routine (p1900, p1910, r3925) should have already been done.

When selecting the rotating measurement, the drive data set changeover is suppressed.

Refer to: p1300, p1900, p1959

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: To permanently accept the settings that have been determined, they must be saved in a non-volatile fashion (p0971).

Note: When the rotating measurement is activated, it is not possible to save the parameters (p0971).

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.

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p1961 Saturation characteristic speed to determine / Sat_char n determ

Access level: 3 | **P-Group:** Motor identification | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
26 [%]	75 [%]	40 [%]

Description: Sets the speed to determine the saturation characteristic.
The percentage value is referred to p0310 (rated motor frequency).

Dependency: Refer to: p0310, p1959
Refer to: F07983

Note: The saturation characteristics should be determined at an operating point with the lowest possible load.

p1965 Speed_ctrl_opt speed / n_opt speed

Access level: 3 | **P-Group:** Motor identification | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

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
Refer to: F07984, F07985

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 bit 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

Access level: 3 | **P-Group:** Motor identification | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
1 [%]	400 [%]	100 [%]

Description: Sets the dynamic response factor for speed controller optimization.

Dependency: For power units with a reduced DC link capacitance (e.g. PM250), the dynamic response of the controller is set to 40%.
Refer to: p1959
Refer to: F07985

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).

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r1968 Speed_ctrl_opt dynamic factor actual / n_opt dyn_fact act

Access level: 3 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the dynamic factor which is actually achieved for the vibration test
Dependency: Refer to: p1959, p1967
Refer to: F07985
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

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [kgm²] **Calculated:** - **Data set:** -

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
Refer to: F07984

r1970[0...1] Speed_ctrl_opt vibration test vibration frequency determined / n_opt f_vibration

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [Hz] **Calculated:** - **Data set:** -

Description: Displays the vibration frequencies determined by the vibration test.
Index: [0] = Frequency low
[1] = Frequency high
Dependency: Refer to: p1959
Refer to: F07985

p1980[0...n] Pole position identification technique / PolID technique

Access level: 4 **P-Group:** Motor identification **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** MDS
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
1	10	4

Description: Sets the pole position identification technique.
Value:
1: Voltage pulsing, first harmonic
4: Voltage pulsing, 2-stage
6: Voltage pulsing, 2-stage invert
10: DC current impression
Dependency: Refer to: p1780
Note: Voltage pulse technique (p1980 = 1, 4) cannot be applied to operation with sine-wave output filters (p0230).

r1984 Pole position identification, angular difference / PolID ang diff

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [°] **Calculated:** - **Data set:** -

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, r1985, r1987
Note: When the pole position identification routine is executed several times, 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.

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r1985 Pole position identification, saturation characteristic / PolID sat_char

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [Arms] **Calculated:** - **Data set:** -

Description: Displays the saturation characteristic of the pole position identification routine.
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).

Dependency: Refer to: p0325, p0329, p1980, r1984, r1987

r1987 Pole position identification trigger characteristic / PolID trig_char

Access level: 4 **P-Group:** Motor identification **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

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, r1984, r1985

Note: 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.

p1999[0...n] Ang. commutation offset calibr. and pole position ID - scaling / ComOffsCalib scal

Access level: 4 **P-Group:** Closed-loop control **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** MDS
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
10 [%]	5000 [%]	100 [%]

Description: Sets the scaling for the runtime of the pole position identification technique in which the current is impressed.

Dependency: Refer to: p0341, p0342

Caution: For P1999 > 100% (setting, large moments of inertia) :
There is no locked rotor monitoring (A7970.2).

Note: For high moments of inertia, it is practical to scale the runtime of the calibration higher.

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p2000 Reference speed reference frequency / Ref_n Ref_f

Access level: 2	**P-Group:** Communications	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.20 [Hz]	650.00 [Hz]	50.00 [Hz]

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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

The following applies: Reference frequency (in Hz) = reference speed (in (rpm) / 60)

Dependency: p2000 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

Refer to: p2001, p2002, p2003, r2004

Note: 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. r0755[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 normalization 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).

p2001 Reference voltage / Reference voltage

Access level: 3	**P-Group:** Communications	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** p0340 = 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.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p2001 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

Note: 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.

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p2002 Reference current / Reference current

Access level: 3	**P-Group:** Communications	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** p0340 = 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p2002 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

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 must be taken into account.

Example:

p2002 = 100 A

Reference quantity 100 A corresponds to 100 %

p305[0] = 100 A

Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current

p305[1] = 50 A

Rated motor current 50 A for MDS1 in DDS1 --> 100 % corresponds to 200 % of the rated motor current

Note: 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, that 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 / Reference torque

Access level: 3	**P-Group:** Communications	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** p0340 = 1	
Min	**Max**	**Factory setting**
0.01 [Nm]	20000000.00 [Nm]	1.00 [Nm]

Description: Sets the reference quantity for torques.

All torques specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p2003 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

Note: 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.

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r2004 Reference power / Reference power

Access level: 3 | **P-Group:** Communications | **Data type:** FloatingPoint32
Unit: [kW] | **Calculated:** - | **Data set:** -

Description: Displays the reference quantity for power ratings.
All power ratings specified as relative value are referred to this reference quantity.
The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

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

Access level: 4 | **P-Group:** Communications | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** p0340 = 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p2005 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2007 Reference acceleration / Ref accel

Access level: 4 | **P-Group:** Communications | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** p0340 = 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: p2007 is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero.

Note: 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:
p2007 = p2000 / 1 [s]

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p2010 Comm interface baud rate / Comm baud

Access level: 3 | **P-Group:** Communications | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
4	12	12

Description: Sets the baud rate for the commissioning interface (USS, RS232).

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

Note: Commissioning interface

p2011 Comm int address / Comm add

Access level: 3 | **P-Group:** Communications | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
0	31	2

Description: Sets the address for the commissioning interface (USS, RS232).

r2019[0...7] Comm int error statistics / Comm err

Access level: 4 | **P-Group:** Communications | **Data type:** Unsigned32
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the receive errors at the commissioning interface (USS, 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

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p2020 Field bus interface baud rate / Field bus baud

CU230P-2 HVAC	**Access level:** 2	**P-Group:** Communications	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	4	13	8

Description: Sets the baud rate for the field bus interface (RS485).

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: Changes only become effective after POWER ON.
Field bus interface
When p2030 = 1 (USS), the following applies:
Min./max./factory setting: 4/13/8
When p2030 = 2 (MODBUS), the following applies:
Min./max./factory setting: 5/7/7

p2021 Field bus interface address / Field bus address

CU230P-2 HVAC	**Access level:** 2	**P-Group:** Communications	**Data type:** Unsigned16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	247	0

Description: Sets the address for the field bus interface.
Dependency: Refer to: p2030
Note: Changes only become effective after POWER ON.
When p2030 = 1 (USS), the following applies:
Min./max./factory setting: 0/30/0
When p2030 = 2 (MODBUS), the following applies:
Min./max./factory setting: 1/247/1

p2022 Field bus int USS PZD no. / Field bus USS PZD

CU230P-2 HVAC	**Access level:** 2	**P-Group:** Communications	**Data type:** Unsigned16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	8	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

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p2023 Field bus int USS PKW no. / Field bus USS PKW

CU230P-2 HVAC	**Access level:** 2	**P-Group:** Communications	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	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

p2024[0...2] Field bus int MODBUS times / Field bus MODBUS t

CU230P-2 HVAC	**Access level:** 3	**P-Group:** Communications	**Data type:** FloatingPoint32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0 [ms]	10000 [ms]	1000 [ms]

Description: Sets the time values for the processing, character, and telegram times for MODBUS.

p2024[0]:

maximum permissible telegram processing time of the MODBUS slave in which a reply is sent back to the MODBUS master.

p2024[1]:

Character delay time (time between individual characters in the MODBUS telegram).

p2024[2]:

Time between telegrams (pause interval between two telegrams).

Index:
[0] = Max. processing time
[1] = Character delay time
[2] = Telegram pause time

Dependency: Refer to: p2020, p2030

Note: Re p2024[1,2]:

If the field bus baud rate is changed (p2020), the default time settings are restored.

The default setting is the time required for 1.5 characters (p2024[1]) or 3.5 characters (p2024[2]) (depending on the set baud rate).

r2029[0...7] Field bus int error statistics / Field bus error

CU230P-2 HVAC	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the receive errors on the field bus interface (RS485).

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

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p2030 Field bus int protocol selection / Field bus protocol

CU230P-2 HVAC

Access level: 1 **P-Group:** Communications **Data type:** Integer16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	2	0

Description: Sets the communication protocol for the field bus interface.

Value:
0: No protocol
1: USS
2: MODBUS

Note: Changes only become effective after POWER ON.

p2030 Field bus int protocol selection / Field bus protocol

CU230P-2 DP

Access level: 1 **P-Group:** Communications **Data type:** Integer16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	3	3

Description: Sets the communication protocol for the field bus interface.

Value:
0: No protocol
3: PROFIBUS

Note: Changes only become effective after POWER ON.

p2030 Field bus int protocol selection / Field bus protocol

CU230P-2 CAN

Access level: 1 **P-Group:** Communications **Data type:** Integer16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	4	4

Description: Sets the communication protocol for the field bus interface.

Value:
0: No protocol
4: CAN

Note: Changes only become effective after POWER ON.

r2032 Master control, control word effective / PcCtrl STW eff

Access level: 3 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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

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p2037 PROFIdrive STW1.10 = 0 mode / PD STW1.10=0 mode

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

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: Setpoints are not frozen

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 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

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
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.

p2039 Select debug monitor interface / Sel. debug monitor

Access level: 4 **P-Group:** Communications **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	3	0

Description: The serial interface for the debug monitor is COM1 (X140) or COM2 (internal).

Value = 0: COM2 (internal)

Value = 1: COM1 (X140), PPI is de-activated

p2040 Fieldbus interface monitoring time / Fieldbus t_monit

CU230P-2 HVAC

Access level: 3 **P-Group:** Communications **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0 [ms]	65535000 [ms]	100 [ms]

Description: Sets the monitoring time to monitor the process data received via fieldbus or COMM BOARD. If no process data is received within this time, an appropriate message is output.

Note: 0: The monitoring is de-activated.

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p2042 PROFIBUS Ident Number / PB Ident No.

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** Integer16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

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 S/G
1: VIK-NAMUR

Note: Every change only becomes effective after a POWER ON.

r2043.0 BO: PROFIdrive PZD state / PD PZD state

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: Displays the PROFIdrive PZD state.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint failure	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 PROFIdrive fault delay / PD fault delay

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

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
Refer to: F01910

p2047 PROFIBUS additional monitoring time / PB suppl t_monit

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0 [ms]	2000 [ms]	0 [ms]

Description: Sets the additional monitoring time to monitor the process data received via PROFIBUS.

The additional monitoring time enables compensation for short bus faults.

If no process data is received within this time, an appropriate message is output.

Dependency: Refer to: F01910

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p2048 PROFIdrive PZD sampling time / PZD t_sample

CU230P-2 DP
CU230P-2 HVAC

Access level: 3 **P-Group:** Communications **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: C(3) **Calculated:** -

Min	Max	Factory setting
1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the process data communication (PZD).

p2048 PROFIdrive PZD sampling time / PZD t_sample

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: C(3) **Calculated:** -

Min	Max	Factory setting
4.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the process data communication (PZD).

r2050[0...7] CO: PROFIBUS PZD receive word / PZD recv word

Access level: 3 **P-Group:** Communications **Data type:** Integer16
Unit: - **Calculated:** - **Data set:** -

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus master.
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

p2051[0...7] CI: PROFIdrive PZD send word / PZD send word

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3 **P-Group:** Communications **Data type:** U32 / Integer16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus master.
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
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

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p2051[0...7] CI: PROFIdrive PZD send word / PZD send word

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** U32 / Integer16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	2089[0]

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus master.

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

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r2053[0...7] PROFIdrive diagnostics send PZD word / Diag send word

	Access level: 3	**P-Group:** Communications	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the PZD (actual values) with word format sent to the fieldbus master.

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

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	-

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r2054 PROFIBUS status / PB status

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** Integer16
	Unit: -	**Calculated:** -	**Data set:** -

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 with the PROFIBUS master, but the following condition for cyclic operation has not been fulfilled:

- No setpoints are being received as the PROFIBUS master is in the STOP condition.

Re r2054 = 4:

In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received.

r2055[0...2] PROFIBUS diagnostics standard / PB diag standard

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

Description: Diagnostics display for the PROFIBUS interface.

Index:
[0] = Master bus address
[1] = Master input total length bytes
[2] = Master output total length bytes

r2075[0...7] PROFIdrive diagnostics telegram offset PZD receive / Diag offs recv

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master 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

Note: Value range:

0 - 242: Byte offset

65535: Not occupied

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r2076[0...7] PROFIdrive diagnostics telegram offset PZD send / Diag offs send

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master 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

Note: Value range:
0 - 242: Byte offset
65535: Not occupied

p2079 PROFIdrive PZD telegram selection extended / PD PZD telegr ext

CU230P-2 DP	**Access level:** 3	**P-Group:** Communications	**Data type:** Integer16
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	1	999	1

Description: Sets the send and receive telegram.
Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.
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.

Value:
1: Standard telegram 1, PZD-2/2
20: Standard telegram 20, PZD-2/6
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Dependency: Refer to: p0922

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p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1

CU230P-2 CAN
CU230P-2 HVAC

Access level: 3 **P-Group:** Communications **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
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.

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	899.0

Description: Selects bits to be sent to the fieldbus master.
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.

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p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2

Access level: 3	**P-Group:** Communications	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
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.

p2082[0...15] BI: Binector-connector converter status word 3 / Bin/con ZSW3

Access level: 3	**P-Group:** Communications	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
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.

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p2083[0...15] BI: Binector-connector converter status word 4 / Bin/con ZSW4

Access level: 3	**P-Group:** Communications	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
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

Access level: 3	**P-Group:** Communications	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
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

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p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned16
CU230P-2 HVAC	**Quick comm.** NO	**Active:** NO	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	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

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p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

CU230P-2 DP

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	1010 1000 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

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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.

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r2090.0...15 BO: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIBUS master.

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	-

r2091.0...15 BO: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIBUS master.

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	-

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r2092.0...15 BO: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIBUS master.

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	-

r2093.0...15 BO: PROFIdrive PZD4 receive bit-serial / PZD4 recv bitw

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIBUS master.

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	-

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r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial onward interconnection of a PZD word received from the fieldbus master.
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

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Binector output for bit-serial interconnection of a PZD word received from the fieldbus master.
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

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p2098[0...1] Inverter connector-binector converter binector output / Con/bin outp inv

Access level: 3	**P-Group:** Communications	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.

Using p2098[0], the signals of CI: p2099[0] are influenced.

Using p2098[1], the signals of CI: 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

Access level: 3	**P-Group:** Communications	**Data type:** U32 / Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

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p2100[0...19] Setting the fault number for fault response / F_no F response

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

p2101[0...19] Setting the fault response / Fault response

Access level: 3	**P-Group:** Messages	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	6	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 brake

Dependency: The fault is selected and the required response is set under the same index.
Refer to: p2100

Notice: It is not possible to re-parameterize the response to a specific fault for faults that are already present (queued).

Note: OFF1:
Braking along the ramp-function generator down ramp followed by a pulse inhibit.
OFF2:
Internal/external pulse inhibit.
OFF3:
Braking along the OFF3 down ramp followed by a pulse inhibit.
STOP2:
n_set = 0
The fault response can only be changed for faults with the appropriate identification.
IASC / DC BRAKE:
a) A DC brake is not possible for synchronous motors.
b) A DC brake is possible for induction motors.
Example:
F12345 and fault response = NONE (OFF1, OFF2) --> The NONE fault response can be changed to either OFF1 or OFF2.

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p2103[0...n] BI: 1. Acknowledge faults / 1. Acknowledge

CU230P-2 CAN
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Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

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[0...n] BI: 1. Acknowledge faults / 1. Acknowledge

CU230P-2 DP

Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	2090.7

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

Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	722.2

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

Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

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

Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external fault 1.
Dependency: Refer to: F07860
Note: An external fault is triggered with a 1/0 signal.

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p2107[0...n] BI: External fault 2 / External fault 2

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external fault 2.

Dependency: Refer to: F07861

Note: An external fault is triggered with a 1/0 signal.

p2108[0...n] BI: External fault 3 / External fault 3

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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
Refer to: F07862

Note: An external fault is triggered with a 1/0 signal.

r2109[0...63] Fault time removed in milliseconds / t_flt resolved ms

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned32
Unit: [ms]	**Calculated:** -	**Data set:** -

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2130, r2133, r2136, p8400

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

Access level: 2	**P-Group:** Messages	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

Description: This parameter is identical to r2122.

p2111 Alarm counter / Alarm counter

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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.

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p2112[0...n] BI: External alarm 1 / External alarm 1

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 1.
Dependency: Refer to: A07850
Note: An external alarm is triggered with a 1/0 signal.

r2114[0...1] System runtime / System runtime

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned32
Unit: -	**Calculated:** -	**Data set:** -

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: When the electronics power supply is switched out, the counter value is saved.
After the drive unit is powered up, the counter continues to run with the value that was saved the last time that the drive unit was powered down.

p2116[0...n] BI: External alarm 2 / External alarm 2

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 2.
Dependency: Refer to: A07851
Note: An external alarm is triggered with a 1/0 signal.

p2117[0...n] BI: External alarm 3 / External alarm 3

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	1

Description: Sets the signal source for external alarm 3.
Dependency: Refer to: A07852
Note: An external alarm is triggered with a 1/0 signal.

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p2118[0...19] Sets the message number for message type. / Msg_no Msg_type

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Notice: It is not possible to re-parameterize the message type in the following cases:
- if there is no existing message number.
- if a message is present.

p2119[0...19] Setting the message type / Message type

Access level: 3	**P-Group:** Messages	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Notice: It is not possible to re-parameterize the message type for the existing faults or alarms.

Note: The message type can only be changed for messages with the appropriate identification.
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

Access level: 4	**P-Group:** Messages	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

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

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

Description: This counter is incremented every time the alarm buffer changes.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125

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r2122[0...63] Alarm code / Alarm code

Access level: 2 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the number of alarms that have occurred.
Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146
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

Access level: 3 **P-Group:** Messages **Data type:** Unsigned32
Unit: [ms] **Calculated:** - **Data set:** -

Description: Displays the system runtime in milliseconds when the alarm occurred.
Dependency: Refer to: r2110, r2122, r2124, r2125, r2134, r2145, r2146, p8400
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

Access level: 3 **P-Group:** Messages **Data type:** Integer32
Unit: - **Calculated:** - **Data set:** -

Description: Displays additional information about the active alarm (as integer number).
Dependency: Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146
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

Access level: 3 **P-Group:** Messages **Data type:** Unsigned32
Unit: [ms] **Calculated:** - **Data set:** -

Description: Displays the system runtime in milliseconds when the alarm was cleared.
Dependency: Refer to: r2110, r2122, r2123, r2124, r2134, r2145, r2146, p8400
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.

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p2126[0...19] Setting fault number for acknowledge mode / Fault_no ackn_mode

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Notice: It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:
- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

p2127[0...19] Sets acknowledgement mode / Acknowledge mode

Access level: 3	**P-Group:** Messages	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
1	2	1

Description: Sets the acknowledge mode for selected fault.

Value:
1: Acknowledgement only using POWER ON
2: IMMEDIATE acknowledged after the fault cause has been removed

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 of a fault in the following cases:
- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

Note: The acknowledge mode can only be changed for faults with the appropriate identification.
Example:
F12345 and acknowledge mode = POWER ON (IMMEDIATELY) --> The acknowledge mode can be changed from POWER ON to IMMEDIATELY.

p2128[0...15] Selecting fault/alarm code for trigger / Message trigger

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	65535	0

Description: Selects faults or alarms which can be used as trigger.

Dependency: Refer to: r2129

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r2129.0...15 CO/BO: Trigger word for faults and alarms / Trigger word

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Trigger signal for the selected faults and alarms

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 one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output 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

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the system runtime in days when the fault occurred.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2133, r2136, p8401

Notice: The time comprises r2130 (days) and r0948 (milliseconds).
The value displayed in p2130 refers to 01.01.1970.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2131 CO: Actual fault code / Actual fault code

Access level: 2 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the code of the oldest active fault.

Note: 0: No fault present.

r2132 CO: Actual alarm code / Actual alarm code

Access level: 2 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

Description: Displays additional information about the fault that occurred for float values.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

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r2134[0...63] Alarm value for float values / Alarm value float

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32
Unit: - **Calculated:** - **Data set:** -

Description: Displays additional information about the active alarm for float values.
Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2135.12...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the second status word of faults and alarms.
Bit field:

Bit	Signal name	1 signal	0 signal	FP
12	Fault motor overtemperature	Yes	No	-
13	Fault thermal overload power unit	Yes	No	-
14	Alarm motor overtemperature	Yes	No	-
15	Alarm power unit thermal overload	Yes	No	-

r2136[0...63] Fault time removed in days / t_flt resolv. days

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the system runtime in days when the fault was removed.
Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, p8401
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

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the control word of the faults and alarms.
Bit field:

Bit	Signal name	1 signal	0 signal	FP
07	Acknowledge fault	Yes	No	-
10	External alarm 1 (A07850) effective	Yes	No	-
11	External alarm 2 (A07851) effective	Yes	No	-
12	External alarm 3 (A07852) effective	Yes	No	-
13	External fault 1 (F07860) effective	Yes	No	-
14	External fault 2 (F07861) effective	Yes	No	-
15	External fault 3 (F07862) effective	Yes	No	-

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

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r2139.0...12 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

Access level: 2 **P-Group:** Displays, signals **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the first status word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Being acknowledged	Yes	No	-
03	Fault present	Yes	No	-
06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	-
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-

Note: Re bit 03, 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"/"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 bits 11, 12:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only for automation systems with SINAMICS functionality (e.g. SINUMERIK).

Bits 12, 11 = 0, 0 --> Alarm class 0

Bits 12, 11 = 0, 1 --> Alarm class A

Bits 12, 11 = 1, 0 --> Alarm class B

Bits 12, 11 = 1, 1 --> Alarm class C

p2140[0...n] Hysteresis speed 2 / n_hysteresis 2

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	300.00 [Hz]	90.00 [Hz]

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

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32

Quick comm. NO **Active:** NO **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	0.16 [Hz]

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

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p2142[0...n] Hysteresis speed 1 / n_hysteresis 1

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	10.00 [Hz]	0.06 [Hz]

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

Access level: 4 | **P-Group:** - | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

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
Refer to: F07900
Note: If the enable signal is connected to 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

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the system runtime in days when the alarm occurred.
Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2146, p8401
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

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the system runtime in days when the alarm was cleared.
Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2145, p8401
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).

p2148[0...n] BI: Ramp-function generator active / HLG active

Access level: 3 | **P-Group:** Messages | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

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.

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p2149[0...n] Monitoring configuration / Monit config

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
-	-	1001 bin

Description: Configuration word for signals and monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable alarm A07903	Yes	No	8010
01	Load monitoring only in the 1st quadrants	Yes	No	8013
03	n_act > p2155 own hysteresis	Yes	No	8010

Dependency: Refer to: r2197

Refer to: A07903

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, the 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 bit 1 and bit 2 are determined via separate hystereses.

p2150[0...n] Hysteresis speed 3 / n_hysteresis 3

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,5	
Min	**Max**	**Factory setting**
0.00 [Hz]	10.00 [Hz]	0.06 [Hz]

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

Access level: 3	**P-Group:** Messages	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	
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

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p2152[0...n] Delay for comparison n > n_max / Del n > n_max

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	200 [ms]

Description: Delay time for the comparison of the speed with the maximum speed.
Dependency: Refer to: p1082, r1084, r1087, p2162

p2153[0...n] Speed actual value filter time constant / n_act_filt T

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

p2155[0...n] Speed threshold 2 / n_thresh val 2

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	30.00 [Hz]

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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

p2157[0...n] Speed threshold 5 / n_thresh val 5

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	30.00 [Hz]

Description: Sets the speed threshold value for the following messages:
"|n_act| < = speed threshold value 5" (BO: r2198.0)
"|n_act| > speed threshold value 5" (BO: r2198.1)
Dependency: Refer to: p2150, p2158

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p2158[0...n] Delay for n_act comparison with speed threshold value 5 / t_del n comp n_5

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	10 [ms]

Description: Delay time for the comparison of the speed with the speed threshold value 5 (P2157).
Dependency: Refer to: p2150, p2157

p2159[0...n] Speed threshold 6 / n_thresh val 6

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	30.00 [Hz]

Description: Sets the speed threshold value for the following messages:
"|n_act| < = speed threshold value 6" (BO: r2198.2)
"|n_act| > speed threshold value 6" (BO: r2198.3)
Dependency: Refer to: p2150, p2160

p2160[0...n] Delay for n_act comparison with speed threshold value 6 / t_del n comp n_6

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	10 [ms]

Description: Delay time for the comparison of the speed with the speed threshold value 6 (P2159).
Dependency: Refer to: p2150, p2159

p2161[0...n] Speed threshold 3 / n_thresh val 3

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	0.16 [Hz]

Description: Sets the speed threshold value for the signal "|n_act| < speed threshold value 3" (BO: r2199.0).
Dependency: Refer to: p2150, r2199

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p2162[0...n] Hysteresis speed n_act > n_max / Hyst n_act>n_max

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	2000.00 [Hz]	0.00 [Hz]

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: p1082 + p2162 <= 1.02 * p0322

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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	3.00 [Hz]

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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	6.66 [Hz]	0.06 [Hz]

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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

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p2167[0...n] Switch-on delay n_act = n_set / t_on n_act=n_set

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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

Access level: 2 | **P-Group:** Messages | **Data type:** FloatingPoint32
Unit: [Hz] | **Calculated:** - | **Data set:** -

Description: Displays the smoothed actual speed for messages/signals.
Dependency: Refer to: p2153

p2170[0...n] Current threshold value / I_thres

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the absolute current threshold for the messages.
"I_act >= I_threshold p2170" (BO: r2197.8)
"I_act < I_threshold p2170" (BO: r2198.8)
Dependency: Refer to: p2171

p2171[0...n] Delay time current threshold value reached / t_del curr thresh

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	10 [ms]

Description: Delay comparison of the absolute current r0068 with the threshold value p2170.
Dependency: Refer to: p2170

p2172[0...n] DC link voltage, threshold value / Vdc thresh val

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [V]	2000 [V]	800 [V]

Description: Sets the DC link voltage threshold value for the messages:
"Vdc_act <= Vdc_threshold p2172" (BO: r2197.9)
"Vdc_act > Vdc_threshold p2172" (BO: r2197.10)
Dependency: Refer to: p2173

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p2173[0...n] Delay time Vdc comparison / t_del Vdc

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	10 [ms]

Description: Delay time for the comparison of the DC link voltage r0070 with the threshold value p2172.
Dependency: Refer to: p2172

p2174[0...n] Torque threshold value 1 / M_thresh val 1

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

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 locked speed threshold / Mot lock n_thresh

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	1.00 [Hz]

Description: Sets the speed threshold for the message "Motor locked" (BO: r2198.6).
Dependency: Refer to: p0500, p2177, r2198

p2176[0...n] Delay time for the torque threshold value / t_del_M_thresh

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	200 [ms]

Description: Delay time for the comparison of the absolute torque actual value r0080 with the threshold value p2174.
Dependency: Refer to: p2174

p2177[0...n] Motor locked delay time / Mot lock t_del

Access level: 3 **P-Group:** Messages **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.000 [s]	65.000 [s]	3.000 [s]

Description: Sets the delay time for the message "Motor locked" (BO: r2198.6).
If "Motor locked" is identified within this time, then ZSW2.6 is set and an appropriate fault is output.
Dependency: Refer to: p0500, p2175, r2198

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p2178[0...n] Motor stalled delay time / Mot stall t_del

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3

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).
If "Motor stalled" is identified within this time, then ZSW2.7 is set and an appropriate fault is output.
Dependency: Refer to: r2198

p2179[0...n] Current limit for the output load identification / Curr lim load id

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** p0340 = 1,3,5

Min	Max	Factory setting
0.00 [Arms]	1000.00 [Arms]	0.00 [Arms]

Description: Current threshold value for the output load identification.
Dependency: Refer to: p2180
Notice: For synchronous motors under no load conditions, the output current can be almost zero.
Note: A missing output load condition exists if the motor is either not connected or a phase has failed.

p2180[0...n] Delay time for missing output load / t_del no load

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0 [ms]	10000 [ms]	2000 [ms]

Description: Delay time when identifying that there is no output load.
Dependency: Refer to: p2179

p2181[0...n] Load monitoring response / Load monit resp

Access level: 3 | **P-Group:** Messages | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

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, p2193, r2198, p3230, p3231
Refer to: A07920, A07921, A07922, F07923, F07924, F07925
Note: The response to the faults F07923 ... F07925 can be set. F07926 is evaluated only if p2181 is not zero. This parameter setting has no effect on the production of fault F07936.

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p2182[0...n] Load monitoring speed threshold value 1 / n_thresh 1

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	5.00 [Hz]

Description: Sets the speed/torque envelop curve for the 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
Refer to: A07926

p2183[0...n] Load monitoring speed threshold value 2 / n_thresh 2

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	30.00 [Hz]

Description: Sets the speed/torque envelop curve for the 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
Refer to: A07926

p2184[0...n] Load monitoring speed threshold value 3 / n_thresh 3

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	50.00 [Hz]

Description: Sets the speed/torque envelop curve for the 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
Refer to: A07926

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p2185[0...n] Load monitoring torque threshold 1, upper / M_thresh 1 upper

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2185 > p2186
Refer to: p2182, p2186
Refer to: A07926
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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2186 < p2185
Refer to: p2182, p2185
Refer to: A07926
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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2187 > p2188
Refer to: p2183, p2188
Refer to: A07926
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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2188 < p2187
Refer to: p2183, p2187
Refer to: A07926
Note: The lower envelope curve is defined by p2186, p2188 and p2190.

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p2189[0...n] Load monitoring torque threshold 3, upper / M_thresh 3 upper

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	10000000.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2189 > p2190
Refer to: p2184, p2190
Refer to: A07926
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

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [Nm]	20000000.00 [Nm]	0.00 [Nm]

Description: Sets the speed/torque envelop curve for the load monitoring.
Dependency: The following applies: p2190 < p2189
Refer to: p2184, p2189
Refer to: A07926
Note: The lower envelope curve is defined by p2186, p2188 and p2190.

p2192[0...n] Load monitoring delay time / Load monit t_del

Access level: 3 | **P-Group:** Messages | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [s]	65.00 [s]	10.00 [s]

Description: Sets the delay time to evaluate the load monitoring.

p2193[0...n] Load monitoring configuration / Load monit config

Access level: 3 | **P-Group:** Messages | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	3	1

Description: Configuration of the load monitoring.
Value:
0: Monitoring switched out
1: Monitoring torque and load drop
2: Monitoring speed and load drop
3: Monitoring load drop
Dependency: Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, p2192, r2198, p3230, p3231, p3232
Refer to: A07920, A07921, A07922, F07923, F07924, F07925, F07936

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p2194[0...n] Torque threshold value 2 / M_thresh val 2

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,5	

Min	Max	Factory setting
0.00 [%]	100.00 [%]	90.00 [%]

Description: Sets the torque/force threshold value for the signal "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

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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] Scaling torque utilization / Factor M_utilize

Access level: 1	**P-Group:** Motor	**Data type:** FloatingPoint32
Quick comm. YES	**Active:** NO	**Data set:** DDS, p0180
Can be changed: C(1, 3), U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling factor for r0033.

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r2197.0...12 CO/BO: Status word monitoring 1 / ZSW monitor 1

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

Description: Displays the first status word for monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	|n_act| <= n_min p1080	Yes	No	8020
01	|n_act| <= speed threshold value 2	Yes	No	8010
02	|n_act| > speed threshold value 2	Yes	No	8010
03	n_act >= 0	Yes	No	8010
04	|n_act| >= n_set	Yes	No	8020
05	|n_act| <= n_standstill p1226	Yes	No	8020
06	|n_act| > n_max	Yes	No	8010
07	Speed setp - act val deviation in tolerance t_off	Yes	No	8010
08	I_act >= I_threshold value p2170	Yes	No	8020
09	Vdc_act <= Vdc_threshold value p2172	Yes	No	8020
10	Vdc_act > Vdc_threshold value p2172	Yes	No	8020
11	Output load is not present	Yes	No	8020
12	|n_act| > n_max (delayed)	Yes	No	8021

Notice:

Re bit 06:

When the overspeed is reached, this bit is set and F07901 output immediately following this. The bit is canceled again as soon as the next pulse inhibit is present.

Note:

Re bit 00:

The threshold value is set in p1080 and the hysteresis in p2150.

Re bit 01, 02:

The threshold value is set in p2155 and the hysteresis in p2140.

Re bit 03:

1 signal direction of rotation positive.

0 signal: direction of rotation negative.

The hysteresis is set in p2150.

Re bit 04:

The threshold value is set in r1119 and the hysteresis in p2150.

Re bit 05:

The threshold value is set in p1266 and the delay time in p1228.

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 08:

The threshold value is set in p2170 and the delay time in p2171.

Re bit 09, 10:

The threshold value is set in p2172 and the delay time in p2173.

Re bit 11:

The threshold value is set in p2179 and the delay time in p2180.

Re bit 12:

The threshold value is set in p2182, the hysteresis in p2162, and the delay time (for canceling the signal) in p2152.

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r2198.0...13 CO/BO: Status word monitoring 2 / ZSW monitor 2

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the second status word for monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	|n_act| <= speed threshold value 5	Yes	No	8021
01	|n_act| > speed threshold value 5	Yes	No	8021
02	|n_act| <= speed threshold value 6	Yes	No	8021
03	|n_act| > speed threshold value 6	Yes	No	8021
04	|n_set| < p2161	Yes	No	8010
05	n_set > 0	Yes	No	8010
06	Motor locked	Yes	No	8012
07	Motor stalled	Yes	No	8012
08	|I_act| < I_threshold value p2170	Yes	No	8020
09	|M_act| > torque threshold value 1 and n_set reached	Yes	No	8021
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
13	|M_act| > torque threshold value 1	Yes	No	8021

Note: Re bit 10:
The torque threshold value 1 is set in p2174.

r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

Access level: 3 **P-Group:** Messages **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the third status word for 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	8010
05	Ramp-up/ramp-down completed	Yes	No	8010
11	Torque utilization < torque threshold value 2	Yes	No	8012

Note: Re bit 00:
The speed threshold value 3 is set in p2161.
Re bit 01:
The comparison value is set in p2141.
Re bit 11:
The torque threshold value 2 is set in p2194.

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p2200[0...n] BI: Technology controller enable / Tec_ctrl enable

Access level: 2	**P-Group:** Technology	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

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 val 1

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2202[0...n] CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2203[0...n] CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2204[0...n] CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

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p2205[0...n] CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2206[0...n] CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2207[0...n] CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2208[0...n] CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

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p2209[0...n] CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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 object always acts on the effective data set.

p2210[0...n] CO: Technology controller, fixed value 10 / Tec_ctrl fix val10

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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 object always acts on the effective data set.

p2211[0...n] CO: Technology controller, fixed value 11 / Tec_ctrl fix val11

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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 object always acts on the effective data set.

p2212[0...n] CO: Technology controller, fixed value 12 / Tec_ctrl fix val12

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
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 object always acts on the effective data set.

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p2213[0...n] CO: Technology controller, fixed value 13 / Tec_ctrl fix val13

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2214[0...n] CO: Technology controller, fixed value 14 / Tec_ctrl fix val14

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2215[0...n] CO: Technology controller, fixed value 15 / Tec_ctrl fix val15

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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 object always acts on the effective data set.

p2216[0...n] Technology controller fixed value selection method / Tec_ctr FixVal sel

Access level: 2	**P-Group:** Technology	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
1	2	1

Description: Selects the method that can be used to select the fixed setpoints.
Value:
1: Fixed value selection direct
2: Fixed value selection binary

p2220[0...n] BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	722.3

Description: Sets the signal source to select the fixed value of the technology controller.
Dependency: Refer to: p2221, p2222, p2223

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p2221[0...n] BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1

Access level: 3 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	722.4

Description: Sets the signal source to select the 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

Access level: 3 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	722.5

Description: Sets the signal source to select the 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

Access level: 3 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to select the fixed value of the technology controller.
Dependency: Refer to: p2220, p2221, p2222

r2224 CO: Technology controller, fixed value effective / Tec_ctr FixVal eff

Access level: 3 **P-Group:** Technology **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the selected and effective fixed value of the technology controller.
Dependency: Refer to: r2229

r2225.0 CO/BO: Technology controller fixed value selection status word / Tec_ctrl FW status

Access level: 3 **P-Group:** Technology **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: 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	-

r2229 Technology controller number actual / Tec_ctrl No. act

Access level: 3 **P-Group:** Technology **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the number of the selected fixed setpoint of the technology controller.
Dependency: Refer to: r2224

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p2230[0...n] Technology controller motorized potentiometer configuration / Tec_ctr mop config

Access level: 3 **P-Group:** Technology **Data type:** Unsigned32
Quick comm. NO **Active:** NO **Data set:** DDS, p0180
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-	-	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	-

Dependency: Refer to: r2231, p2240

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 the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum value (p2237). It is calculated as follows: r = 0.0001 * 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).

r2231 Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem

Access level: 3 **P-Group:** Technology **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

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

Access level: 3 **P-Group:** Commands **Data type:** U32 / Binary
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: T **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to increase the setpoint for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2236

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p2236[0...n] BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower

Access level: 3	**P-Group:** Commands	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source to reduce the setpoint for the motorized potentiometer of the technology controller.

Dependency: Refer to: p2235

p2237[0...n] Technology controller motorized potentiometer maximum value / Tec_ctrl mop max

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

Description: Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.

Dependency: Refer to: r2250

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p2247[0...n] Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

Description: Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.

Dependency: Refer to: r2245

p2251 Technology controller mode / Tec_ctrl mode

Access level: 3	**P-Group:** Technology	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Mode selection to use the technology controller output.

Value:
0: Technology controller as speed main setpoint
1: Technology controller as supplementary speed setpoint

Dependency: p2250 = 0, 1 is only effective if the enable signal of the technology controller is interconnected (p2200 > 0).

p2253[0...n] CI: Technology controller setpoint 1 / Tec_ctrl setp 1

Access level: 2	**P-Group:** Technology	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the setpoint 1 of the technology controller.

Dependency: Refer to: p2254, p2255

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p2254[0...n] CI: Technology controller setpoint 2 / Tec_ctrl setp 2

Access level: 3	**P-Group:** Technology	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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: p2258
Note: The ramp-up time is referred to 100 %.

p2258 Technology controller ramp-down time / Tec_ctrl t_ramp-dn

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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: p2257
Note: The ramp-down time is referred to 100 %.

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r2260 **CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG**

Access level: 2 **P-Group:** Technology **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Sets the setpoint after the ramp-function generator of the technology controller.

p2261 **Technology controller setpoint filter time constant / Tec_ctrl set T**

Access level: 3 **P-Group:** Technology **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.00 [s]	60.00 [s]	0.00 [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**

Access level: 4 **P-Group:** Technology **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the smoothed setpoint after the setpoint filter (PT1) of the technology controller.

p2263 **Technology controller type / Tec_ctrl type**

Access level: 3 **P-Group:** Technology **Data type:** Integer16
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	1	0

Description: Sets the technology controller type.

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**

Access level: 2 **P-Group:** Technology **Data type:** U32 / FloatingPoint32
Quick comm. NO **Active:** NO **Data set:** CDS, p0170
Can be changed: U, T **Calculated:** -

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**

Access level: 2 **P-Group:** Technology **Data type:** FloatingPoint32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0.00 [s]	60.00 [s]	0.00 [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**

Access level: 3 **P-Group:** Technology **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the smoothed actual value after the filter (PT1) of the technology controller

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p2267 Technology controller upper limit actual value / Tec_ctr ActVal max

Access level: 3 | **P-Group:** Technology | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-200.00 [%]	200.00 [%]	100.00 [%]

Description: Upper limit for the actual value signal of the technology controller.
Dependency: Refer to: p2264, p2265, p2271
Refer to: F07426
Notice: When the technology controller is active (refer to P2200), fault F7426 is output if the parameter value is exceeded as a result of the actual value.

p2268 Technology controller lower limit actual value / Tec_ctr ActVal min

Access level: 3 | **P-Group:** Technology | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-200.00 [%]	200.00 [%]	-100.00 [%]

Description: Lower limit for the actual value signal of the technology controller.
Dependency: Refer to: p2264, p2265, p2271
Refer to: F07426
Notice: When the technology controller is active (refer to P2200), fault F7426 is output if the parameter value is undershot as a result of the actual value.

p2269 Technology controller gain actual value / Tec_ctr ActValGain

Access level: 3 | **P-Group:** Technology | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [%]	500.00 [%]	100.00 [%]

Description: 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 selection of the actual value function / Tec_ctr ActVal Fct

Access level: 3 | **P-Group:** Technology | **Data type:** Integer16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	3	0

Description: Selects an arithmetic function that should be applied to 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

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p2271 Technology controller actual value inversion (sensor type) / Tec_ctr ActVal inv

Access level: 3	**P-Group:** Technology	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Selects the inversion of the actual value signal of the technology controller. This depends on the type of the actual value sensor.

Value:
0: No inversion
1: Inversion of technology controller 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.

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 frequency, then the inversion should be set.

r2272 CO: Technology controller actual value scaled / Tec_ctr ActValScal

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

Description: Displays 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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Unit: [%]	**Calculated:** -	**Data set:** -

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.000	1000.000	1.000

Description: Sets the proportional gain (P component) of the technology controller.

Note: p2280 = 0: The proportional gain is disabled.

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p2285 Technology controller integral time / Tec_ctrl Tn

Access level: 2	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.000 [s]	10000.000 [s]	30.000 [s]

Description: Sets the integral time (I component, integrating time constant) of the technology controller.

Note: p2285 = 0: The integral time is disabled.

p2286[0...n] BI: Hold technology controller integrator / Tec_ctr integ stop

Access level: 3	**P-Group:** Technology	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	56.13

Description: Sets the signal source to hold the integrator for the technology controller.

p2289[0...n] CI: Technology controller pre-control signal / Tec_ctrl prectrl

Access level: 3	**P-Group:** Technology	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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_limit

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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).

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p2293 Technology controller ramp-up/ramp-down time / Tec_ctr ramp up/dn

Access level: 3 | **P-Group:** Technology | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0.00 [s]	100.00 [s]	1.00 [s]

Description: Sets the ramp-up and ramp-down time for the maximum and minimum limiting (p2291 and p2292) of the technology controller.
Dependency: Refer to: p2291, p2292
Note: The ramp-up/ramp-down times are referred to 100 %.

r2294 CO: Technology controller output signal / Tec_ctrl outp_sig

Access level: 2 | **P-Group:** Technology | **Data type:** FloatingPoint32
Unit: [%] | **Calculated:** - | **Data set:** -

Description: Displays the output signal of the technology controller.
Dependency: Refer to: p2295

p2295 CO: Technology controller output scaling / Tec_ctrl outp scal

Access level: 3 | **P-Group:** Technology | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: U, T | **Calculated:** -

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

Access level: 3 | **P-Group:** Technology | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

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 limiting / Tec_ctrl max_limit

Access level: 3 | **P-Group:** Technology | **Data type:** U32 / FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** CDS, p0170
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-	-	1084[0]

Description: Sets the signal source for the maximum limiting of the technology controller.
Dependency: Refer to: p2291
Note: In order that the output of the technology controller does not exceed the maximum speed limit, its upper limit p2297 should be connected to the actual maximum speed r1084. In mode p2251 = 1, p2299 must also be interconnected to the output of the ramp-function generator r1150.

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p2298[0...n] CI: Technology controller minimum limiting / Tec_ctrl min_lim

Access level: 3	**P-Group:** Technology	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	1087[0]

Description: Sets the signal source for the minimum limiting of the technology controller.

Dependency: Refer to: p2292

Note: In order that the output of the technology controller does not exceed the minimum speed limit, its lower limit p2298 should be connected to the actual minimum speed r1087. In mode p2251 = 1, p2299 must also be interconnected to the output of the ramp-function generator r1150.

p2299[0...n] CI: Technology controller limit offset / Tec_ctrl lim offs

Access level: 3	**P-Group:** Technology	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the offset of the output limiting of the technology controller.

Note: In technology controller mode p2251 = 1, p2299 must be connected to the output of ramp-function generator r1150 so that the the technology controller stops when the speed limits are reached (see also p2297, p2298).

p2302 Technology controller output signal starting value / Tec_ctr start val

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [%]	200.00 [%]	0.00 [%]

Description: Starting value of the technology controller output. When the technology controller is enabled (refer to p2200 and r0056 bit 3) then its output signal (r2294) starts to run from this starting value.

Dependency: The starting value is only effective for p2251 = 0 (technology controller as speed main setpoint).

Note: If the technology controller operates on the speed/setpoint channel (p2251 = 0), then the starting value is interpreted as the starting speed and when operation is enabled, is connected to the output of the technology controller (r2294).

r2349.0...11 CO/BO: Technology controller status word / Tec_ctrl stat word

Access level: 3	**P-Group:** Technology	**Data type:** Unsigned32
Unit: -	**Calculated:** -	**Data set:** -

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	-
04	Tec controller supplies total speed setpoint in setpoint channel	Yes	No	-
05	Technology controller bypasses the RFG in the setpoint channel	Yes	No	-
06	Technology controller starting value at the current limit	No	Yes	-
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	-

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p2390[0...n] Hibernation starting speed / Hib n_Start

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,5	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the start speed for the hibernation function.

The total speed of this activation threshold is the sum of the minimum speed p1080 and p2390.

If the speed setpoint undershoots this start speed, the delay time in p2391 is started. If the restart threshold is no longer reached before the delay time expires, the hibernation boost speed p2395 is impressed for the time period p2394 and then the motor is brought to a standstill via the down ramp of the setpoint channel. The drive is powered down (hibernation active). The drive is automatically powered up again as soon as the speed setpoint exceeds the restart threshold.

Note: The hibernation start speed is set to 4 % of the nominal speed/frequency when commissioning is completed.

Example:

Nominal frequency 50 Hz: p2390 = 4 % * 50 Hz = 2 Hz

p2391[0...n] Hibernation delay time / Hib t_del

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0 [s]	3599 [s]	120 [s]

Description: Sets the delay time for the "Hibernation" function.

To ensure that the drive can be shut down (pulse inhibit), a restart condition must not occur during this time.

Dependency: Refer to: p2390, p2392, p2393

p2392 Hibernation restart value with technology controller / Hib start w Tec_c

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** p0340 = 1,3,5	
Min	**Max**	**Factory setting**
0.000 [%]	200.000 [%]	0.000 [%]

Description: Sets the motor restart time with the "Hibernation" function.

If hibernation is active, the technology controller continues to operate and supplies a speed setpoint to the setpoint channel. Since the drive is de-activated, there is no system deviation at the input of the technology controller. As soon as this exceeds the restart value p2392, the drive is automatically powered up and the speed is controlled to 1.05 * (p1080 + p2390) via the up ramp of the setpoint channel.

Note: On completion of commissioning, restart (technological variable) is set to 5 % of the nominal value of the PID base value in p0596.

Example:

p0596 = 1000 bar: p2392 = 5 % * 1000 bar = 50 bar

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p2393[0...n] Hibernation restart speed relative w/o technology controller / Hib st. w/o Tec_c

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** p0340 = 1,3,5	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the motor restart speed with the "Hibernation" function.

If hibernation is active a speed setpoint is still supplied to the setpoint channel. If the setpoint increases again and in so doing exceeds the restart speed, the drive is automatically powered up and the speed setpoint is controlled to p1080 + p2390 + p2393 via the up ramp of the setpoint channel.

The restart speed is the sum of the minimum speed p1080, the hibernation start speed p2390 and the relative restart speed p2393.

Dependency: Refer to: p1080

Note: The parameter is set to 6 % of the nominal speed/frequency when commissioning is exited.

Example:

Nominal frequency 50 Hz: 6 % * 50 Hz = 3 Hz

p2394[0...n] Hibernation boost time period / Hib t_Boost

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0 [s]	3599 [s]	0 [s]

Description: Sets the boost time period for the "Hibernation" function.

Before the drive is finally powered down (goes into hibernation), the setpoint speed is moved to the boost speed p2395 for the time set in p2394. Depending on the application, this allows the hibernation intervals to be extended (in time).

Caution:

The controller is not operational while the boost speed is being impressed. As a result, for example, for pump applications, it must be ensured that the tank does not overflow as a result of the additional boost. For compressors, it must be ensured that the boost speed does not result in an overpressure condition.

Note: If a boost speed is not approached, then the boost time period is set to 0 s.

p2395[0...n] Hibernation boost speed / Hib n_Boost

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0.000 [Hz]	650.000 [Hz]	0.000 [Hz]

Description: Sets the boost speed for the "Hibernation" function.

The motor is accelerated to hibernation boost speed p2395 for the hibernation boost time period p2394 before it is brought to a standstill via the down ramp of the setpoint channel (p1121) and subsequently powered down (pulse inhibit).

Dependency: Refer to: p2394

Caution:

The controller is not operational while the boost speed is being impressed. As a result, for example, for pump applications, it must be ensured that the tank does not overflow as a result of the additional boost. For compressors, it must be ensured that the boost speed does not result in an overpressure condition.

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p2396[0...n] Hibernation max. shutdown time / Hib t_shutd max

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	
Min	**Max**	**Factory setting**
0 [s]	863999 [s]	0 [s]

Description: Sets the maximum shutdown time for the "Hibernation" function.

If the drive is in hibernation (pulse inhibit) then it is powered up again at the latest after the maximum power-down time has expired. If the restart conditions are fulfilled earlier, then the drive is correspondingly powered up earlier.

Danger: The drive automatically powers itself up at the latest after the maximum power-down time has expired.

Caution: Once the maximum shutdown time has expired, the drive switches itself on automatically and accelerates to the start speed. The technology controller only becomes effective again when this speed is reached (for p2398 = 1).

Depending on the application, e.g. for pumps, it should be ensured that as a result of cyclic starts the tank does not overflow or for compressors, an overpressure condition does not occur.

r2397[0...1] CO: Hibernation output speed actual / Hib n_outp act

Access level: 3	**P-Group:** Technology	**Data type:** FloatingPoint32
Unit: [Hz]	**Calculated:** -	**Data set:** -

Description: Displays the actual output speed for the "Hibernation" function.

Note: Zero is displayed if the boost or starting speed is not active.

p2398 Hibernation operating mode / Hib op_mode

Access level: 3	**P-Group:** Technology	**Data type:** Integer16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	
Min	**Max**	**Factory setting**
0	1	0

Description: Sets the operating mode for the hibernation function.

Value:
0: Hibernation inhibited
1: Hibernation active

Dependency: Refer to: p2200, p2251

Refer to: A07325

Caution: When this function is active, the motor can start again automatically.

Note: When the hibernation function (p2398 = 1) is activated, its behavior is defined as to whether the technology controller is additionally switched in (closed loop) or switched out (open loop).

p2200 is used to define the technology controller enable and p2251 its operating mode.

p2200 = 0, p2251 = 0, 1:

Hibernation operates without technology controller (open loop)

p2200 = 1, p2251 = 0:

Hibernation operates with technology controller (closed loop)

p2200 = 1, p2251 = 1:

Hibernation operates without technology controller (open loop) as its output is only used as supplementary setpoint and not as main speed setpoint.

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r2399.0...8 CO/BO: Hibernation status word / Hib ZSW

Access level: 3 **P-Group:** Technology **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** -

Description: Displays the status word for the "Hibernation" function.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hibernation enabled (p2398 <> 0)	Yes	No	-
01	Hibernation active	Yes	No	-
02	Hibernation delay time active	Yes	No	-
03	Hibernation boost active	Yes	No	-
04	Hibernation motor powered down	Yes	No	-
05	Hibernation motor powered down cyclic restart active	Yes	No	-
06	Hibernation motor restarts	Yes	No	-
07	Hibernation supplies total setpoint for ramp-function generator	Yes	No	-
08	Hibernation bypasses ramp-fct generator in setpoint channel	Yes	No	-

Dependency: Refer to: p2398

Refer to: A07325

p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]

Access level: 3 **P-Group:** Free function blocks **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Sets a fixed percentage.

Dependency: Refer to: p2901, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive object 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 [%]

Access level: 3 **P-Group:** Free function blocks **Data type:** FloatingPoint32

Quick comm. NO **Active:** YES **Data set:** DDS, p0180

Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Sets a fixed percentage.

Dependency: Refer to: p2900, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive object 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)

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r2902[0...14] CO: Fixed values [%] / Fixed values [%]

Access level: 3 | **P-Group:** Free function blocks | **Data type:** FloatingPoint32
Unit: [%] | **Calculated:** - | **Data set:** -

Description: Signal sources 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]

Access level: 3 | **P-Group:** Free function blocks | **Data type:** FloatingPoint32
Quick comm. NO | **Active:** NO | **Data set:** DDS, p0180
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
-100000.00 [Nm]	100000.00 [Nm]	0.00 [Nm]

Description: Sets a fixed value for torque.

Dependency: Refer to: p2900, p2901

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

Note: The value can, for example, be used to interconnect a supplementary torque.

p3110 External fault 3, power-up delay / Ext fault 3 t_on

Access level: 3 | **P-Group:** Messages | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

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
Refer to: F07862

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p3111[0...n] BI: External fault 3, enable / Ext fault 3 enab

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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
Refer to: F07862

p3112[0...n] BI: External fault 3 enable negated / Ext flt 3 enab neg

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

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
Refer to: F07862

r3113.0...15 CO/BO: NAMUR message bit bar / NAMUR bit bar

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the status of NAMUR signal bit bar.
The faults or 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 drive converter data electronics / software error	Yes	No	-
01	Line supply 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	-
10	Error internal communications	Yes	No	-
11	Infeed fault	Yes	No	-
15	Other faults	Yes	No	-

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p3230[0...n] CI: Load monitoring, speed actual value / n_act f load monit

Access level: 3	**P-Group:** Messages	**Data type:** U32 / FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the speed actual value of the load monitoring.

Dependency: Refer to: r2169, p2181, p2192, p2193, p3231
Refer to: A07920, A07921, A07922, F07923, F07924, F07925

Note: The parameter is only effective for p2193 = 2.

p3231[0...n] Load monitoring speed deviation / n_dev load monit

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [Hz]	650.00 [Hz]	5.00 [Hz]

Description: Permissible speed deviation of the load monitoring (for p2193 = 2).

Dependency: Refer to: r2169, p2181, p2193, p3230
Refer to: A07920, A07921, A07922, F07923, F07924, F07925

p3232[0...n] BI: Load monitoring failure detection / Load mon Fail det

Access level: 3	**P-Group:** Messages	**Data type:** U32 / Binary
Quick comm. NO	**Active:** NO	**Data set:** CDS, p0170
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for detecting a failure.

Dependency: Refer to: p2192, p2193
Refer to: F07936

Note: Monitoring is triggered when the input signal is zero, as soon as the time in p2192 has expired.

p3233[0...n] Torque actual value filter, time constant / M_act_filt T

Access level: 3	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** NO	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0 [ms]	1000000 [ms]	100 [ms]

Description: Sets the time constant of the PT1 element to smooth the torque actual value.
The smoothed actual torque is compared with the threshold values and is only used for messages and signals.

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p3235 Phase failure signal motor monitoring time / Phase fail t_del

Access level: 4	**P-Group:** Messages	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0 [ms]	2000 [ms]	320 [ms]

Description: Sets the monitoring time for phase failure detection of the motor.

Note: The monitoring is only effective for blocksize power units. The function can be switched out with p3235 = 0.

The monitoring is automatically de-activated during the flying restart operation for a motor that is still rotating.

3-phase phase failures cannot be detected and are indicated by other error messages (e.g. F7902).

p3856[0...n] Compound braking current / Comp brk curr

PM240

Access level: 3	**P-Group:** Functions	**Data type:** FloatingPoint32
Quick comm. NO	**Active:** YES	**Data set:** DDS, p0180
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0.00 [%]	250.00 [%]	0.00 [%]

Description: Compound braking current is used to define the amount of DC current that is produced on stopping the motor during V/f operation to further increase the DC brake function.

The compound brake is a superimposition of the DC brake function with the regenerative brake (net braking along the ramp) after OFF1 or OFF3. This permits braking with controlled motor frequency and minimum power input into the motor. Effective braking without using additional hardware components is obtained by optimizing the ramp down time and the compound brake.

Dependency: The compound braking current is only activated if the DC link voltage exceeds the threshold value in r1282.

The compound brake does not operate:

- when the DC brake is active (refer to p1230, r1239)
- as long as the motor is not magnetized (e.g. for flying restart)
- for vector control (p1300 >= 20)
- for synchronous motors (p0300 = 2xx)

Caution: Generally, increasing the braking current improves the braking effect when stopping the motor. However, if the value is set too high, then the drive can be tripped (shut down) as a result of overcurrent.

Recommendation: p3856 < 100 % * (r0209 - r0331) / p0305 / 2

The compound brake generates a current in the motor with a ripple manifesting the rotational frequency. The higher the braking current is set, the higher the resulting ripple, especially when the Vdc(max) control is simultaneously active (refer to to p1280).

Note: The parameter value is entered relative to the rated motor current (p0305). The compound brake is de-activated with p3856 = 0 %.

r3859.0 CO/BO: Status word compound brake / ZSW compound brake

PM240

Access level: 3	**P-Group:** Functions	**Data type:** Unsigned32
Unit: -	**Calculated:** -	**Data set:** -

Description: Status display of the compound brake.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Compound brake	Active	Inactive	-

Dependency: Refer to: p3856

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p3900 Completion of quick commissioning / Compl quick_comm

Access level: 1 | **P-Group:** Displays, signals | **Data type:** Integer16
Quick comm. YES | **Active:** NO | **Data set:** -
Can be changed: C(1) | **Calculated:** -

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)

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.

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 (see 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:

for induction motors p0320, p0352, p0362 ... p0369, p0604, p0605, p0626 ... p0628.

for synchronous motors p0326, p0327, p0352, p0604, p0605.

r3925[0...n] Identification final display / Ident final_disp

Access level: 3 | **P-Group:** Motor | **Data type:** Unsigned32
Unit: - | **Calculated:** - | **Data set:** DDS, p0180

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	-
15	Motor equivalent circuit diagram parameters changed	Changed	Not changed	-

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.

When setting the individual bits, all of the most significant bits are reset.

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r3927[0...n] Motor data identification control word / MotID STW

Access level: 3 **P-Group:** Motor identification **Data type:** Unsigned16

Unit: - **Calculated:** p0340 = 1 **Data set:** DDS, p0180

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	-
02	Rotor time constant estimate no measurement	Yes	No	-
03	Leakage inductance estimate no measurement	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	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1909.

r3928[0...n] Rotating measurement configuration / Rot meas config

Access level: 3 **P-Group:** Motor identification **Data type:** Unsigned16

Unit: - **Calculated:** p0340 = 1 **Data set:** DDS, p0180

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Saturation characteristic identification	Yes	No	-
02	Moment of inertia identification	Yes	No	-
03	Recalculates 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	-

Dependency: Refer to: r3925

Note: The parameter is a copy of p1959.

p3950 Service parameter / Service parameter

Access level: 3 **P-Group:** - **Data type:** Unsigned16

Quick comm. NO **Active:** YES **Data set:** -

Can be changed: C, U, T **Calculated:** -

Min	Max	Factory setting
-	-	-

Description: For service personnel only.

r3978 BICO CounterDevice / BICO CounterDevice

Access level: 4 **P-Group:** Commands **Data type:** Unsigned32

Unit: - **Calculated:** - **Data set:** -

Description: For each modified BICO interconnection of this device, the counter is incremented by one. Displays this counter.

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p3981 Faults, acknowledge drive object / Faults ackn DO

Access level: 3	**P-Group:** Messages	**Data type:** Unsigned8
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

Min	Max	Factory setting
0	1	0

Description: Setting to acknowledge all active faults of a drive object.

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

Access level: 3	**P-Group:** Setpoints	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: U, T	**Calculated:** -	

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 count

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Unit: -	**Calculated:** -	**Data set:** -

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

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r3988[0...1] Boot state / Boot state

Access level: 4 **P-Group:** - **Data type:** Integer16
Unit: - **Calculated:** - **Data set:** -

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: Download parameter using commissioning software
90: Reset Control Unit
100: Start initialization
101: Only for internal Siemens use.
110: Instantiate Control Unit basis
111: Only for internal Siemens use.
112: Only for internal Siemens use.
113: Only for internal Siemens use.
114: Only for internal Siemens use.
115: Parameter download using commissioning software
117: Only for internal Siemens use.
150: Wait until Power Module is determined
160: Evaluate Power Module.
170: Instantiate Control Unit reset
180: Only for internal Siemens use.
200: First commissioning
210: Create drive packages
250: Wait for fault acknowledge
325: Wait for input of drive type
350: Determine drive type
360: Only for internal Siemens use.
370: Wait until p0010 is set to 0
380: Only for internal Siemens use.
550: Call conversion functions for parameter
625: Wait for non-cyclic start
650: Start cyclic operation
660: Evaluate drive commissioning status
670: Only for internal Siemens use.
680: Only for internal Siemens use.
690: Wait for non-cyclic start
700: Save parameters
725: Wait until cyclic
740: Check the ability to operate
745: Start cyclic calculations
750: Interrupt enable
800: Initialization finished

Index: [0] = System
[1] = Partial boot

r3996 Parameter write inhibit status / Par_write inhib st

Access level: 3 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: Displays whether writing to parameters is inhibited.
r3996 = 0: Write to parameter is not inhibited.
0 < r3996 < 100: Write to parameter is inhibited. The value shows how the calculations are progressing.

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r7841[0...15] Serial Number of Power Module / PM Serial No

Access level: 4 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: Displays the actual serial number of the Power Module.
The individual characters of the serial number are displayed in the ASCII code in the indices.

Notice: An ASCII table (excerpt) can be found, for example, in the following List Manual:

r7843[0...20] Memory card serial number / Mem_card ser.no

Access level: 4 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

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.

Notice: An ASCII table (excerpt) can be found, for example, in the following 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

r7901[0...33] Time slice cycle times / Time slices t_cyc

Access level: 4 **P-Group:** - **Data type:** FloatingPoint32
Unit: [µs] **Calculated:** - **Data set:** -

Description: Displays the actual cycle times for all existing time slices.
For r7901[x] = 0, the following applies: The time slice is not active.

r7903 Hardware sampling times still cannot be assigned / HW t_samp free

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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 (Drive Control Chart) or FBLOCKS (free function blocks).

Note: OA: Open Architecture

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p8400[0...2] RTC time / RTC time

Access level: 3 | **P-Group:** - | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	59	0

Description: Sets and displays the time on the real-time clock in hours, minutes, and seconds.
The time is stored in the internal clock block in the drive and continues to run even if the supply voltage for the Control Unit is interrupted (for approx. 5 days).

Index: [0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)
[2] = Second (0 ... 59)

Note: The time from p8400 and p8401 is used to display the fault and alarm times.
The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).
The time is entered and displayed in 24-hour format.
RTC: Real-time clock

p8401[0...2] RTC date / RTC date

Access level: 3 | **P-Group:** - | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: U, T | **Calculated:** -

Min	Max	Factory setting
0	9999	1

Description: Sets and displays the date on the real-time clock in year, month, and day.
The date is stored in the internal clock block in the drive and continues to run even if the supply voltage for the Control Unit is interrupted (for approx. 5 days).

Index: [0] = Day (1 ... 31)
[1] = Month (1 ... 12)
[2] = Year (YYYY)

Note: The time from p8400 and p8401 is used to display the fault and alarm times.
The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).
RTC: Real-time clock

r8404 RTC weekday / RTC weekday

Access level: 3 | **P-Group:** - | **Data type:** Integer16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the weekday on the real-time clock.

Value:
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday

Note: RTC: Real-time clock

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p8405 Activate/deactivate RTC alarm A01098 / RTC A01098 act

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0000 bin	0001 bin	0001 bin

Description: Sets whether the real-time clock outputs an alarm if the time is not synchronized (e.g. if the power supply was switched off for an extended period).

Value:
0: Alarm A01098 deactivated
1: Alarm A01098 activated

Dependency: Refer to: A01098

Note: RTC: Real-time clock

p8410[0...6] RTC DTC1 weekday of activation / RTC DTC1 day act

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0000 bin	0001 bin	0000 bin

Description: Sets the weekday on which timer 1 is activated.
The switch-on/off time is set in p8411/p8412 and the result displayed via binector output r8413.

Value:
0: Weekday deactivated
1: Weekday activated

Index:
[0] = Monday
[1] = Tuesday
[2] = Wednesday
[3] = Thursday
[4] = Friday
[5] = Saturday
[6] = Sunday

Dependency: Refer to: p8411, p8412, r8413

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

p8411[0...1] RTC DTC1 switch-on time / RTC DTC1 t_ON

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	59	0

Description: Sets the switch-on time of the timer in hours and minutes.
BO: r8413 = 1 signal:
The condition for the set weekday (p8410) and switch-on time has been fulfilled.

Index:
[0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8410, r8413

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

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p8412[0...1] RTC DTC1 off time / RTC DTC1 t_OFF

Access level: 3 | **P-Group:** - | **Data type:** Unsigned16
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
0	59	0

Description: Sets the switch-off time of the timer in hours and minutes.
BO: r8413 = 0 signal:
The condition for the set weekday (p8410) and switch-off time has been fulfilled.

Index: [0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8410, r8413

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

r8413.0...1 BO: RTC DTC1 output / RTC DTC1 output

Access level: 3 | **P-Group:** - | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the output of timer 1.
The activated weekday (p8410) and the switch-on/off time (p8411/p8412) switch these two binector outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Timer on	Yes	No	-
01	Timer ON negated	No	Yes	-

Dependency: Refer to: p8410, p8411, p8412

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

p8420[0...6] RTC DTC2 weekday of activation / RTC DTC2 day act

Access level: 3 | **P-Group:** - | **Data type:** Integer16
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
0000 bin	0001 bin	0000 bin

Description: Sets the weekday on which timer 2 is activated.
The switch-on/off time is set in p8421/p8422 and the result displayed via binector output r8423.

Value: 0: Weekday deactivated
1: Weekday activated

Index: [0] = Monday
[1] = Tuesday
[2] = Wednesday
[3] = Thursday
[4] = Friday
[5] = Saturday
[6] = Sunday

Dependency: Refer to: p8421, p8422, r8423

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

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p8421[0...1] RTC DTC2 switch-on time / RTC DTC2 t_ON

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	59	0

Description: Sets the switch-on time of the timer in hours and minutes.
BO: r8423 = 1 signal:
The condition for the set weekday (p8420) and switch-on time has been fulfilled.

Index: [0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8420, r8423

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

p8422[0...1] RTC DTC2 off time / RTC DTC2 t_OFF

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	59	0

Description: Sets the switch-off time of the timer in hours and minutes.
BO: r8423 = 0 signal:
The condition for the set weekday (p8420) and switch-off time has been fulfilled.

Index: [0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8420, r8423

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

r8423.0...1 BO: RTC DTC2 output / RTC DTC2 output

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the output of timer 2.
The activated weekday (p8420) and the switch-on/off time (p8421/p8422) switch these two binector outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Timer on	Yes	No	-
01	Timer ON negated	No	Yes	-

Dependency: Refer to: p8420, p8421, p8422

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

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p8430[0...6] RTC DTC3 weekday of activation / RTC DTC3 day act

Access level: 3	**P-Group:** -	**Data type:** Integer16
Quick comm. NO	**Active:** YES	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0000 bin	0001 bin	0000 bin

Description: Sets the weekday on which timer 3 is activated.
The switch-on/off time is set in p8431/p8432 and the result displayed via binector output r8433.

Value:
0: Weekday deactivated
1: Weekday activated

Index:
[0] = Monday
[1] = Tuesday
[2] = Wednesday
[3] = Thursday
[4] = Friday
[5] = Saturday
[6] = Sunday

Dependency: Refer to: p8431, p8432, r8433

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

p8431[0...1] RTC DTC3 switch-on time / RTC DTC3 t_ON

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	59	0

Description: Sets the switch-on time of the timer in hours and minutes.
BO: r8433 = 1 signal:
The condition for the set weekday (p8430) and switch-on time has been fulfilled.

Index:
[0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8430, r8433

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

p8432[0...1] RTC DTC3 off time / RTC DTC3 t_OFF

Access level: 3	**P-Group:** -	**Data type:** Unsigned16
Quick comm. NO	**Active:** NO	**Data set:** -
Can be changed: T	**Calculated:** -	

Min	Max	Factory setting
0	59	0

Description: Sets the switch-off time of the timer in hours and minutes.
BO: r8433 = 0 signal:
The condition for the set weekday (p8430) and switch-off time has been fulfilled.

Index:
[0] = Hour (0 ... 23)
[1] = Minute (0 ... 59)

Dependency: Refer to: p8430, r8433

Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

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r8433.0...1 BO: RTC DTC3 output / RTC DTC3 output

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the output of timer 3.
The activated weekday (p8430) and the switch-on/off time (p8431/p8432) switch these two binector outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Timer on	Yes	No	-
01	Timer ON negated	No	Yes	-

Dependency: Refer to: p8430, p8431, p8432
Note: DTC: Digital Time Clock (timer)
RTC: Real-time clock

r8572[0...39] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

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

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

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 Actual macro running / Actual macro

Access level: 3 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Indicates which macro is presently being run in the drive object.
Dependency: Refer to: p0700, p1000, p1500, r8572, r8573

r8600 CAN device type / Device type

CU230P-2 CAN **Access level:** 3 **P-Group:** Communications **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays all of the devices connected to the CAN bus after run-up.
r8600
= 00000000 hex: No drive recognized.
= 02010192 hex: 1 Vector drive
Note: Corresponds to the CANopen object 1000 hex.
For each detected drive, the device type is displayed in object 67FF hex.

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r8601 CAN error register / Error register

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** Unsigned8
Unit: - | **Calculated:** - | **Data set:** -

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

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** Unsigned32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: C(1), T | **Calculated:** -

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

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** Unsigned32
Quick comm. NO | **Active:** YES | **Data set:** -
Can be changed: C(1), T | **Calculated:** -

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the COB ID of 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 CU or per software has no effect on the COB-ID EMCY. The saved value remains effective.

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p8604[0...1] CAN node guarding / Node guarding

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Unsigned16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Sets the node 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 new node guarding telegram
[1] = Factor for failure of the node guarding telegram

Dependency: Only adjustable if heartbeat time = 0 (heartbeat is disabled).
Refer to: p8606

Note: For p8604[0] = 0 and/or p8604[1] = 0, the node guarding protocol is not used.
Either node guarding or heartbeat can be used.

p8606 CAN Producer Heartbeat Time / Prod Heartb Time

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Unsigned16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0 [ms]	65535 [ms]	0 [ms]

Description: Sets the time [ms] to cyclically send heartbeat telegrams.
The smallest cycle time is 100 ms.
When a 0 is written, then heartbeat telegrams are not sent.

Dependency: Only adjustable if guard time = 0 (node guarding disabled).
Refer to: p8604

Note: Corresponds to the CANopen object 1017 hex.
Either node guarding or heartbeat can be used.

r8607[0...3] CAN Identity Object / Identity object

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Unit: -	**Calculated:** -	**Data set:** -

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.

p8608 CAN Clear Bus Off Error / Clear bus off err

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Integer16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	1	0

Description: For a bus off error, the CAN bus is restarted with p8608 = 1 after the cause of the error has been removed.

Value: 0: Inactive
1: Start CAN controller

Note: This parameter is automatically reset to 0 after start.

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p8609[0...1] CAN Error Behaviour / Error behavior

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Integer16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Unit: -	**Calculated:** -	**Data set:** -

Description: Displays the identifier (client/server and server/client) of the SDO channel.

Index:
[0] = Displays the COB ID from client to server
[1] = Displays the COB ID from server to client

Note: Corresponds to the CANopen object 1200 hex.
SDO: Service Data Object

p8611[0...82] CAN Pre-defined Error Field / Pre_def err field

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Unsigned32
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	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 the 0. index. 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

Note: Corresponds to the CANopen object 1003 hex.

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p8620 CAN Node-ID / Node ID

CU230P-2 CAN

Access level: 2 **P-Group:** - **Data type:** Unsigned8
Quick comm. NO **Active:** NO **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
1	126	126

Description: Display or setting of the CANopen Node ID.
The Node ID can be set as follows:
1) Using the DIP 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 all of the DIP switches - from S1 to S7 - are either set to ON or OFF.
--> the Node ID is set as standard to 126.
--> A change only becomes effective after save and POWER ON.

Note: Every node ID change only becomes effective after a POWER ON.
The parameter value 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: For DIP switches, all of the switches from S1 to S7 are either set to ON or OFF).

p8622 CAN baud rate / Baud rate

CU230P-2 CAN

Access level: 3 **P-Group:** - **Data type:** Integer16
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	7	6

Description: Setting the baud rate for the CAN bus.
The appropriate bit timings are selected that are defined in p8623 in the associated sub-index.
Example:
Baud 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 value is not influenced by setting the factory setting.

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p8623[0...7] CAN Bit Timing selection / Bit timing select

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	000F 7FFF hex	1405 hex

Description: Sets the bit timing for the C_CAN controller to the associated and selected baud 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:
Baud rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6] --> 0001 2FB6

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 value is not influenced by setting the factory setting.

p8630[0...2] CAN virtual objects / Virtual objects

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	65535	0

Description: Activating access to parameters via manufacturer-specific CANopen objects and setting for the subindex 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:
0: Not possible to access virtual CANopen objects
1: Possible to access virtual CANopen objects
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 selection
[1] = Sub-index range
[2] = Parameter range

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p8641 CAN Abort Connection Option Code / Abort con opt code

CU230P-2 CAN

Access level: 3 **P-Group:** - **Data type:** Integer16
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

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

Dependency: Refer to: F08700

r8680[0...36] CAN Diagnosis Hardware / Diagnostics HW

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

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

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 boot

CU230P-2 CAN

Access level: 3 **P-Group:** - **Data type:** Integer16
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

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

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p8685 CAN NMT states / NMT states

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Integer16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(1), U, T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	129	127

Description: Sets and displays the CANopen NMT state.

Value:
0: Initializing
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.

p8700[0...1] CAN Receive PDO 1 / Receive PDO 1

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741

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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741

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

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p8702[0...1] CAN Receive PDO 3 / Receive PDO 3

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741
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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741
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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741
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

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p8705[0...1] CAN Receive PDO 6 / Receive PDO 6

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741

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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741

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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	8000 06DF hex	8000 06DF 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.
Refer to: p8741

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

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p8710[0...3] CAN Receive Mapping für RPDO 1 / Mapping RPDO 1

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32

Quick comm. NO **Active:** YES **Data set:** -

Can be changed: C(3), T **Calculated:** -

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 für RPDO 2 / Mapping RPDO 2

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32

Quick comm. NO **Active:** YES **Data set:** -

Can be changed: C(3), T **Calculated:** -

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 für RPDO 3 / Mapping RPDO 3

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32

Quick comm. NO **Active:** YES **Data set:** -

Can be changed: C(3), T **Calculated:** -

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.

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p8713[0...3] CAN Receive Mapping für RPDO 4 / Mapping RPDO 4

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

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 für RPDO 5 / Mapping RPDO 5

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

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 für RPDO 6 / Mapping RPDO 6

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

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.

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p8716[0...3] CAN Receive Mapping für RPDO 7 / Mapping RPDO 7

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

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 für RPDO 8 / Mapping RPDO 8

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: C(3), T **Calculated:** -

Min	Max	Factory setting
0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice:
For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

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p8721[0...4] CAN Transmit PDO 2 / Transmit PDO 2

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

p8722[0...4] CAN Transmit PDO 3 / Transmit PDO 3

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

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p8723[0...4] CAN Transmit PDO 4 / Transmit PDO 4

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

p8724[0...4] CAN Transmit PDO 5 / Transmit PDO 5

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

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p8725[0...4] CAN Transmit PDO 6 / Transmit PDO 6

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

p8726[0...4] CAN Transmit PDO 7 / Transmit PDO 7

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

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p8727[0...4] CAN Transmit PDO 8 / Transmit PDO 8

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0000 hex	C000 06DF hex	C000 06DF 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.
Refer to: p8741

Notice: For inhibit time and even timer, the following apply:
A value that is not a multiple integer of CANopen (4 ms) 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.
PDO: Process Data Object

p8730[0...3] CAN Transmit Mapping for TPDO 1 / Mapping TPDO 1

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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.

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p8732[0...3] CAN Transmit Mapping for TPDO 3 / Mapping TPDO 3

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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.

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p8735[0...3] CAN Transmit Mapping for TPDO 6 / Mapping TPDO 6

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Unsigned32
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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.

p8741 CAN PDO configuration acknowledgement / PDO config ackn

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Integer16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	0	1	0

Description: Acknowledges the setting of the Predefined Connection Sets (p8744).

Value: 0: Inactive
1: Acknowledge configuration

Dependency: Refer to: p8744

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p8744 CAN PDO mapping configuration / PDO Mapping conf.

CU230P-2 CAN

Access level: 2 **P-Group:** - **Data type:** Integer16

Quick comm. NO **Active:** NO **Data set:** -

Can be changed: C, T **Calculated:** -

Min	Max	Factory setting
1	2	2

Description: Selector switch for the PDO mapping.

Sets the mapping for download or in the online mode after acknowledging with p8741.

Value:
1: Predefined Connection Set
2: Free PDO Mapping

r8750[0...15] CAN mapped 16-bit receive objects / RPDO 16 mapped

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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

CU230P-2 CAN

Access level: 3 **P-Group:** Communications **Data type:** Unsigned16

Unit: - **Calculated:** - **Data set:** -

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

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r8784 CO: CAN status word / Status word

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

Description: Displays the CANopen status word.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for sw 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)	High	Low	-
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)	High	Low	-
15	Can be freely interconnected (BI: p8787)	High	Low	-

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

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Binector input for CANopen status word bit 8.

Dependency: Refer to: r8784

p8786 BI: CAN status word bit 14 / Status word bit 14

CU230P-2 CAN | **Access level:** 3 | **P-Group:** Communications | **Data type:** U32 / Binary
Quick comm. NO | **Active:** NO | **Data set:** -
Can be changed: T | **Calculated:** -

Min	Max	Factory setting
-	-	0

Description: Binector input for CANopen status word bit 14.

Dependency: Refer to: r8784

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p8787 BI: CAN status word bit 15 / Status word bit 15

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** U32 / Binary
	Quick comm. NO	**Active:** NO	**Data set:** -
	Can be changed: T	**Calculated:** -	
	Min	**Max**	**Factory setting**
	-	-	0

Description: Binector input for CANopen status word bit 15.

Dependency: Refer to: r8784

p8790 CAN control word - auto interconnection / STW interconn auto

CU230P-2 CAN	**Access level:** 3	**P-Group:** Communications	**Data type:** Integer16
	Quick comm. NO	**Active:** YES	**Data set:** -
	Can be changed: C(3), T	**Calculated:** -	
	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

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.

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.

r8795 CAN control word / Control word

CU230P-2 CAN	**Access level:** 3	**P-Group:** -	**Data type:** Unsigned16
	Unit: -	**Calculated:** -	**Data set:** -

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	-
07	Acknowledge fault	Yes	No	-
11	Freely interconn	High	Low	-
12	Freely interconn	High	Low	-
13	Freely interconn	High	Low	-
14	Freely interconn	High	Low	-
15	Freely interconn	High	Low	-

Dependency: Refer to: p8790

Note: Corresponds to the CANopen object 6040 hex + 800 hex * x (x: Drive number 0 ... 7).

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r8797 CAN Target Torque / Target torque

CU230P-2 CAN | **Access level:** 3 | **P-Group:** - | **Data type:** Integer16
Unit: - | **Calculated:** - | **Data set:** -

Description: Access to the CANopen object target torque using SDO transfer.
The value is displayed as per mille (1/1000) as standard.

Note: Corresponds to the CANopen object 6071 hex + 800 hex * x (x: Drive number 0 ... 7).
The displayed value is calculated as follows:
r8797 [per mille] = M_set [Nm] / p0333 [Nm] * 1000

r9406[0...19] PS file parameter number parameter not transferred / PS parameter No.

Access level: 4 | **P-Group:** - | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

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
--> Displays the parameter number whose value was not able to be completely transferred or for an indexed parameter, for at least 1 index, was not able to be transferred. 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

Access level: 4 | **P-Group:** - | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

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

Access level: 4 | **P-Group:** - | **Data type:** Unsigned16
Unit: - | **Calculated:** - | **Data set:** -

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

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r9409 Number of parameters to be saved / Qty par to save

Access level: 4 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.
Dependency: Refer to: p0971
Note: The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9451[0...29] Units changeover adapted parameters / Unit_chngov par

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Displays the parameters whose parameter would have to be changed during a units changeover.

p9484 BICO interconnections search signal source / BICO S_src srch

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: T **Calculated:** -

Min	Max	Factory setting
0	4294967295	0

Description: Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks.
The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).
Dependency: Refer to: r9485, r9486

r9485 BICO interconnections signal source search count / BICO S_src srchQty

Access level: 4 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the number of BICO interconnections to the signal sink being searched for.
The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).
Dependency: Refer to: p9484, r9486

r9486 BICO interconnections signal source search first index / BICO S_src srchIdx

Access level: 4 **P-Group:** - **Data type:** Unsigned16
Unit: - **Calculated:** - **Data set:** -

Description: Displays the first index of the signal source being searched for.
The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).
Dependency: Refer to: p9484, r9485

r9925[0...99] Firmware file incorrect / FW file incorr

Access level: 3 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.
Dependency: Refer to: r9926
Refer to: A01016
Note: The directory and name of the file is displayed in the ASCII code.

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r9926 Firmware check status / FW check status

Access level: 3 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

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
Refer to: A01016

p9930[0...8] System logbook activation / SYSLOG activation

Access level: 4 **P-Group:** - **Data type:** Unsigned8
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

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] = Reserved
[5] = Reserved
[6] = Reserved
[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).

p9931[0...99] System logbook module selection / SYSLOG mod select.

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

Description: Only for service purposes.

p9932 Save system logbook EEPROM / SYSLOG EEPROM save

Access level: 4 **P-Group:** - **Data type:** Unsigned8
Quick comm. NO **Active:** YES **Data set:** -
Can be changed: U, T **Calculated:** -

Min	Max	Factory setting
0	255	0

Description: Only for service purposes.

r9935.0 BO: POWER ON delay signal / POWER ON t_delay

Access level: 4 **P-Group:** - **Data type:** Unsigned8
Unit: - **Calculated:** - **Data set:** -

Description: 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	-

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r9976[0...7] System load / Sys_load

Access level: 3 **P-Group:** - **Data type:** FloatingPoint32
Unit: [%] **Calculated:** - **Data set:** -

Description: Displays the system load.
Determining the system load is automatically started after booting.

Index: [0] = RESERVED
[1] = Computation time load
[2] = RESERVED
[3] = RESERVED
[4] = RESERVED
[5] = Peak load
[6] = RESERVED
[7] = RESERVED

Dependency: Refer to: F01205

r9999[0...99] Software error internal supplementary diagnostics / SW_err int diag

Access level: 4 **P-Group:** - **Data type:** Unsigned32
Unit: - **Calculated:** - **Data set:** -

Description: Diagnostics parameter to display additional information for internal software errors.

Note: Only for internal Siemens troubleshooting.

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1.3 Command and Drive Data Sets – Overview

1.3.1 Command Data Sets (CDS)

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: CDS

p0700[0...n] Command source selection / Cmd src sel
p0701[0...n] Pre-assignment digital input 0 / Pre-assignment DI0
p0702[0...n] Pre-assignment digital input 1 / Pre-assignment DI1
p0703[0...n] Pre-assignment digital input 2 / Pre-assignment DI2
p0704[0...n] Pre-assignment digital input 3 / Pre-assignment DI3
p0705[0...n] Pre-assignment digital input 4 / Pre-assignment DI4
p0706[0...n] Pre-assignment digital input 5 / Pre-assignment DI5
p0712[0...n] Pre-assignment digital input 11 / Pre-assign. DI11
p0713[0...n] Pre-assignment digital input 12 / Pre-assign. DI12
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
p0840[0...n] BI: ON/OFF1 / ON/OFF1
p0844[0...n] BI: 1. OFF2 / 1. OFF2
p0845[0...n] BI: 2. OFF2 / 2. OFF2
p0848[0...n] BI: 1. OFF3 / 1. OFF3
p0849[0...n] BI: 2. OFF3 / 2. OFF3
p0852[0...n] BI: Operation enable / Operation enable
p0854[0...n] BI: Master ctrl by PLC / Master ctrl by PLC
p1000[0...n] Speed setpoint selection / n_set sel
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 / Mop inversion
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 setpoint / Mop accept set val
p1044[0...n] CI: Motorized potentiometer setting value / Mop set val
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 setpoint
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 negative direction of rotation / n_limit neg
p1108[0...n] BI: Total setpoint selection / Total setp sel
p1109[0...n] CI: Total setpoint / Total setp
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
p1140[0...n] BI: Ramp-function generator enable / RFG enable
p1141[0...n] BI: Start ramp-function generator / Start RFG
p1142[0...n] BI: Speed setpoint enable / n_set enable

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p1143[0...n] BI: Ramp-function generator, accept setting value / Accept RFG set val
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: DC brake activation / DC brk activation
p1330[0...n] CI: V/f control independent voltage setpoint / Vf V_set independ.
p1455[0...n] CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp
p1466[0...n] CI: Speed controller P-gain scaling / n_ctrl Kp scal
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
p1500[0...n] Torque setpoint selection / M_set sel
p1501[0...n] BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
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
p1571[0...n] CI: Supplementary flux setpoint / Suppl flux setp
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: Ramp-function generator active / HLG active
p2151[0...n] CI: Speed setpoint for messages/signals / n_set for msg
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 stop
p2289[0...n] CI: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n] CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n] CI: Technology controller maximum limiting / Tec_ctrl max_limit
p2298[0...n] CI: Technology controller minimum limiting / Tec_ctrl min_lim

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p2299[0...n] CI: Technology controller limit offset / Tec_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
p3230[0...n] CI: Load monitoring, speed actual value / n_act f load monit
p3232[0...n] BI: Load monitoring failure detection / Load mon Fail det

1.3.2 Drive Data Sets (DDS)

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: DDS

p0340[0...n] Automatic calculation, motor/control parameters / Calc auto par
p0640[0...n] Current limit / Current limit
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 / Mop n_max
p1038[0...n] Motorized potentiometer minimum speed / Mop 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 / Minimum speed
p1082[0...n] Maximum speed / Maximum speed
p1083[0...n] CO: Speed limit in positive direction of rotation / n_limit pos
p1086[0...n] CO: Speed limit 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
p1123[0...n] Ramp-function generator ramp-up/ramp-down time minimum / RFG t_RU/t_RD min
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

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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
p1200[0...n] FlyRest oper mode / FlyRest op_mode
p1202[0...n] FlyRest srch curr / FlyRest srch curr
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 (vector control) / Vdc_ctr config vec
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
p1280[0...n] Vdc controller or Vdc monitoring configuration (V/f) / Vdc_ctr config V/f
p1283[0...n] Vdc_max controller dynamic factor (V/f) / Vdc_max dyn_factor
p1285[0...n] Vdc_min controller switch-in level (kinetic buffering) (V/f) / Vdc_min on_level
p1287[0...n] Vdc_min controller dynamic factor (kinetic buffering) (V/f) / Vdc_min dyn_factor
p1288[0...n] Vdc_max controller feedback coupling factor ramp-fct. gen. (V/f) / Vdc_max factor RFG
p1290[0...n] Vdc controller proportional gain (V/f) / Vdc_ctrl Kp
p1291[0...n] Vdc controller integral time (V/f) / Vdc_ctrl Tn
p1292[0...n] Vdc controller rate time (V/f) / Vdc_ctrl t_rate
p1293[0...n] Vdc min controller output limit (V/f) / Vdc_min outp_lim
p1295[0...n] Vdc_min controller time threshold (V/f) / Vdc_min t_thresh
p1296[0...n] Vdc_min controller response (kinetic buffering) (V/f / Vdc_min response
p1297[0...n] Vdc_min controller speed threshold (V/f) / Vdc_min n_thresh
p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1310[0...n] Voltage boost permanent / V_boost perm
p1311[0...n] Voltage boost at acceleration / V_boost accelerate
p1312[0...n] Voltage boost when starting / V_boost starting
p1320[0...n] V/f control programmable characteristic frequency 1 / Uf char f1
p1321[0...n] V/f control programmable characteristic voltage 1 / Vf char U1
p1322[0...n] V/f control programmable characteristic frequency 2 / Vf char f2
p1323[0...n] V/f control programmable characteristic voltage 2 / Vf char U2
p1324[0...n] V/f control programmable characteristic frequency 3 / Vf char f3
p1325[0...n] V/f control programmable characteristic voltage 3 / Vf char U3
p1326[0...n] V/f control programmable characteristic frequency 4 / Vf char f4
p1327[0...n] V/f control programmable characteristic voltage 4 / Vf char U4
p1333[0...n] V/f control FCC starting frequency / V/f FCC f_start
p1334[0...n] V/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] V/f mode resonance damping gain / Vf Res_damp gain
p1339[0...n] V/f mode resonance damping filter time constant / Vf 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_V_ctrl Kp

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p1346[0...n] I_max voltage controller integral time / I_max_V_ctrl Tn
p1349[0...n] V/f mode resonance damping maximum frequency / Vf res_damp F_max
p1350[0...n] Soft starting / Soft starting
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
p1452[0...n] Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC
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
p1461[0...n] Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper
p1463[0...n] Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper
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 SLVC Kp
p1472[0...n] Speed controller encoderless operation integral time / n_ctrl SLVC 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 scaling
p1496[0...n] Acceleration pre-control scaling / a_before scaling
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/motoring scaling / M_max up/mot 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 regenerating / P_max gen
p1570[0...n] CO: Flux setpoint / Flux setpoint
p1573[0...n] Flux threshold value magnetizing / Flux thresh magnet
p1574[0...n] Voltage reserve dynamic / V_reserve dyn
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
p1594[0...n] Field-weakening controller, P gain / Field_ctrl Kp
p1596[0...n] Field weakening controller integral-action time / Field_ctrl Tn
p1610[0...n] Torque setpoint static (SLVC) / M_set static
p1611[0...n] Supplementary accelerating torque (SLVC) / M_suppl_accel
p1616[0...n] Current setpoint smoothing time / I_set T_smooth
p1654[0...n] Curr. setpoint torque-gen. smoothing time field weakening range / Isq_s T_smth FW
p1702[0...n] Isd current controller pre-control scaling / Isd_ctr_prectrScal
p1703[0...n] Isq current controller pre-control scaling / Isq_ctr_prectrScal
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
p1740[0...n] Gain resonance damping for encoderless closed loop control / Gain res_damp
p1745[0...n] Motor model error threshold stall detection / MotMod ThreshStall
p1750[0...n] Motor model configuration / MotMod config
p1755[0...n] Motor model changeover speed encoderless operation / MotMod n_chgSnsorl

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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
p1764[0...n] Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp
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
p1781[0...n] Motor model Rs adaptation integral time / MotMod Rs Tn
r1782[0...n] Motor model Rs adaptation corrective value / MotMod Rs corr
p1783[0...n] Motor model Rs adaptation Kp / MotMod Rs Kp
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
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
p1806[0...n] Filter time constant Vdc correction / T_filt Vdc_corr
p1820[0...n] Reverse the output phase sequence / Outp_ph_seq rev
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
p2152[0...n] Delay for comparison n > n_max / Del n > n_max
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
p2157[0...n] Speed threshold 5 / n_thresh val 5
p2158[0...n] Delay for n_act comparison with speed threshold value 5 / t_del n comp n_5
p2159[0...n] Speed threshold 6 / n_thresh val 6
p2160[0...n] Delay for n_act comparison with speed threshold value 6 / t_del n comp n_6
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
p2170[0...n] Current threshold value / I_thres
p2171[0...n] Delay time current threshold value reached / t_del curr thresh
p2172[0...n] DC link voltage, threshold value / Vdc thresh val
p2173[0...n] Delay time Vdc comparison / t_del Vdc
p2174[0...n] Torque threshold value 1 / M_thresh val 1
p2175[0...n] Motor locked speed threshold / Mot lock n_thresh
p2176[0...n] Delay time for the torque threshold value / t_del_M_thresh
p2177[0...n] Motor locked delay time / Mot lock t_del
p2178[0...n] Motor stalled delay time / Mot stall t_del
p2179[0...n] Current limit for the output load identification / Curr lim load id
p2180[0...n] Delay time for missing output load / t_del no load
p2181[0...n] Load monitoring response / Load monit resp
p2182[0...n] Load monitoring speed threshold value 1 / n_thresh 1

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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
p2193[0...n]	Load monitoring configuration / Load monit config
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]	Scaling torque utilization / Factor M_utilize
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctrl fix val15
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
p2390[0...n]	Hibernation starting speed / Hib n_Start
p2391[0...n]	Hibernation delay time / Hib t_del
p2393[0...n]	Hibernation restart speed relative w/o technology controller / Hib st. w/o Tec_c
p2394[0...n]	Hibernation boost time period / Hib t_Boost
p2395[0...n]	Hibernation boost speed / Hib n_Boost
p2396[0...n]	Hibernation max. shutdown time / Hib t_shutd max
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]
p3231[0...n]	Load monitoring speed deviation / n_dev load monit
p3233[0...n]	Torque actual value filter, time constant / M_act_filt T
p3856[0...n]	Compound braking current / Comp brk curr
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

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1.3.3 Motor Data Sets (MDS)

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: MDS

p0300[0...n] Motor type selection / Mot type sel
p0301[0...n] Motor code number selection / Mot code No. sel
p0304[0...n] Rated motor voltage / Mot V_rated
p0305[0...n] Rated motor current / Mot I_rated
p0307[0...n] Rated motor power / Mot P_rated
p0308[0...n] Rated motor power factor / Mot cos_phi_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
p0325[0...n] Motor pole position identification current, 1st phase / Mot PolID I 1st ph
p0326[0...n] Motor stall torque correction factor / Mot M_stall_corr
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 / Motor cooling type
r0337[0...n] Rated motor EMF / Mot EMF_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
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 / Mot R_cable cold
p0354[0...n] Motor rotor resistance cold / Mot R_r cold
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 / Mot L_rot leak
p0360[0...n] Motor magnetizing inductance / Mot Lh
p0362[0...n] Saturation characteristic flux 1 / Mot saturat.flux 1
p0363[0...n] Saturation characteristic flux 2 / Mot saturat.flux 2
p0364[0...n] Saturation characteristic flux 3 / Mot saturat.flux 3
p0365[0...n] Saturation characteristic flux 4 / Mot saturat.flux 4
p0366[0...n] Saturation characteristic I_mag 1 / Mot sat. I_mag 1
p0367[0...n] Saturation characteristic I_mag 2 / Mot sat. I_mag 2
p0368[0...n] Saturation characteristic I_mag 3 / Mot sat. I_mag 3
p0369[0...n] 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

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r0373[0...n] Motor rated stator resistance / Mot R_stator rated
r0374[0...n] Motor rotor resistance cold / Mot R_r cold
r0376[0...n] Rated motor rotor resistance / Mot R_rotor rated
r0377[0...n] Motor leakage inductance, total / Mot L_leak total
r0378[0...n] Motor stator inductance, d axis / Mot L_stator_d
r0382[0...n] Motor magnetizing inductance transformed / Mot L_magn transf
r0384[0...n] Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd
r0386[0...n] Motor stator leakage time constant / Mot T_stator leak
r0395[0...n] Actual stator resistance / R_stator act
r0396[0...n] Actual rotor resistance / R_rotor act
p0601[0...n] Motor temperature sensor type / Mot_temp_sens type
p0604[0...n] Motor overtemperature alarm threshold / Mot TempAlrmThresh
p0605[0...n] Motor overtemperature fault threshold / MotTempFaultThresh
p0606[0...n] Motor overtemperature timer / Mot TempTimeStage
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] Thermal motor model configuration / Therm Mot_mod conf
p0615[0...n] I2t motor model fault threshold / I2t mot_mod thresh
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
p0625[0...n] Motor ambient temperature / 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
r0630[0...n] Motor temperature model ambient temperature / MotTMod T_amb.
r0631[0...n] Motor temperature model, stator core temperature / MotTMod T_core
r0632[0...n] Motor temperature model, stator winding temperature / MotTMod T_copper
r0633[0...n] Motor temperature model, rotor temperature / MotTMod T_rotor
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
p0826[0...n] Motor changeover, motor number / Mot_chng mot No.
p1231[0...n] DC brake configuration / DC brake 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
p1909[0...n] Motor data identification control word / MotID STW
p1980[0...n] Pole position identification technique / PolID technique
p1999[0...n] Ang. commutation offset calibr. and pole position ID - scaling / ComOffsCalib scal

1.3.4 Power unit Data Set (PDS)

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: PDS
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

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1.4 Connector/Binector (BICO)-Parameters

1.4.1 Binector Input Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: BI

p0730	BI: CU signal source for terminal DO 0 / CU S_src DO 0
p0731	BI: CU signal source for terminal DO 1 / CU S_src DO 1
p0732	BI: CU signal source for terminal DO 2 / CU S_src DO 2
p0782[0...1]	BI: CU analog outputs signal source for inversion / CU AO invert
p0806	BI: Inhibit master control / PcCtrl inhibit
p0810	BI: Command Data Set selection CDS bit 0 / CDS select., bit 0
p0811	BI: Command data set selection CDS bit 1 / CDS select., bit 1
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
p0840[0...n]	BI: ON/OFF1 / ON/OFF1
p0844[0...n]	BI: 1. OFF2 / 1. OFF2
p0845[0...n]	BI: 2. OFF2 / 2. OFF2
p0848[0...n]	BI: 1. OFF3 / 1. OFF3
p0849[0...n]	BI: 2. OFF3 / 2. OFF3
p0852[0...n]	BI: Operation enable / Operation enable
p0854[0...n]	BI: Master ctrl by PLC / Master ctrl by PLC
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 / Mop inversion
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto
p1043[0...n]	BI: Motorized potentiometer accept setpoint / Mop accept set val
p1055[0...n]	BI: Jog bit 0 / Jog bit 0
p1056[0...n]	BI: Jog bit 1 / Jog bit 1
p1108[0...n]	BI: Total setpoint selection / Total setp sel
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
p1140[0...n]	BI: Ramp-function generator enable / RFG enable
p1141[0...n]	BI: Start ramp-function generator / Start RFG
p1142[0...n]	BI: Speed setpoint enable / n_set enable
p1143[0...n]	BI: Ramp-function generator, accept setting value / Accept RFG set val
p1201[0...n]	BI: Flying restart enable signal source / Fly_res enab S_src
p1230[0...n]	BI: DC brake activation / DC brk activation
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
p1492[0...n]	BI: Droop feedback enable / Droop enable
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
p2080[0...15]	BI: Binector-connector converter status word 1 / Bin/con ZSW1
p2081[0...15]	BI: Binector-connector converter status word 2 / Bin/con ZSW2
p2082[0...15]	BI: Binector-connector converter status word 3 / Bin/con ZSW3
p2083[0...15]	BI: Binector-connector converter status word 4 / Bin/con ZSW4
p2084[0...15]	BI: Binector-connector converter status word 5 / Bin/con ZSW5

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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: Ramp-function generator active / HLG active
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
p2286[0...n]	BI: Hold technology controller integrator / Tec_ctr integ stop
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
p3232[0...n]	BI: Load monitoring failure detection / Load mon Fail det
p8785	BI: CAN status word bit 8 / Status word bit 8
p8786	BI: CAN status word bit 14 / Status word bit 14
p8787	BI: CAN status word bit 15 / Status word bit 15

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1.4.2 Connector Input Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: CI

p0771[0...1] CI: CU analog outputs signal source / CU AO sig_source
p1042[0...n] CI: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1044[0...n] CI: Motorized potentiometer setting value / Mop set val
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 setpoint
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 negative direction of rotation / n_limit neg
p1109[0...n] CI: Total setpoint / Total setp
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
p1330[0...n] CI: V/f control independent voltage setpoint / Vf V_set independ.
p1455[0...n] CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp
p1466[0...n] CI: Speed controller P-gain scaling / n_ctrl Kp scal
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
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
p1571[0...n] CI: Supplementary flux setpoint / Suppl flux setp
p2051[0...7] CI: PROFIdrive PZD send word / PZD send word
p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src
p2151[0...n] CI: Speed setpoint for messages/signals / n_set for msg
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
p2289[0...n] CI: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n] CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n] CI: Technology controller maximum limiting / Tec_ctrl max_limit
p2298[0...n] CI: Technology controller minimum limiting / Tec_ctrl min_lim
p2299[0...n] CI: Technology controller limit offset / Tec_ctrl lim offs
p3230[0...n] CI: Load monitoring, speed actual value / n_act f load monit

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1.4.3 Binector Output Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: BO

r0751.0...10	BO: CU analog inputs status word / CU AI status word
r0785.0...1	BO: CU analog outputs status word / CU AO status word
r0807.0	BO: Master control active / PcCtrl active
r1025.0	BO: Fixed frequency status / f_fixed status
r2043.0	BO: PROFIdrive PZD state / PD PZD state
r2090.0...15	BO: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw
r2091.0...15	BO: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw
r2092.0...15	BO: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw
r2093.0...15	BO: PROFIdrive PZD4 receive bit-serial / PZD4 recv bitw
r2094.0...15	BO: Connector-binector converter binector output / Con/bin outp
r2095.0...15	BO: Connector-binector converter binector output / Con/bin outp
r8413.0...1	BO: RTC DTC1 output / RTC DTC1 output
r8423.0...1	BO: RTC DTC2 output / RTC DTC2 output
r8433.0...1	BO: RTC DTC3 output / RTC DTC3 output
r9935.0	BO: POWER ON delay signal / POWER ON t_delay

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1.4.4 Connector Output Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: CO

r0021	CO: Actual speed smoothed / n_act smooth
r0025	CO: Output voltage smoothed / V_outp smooth
r0026	CO: DC link voltage smoothed / Vdc smooth
r0027	CO: Absolute actual current smoothed / I_act abs val smth
r0032	CO: Active power actual value smoothed / P_actv_act smth
r0035	CO: Motor temperature / Mot_temp
r0036	CO: Power unit overload I2t / PU overload I2t
r0037[0...19]	CO: Power unit temperatures / PU temperatures
r0060	CO: Speed setpoint before the setpoint filter / n_set before filt.
r0062	CO: Speed setpoint after the filter / n_set after filter
r0063[0...2]	CO: Actual speed value / n_ist
r0064	CO: Speed controller system deviation / n_ctrl system dev
r0066	CO: Output frequency / f_outp
r0067	CO: Output current, maximum / I_outp max
r0068[0...1]	CO: Absolute current actual value / I_act abs val
r0069[0...6]	CO: Phase current actual value / I_phase act value
r0070	CO: Actual DC link voltage / Vdc act val
r0072	CO: Output voltage / V_output
r0074	CO: Modulat_depth / Modulat_depth
r0075	CO: Current setpoint field-generating / Id_set
r0076	CO: Current actual value field-generating / Id_act
r0077	CO: Current setpoint torque-generating / Iq_set
r0078	CO: Current actual value torque-generating / Iq_act
r0079	CO: Torque setpoint total / M_set total
r0080[0...1]	CO: Torque actual value / M_act
r0081	CO: Torque utilization / M_Utilization
r0082[0...2]	CO: Active power actual value / P_act
r0083	CO: Flux setpoint / Flux setpoint
r0084[0...1]	CO: Flux actual value / Flux act val
r0087	CO: Actual power factor / Cos phi act
r0094	CO: Transformation angle / Transformat_angle
r0289	CO: Maximum power unit output current / PU I_outp max
r0752[0...3]	CO: CU analog inputs input voltage/current actual / CU AI inp_V/I
r0755[0...3]	CO: CU analog inputs actual value in percent / CU AI value in %
r0944	CO: Counter for fault buffer changes / Fault buff change
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
r1024	CO: Fixed speed setpoint effective / n_set_fixed eff

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r1045	CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG
r1050	CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG
r1073	CO: Main setpoint effective / Main setpoint eff
r1077	CO: Supplementary setpoint effective / Suppl setpoint eff
r1078	CO: Total setpoint effective / Total setpoint eff
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
r1084	CO: Speed limit positive effective / n_limit pos eff
p1086[0...n]	CO: Speed limit negative direction of rotation / n_limit neg
r1087	CO: Speed limit negative effective / n_limit neg eff
r1112	CO: Speed setpoint after minimum limiting / n_set n. min_lim
r1114	CO: Setpoint after the direction limiting / Setp after limit
r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp
r1149	CO: Ramp-function generator, acceleration / RFG acceleration
r1150	CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp
r1169	CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2
r1170	CO: Speed controller, setpoint sum / n_ctrl setp sum
r1258	CO: Vdc controller output / Vdc_ctrl output
r1298	CO: Vdc controller output (V/f) / Vdc_ctrl output
r1337	CO: Actual slip compensation / Slip comp act val
r1343	CO: I_max controller frequency output / I_max_ctrl f_outp
r1348	CO: V/f control Eco factor actual value / V/f Eco fac act v
r1438	CO: Speed controller, speed setpoint / n_ctrl n_set
r1445	CO: Actual speed smoothed / n_act smooth
r1454	CO: Speed controller system deviation I component / n_ctrl sys dev Tn
r1468	CO: Speed controller P-gain effective / n_ctrl Kp eff
r1482	CO: Speed controller I torque output / n_ctrl I-M_output
r1490	CO: Droop feedback speed reduction / Droop n_reduction
r1493	CO: Moment of inertia, total / M_inertia total
r1508	CO: Torque setpoint before supplementary torque / M_set bef. M_suppl
r1516	CO: Supplementary torque and acceleration torque / M_suppl + M_accel
r1518[0...1]	CO: Accelerating torque / M_accel
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/motoring scaling / M_max up/mot scal
p1525[0...n]	CO: Torque limit lower scaling / M_max lower scal
r1526	CO: Torque limit upper without offset / M_max up. w/o offs
r1527	CO: Torque limit lower without offset / M_max low w/o offs
r1538	CO: Upper effective torque limit / M_max upper eff
r1539	CO: Lower effective torque limit / M_max lower eff
r1547[0...1]	CO: Torque limit for speed controller output / M_max outp n_ctrl
r1548[0...1]	CO: Stall current limit torque-generating maximum / Isq_max stall
p1570[0...n]	CO: Flux setpoint / Flux setpoint
r1593[0...1]	CO: Field weakening controller / flux controller output / Field/Fl_ctrl outp
r1597	CO: Field weakening controller output / Field_ctrl output
r1598	CO: Total flux setpoint / Flux setp total
r1718	CO: Isq controller output / Isq_ctrl outp
r1723	CO: Isd controller output / Isd_ctrl outp
r1732[0...1]	CO: Direct-axis voltage setpoint / Direct V set
r1733[0...1]	CO: Quadrature-axis voltage setpoint / Quad V set
r1770	CO: Motor model speed adaptation proportional component / MotMod n_adapt Kp
r1771	CO: Motor model speed adaptation I comp. / MotMod n_adapt Tn
r1801[0...1]	CO: Pulse frequency / Pulse frequency
r1809	CO: Modulator mode actual / Modulator mode act

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r2050[0...7]	CO: PROFIBUS PZD receive word / PZD recv word
r2089[0...4]	CO: Send binector-connector converter status word / Bin/con ZSW send
r2120	CO: Sum of fault and alarm buffer changes / Sum buffer changed
r2121	CO: Counter, alarm buffer changes / Alrm buff changed
r2131	CO: Actual fault code / Actual fault code
r2132	CO: Actual alarm code / Actual alarm code
r2169	CO: Actual speed smoothed signals / n_act smth message
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctrl fix val15
r2224	CO: Technology controller, fixed value effective / Tec_ctr FixVal eff
r2245	CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctr mop befRFG
r2250	CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG
r2260	CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG
r2262	CO: Technology controller setpoint after filter / Tec_ctr set aftFlt
r2266	CO: Technology controller actual value after filter / Tec_ctr act aftFlt
r2272	CO: Technology controller actual value scaled / Tec_ctr ActValScal
r2273	CO: Technology controller error / Tec_ctrl error
p2291	CO: Technology controller maximum limiting / Tec_ctrl max_limit
p2292	CO: Technology controller minimum limiting / Tec_ctrl min_lim
r2294	CO: Technology controller output signal / Tec_ctrl outp_sig
p2295	CO: Technology controller output scaling / Tec_ctrl outp scal
r2397[0...1]	CO: Hibernation output speed actual / Hib n_outp act
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
r2902[0...14]	CO: Fixed values [%] / Fixed values [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]
r8784	CO: CAN status word / Status word

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1.4.5 Connector/Binector Output Parameters

Product: SINAMICS G120, Version: 4200600, Language: eng, Type: CO/BO

r0046.0...31	CO/BO: Missing enable sig / Missing enable sig
r0050.0...1	CO/BO: Command Data Set CDS effective / CDS effective
r0051.0...1	CO/BO: Drive Data Set DDS effective / DDS effective
r0052.0...15	CO/BO: Status word 1 / ZSW 1
r0053.0...11	CO/BO: Status word 2 / ZSW 2
r0053.1...11	CO/BO: Status word 2 / ZSW 2
r0054.0...15	CO/BO: Control word 1 / STW 1
r0055.0...15	CO/BO: Supplementary control word / Suppl STW
r0056.0...13	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl
r0056.0...15	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl
r0722.0...12	CO/BO: CU digital inputs, status / CU DI status
r0723.0...12	CO/BO: CU digital inputs, status inverted / CU DI status inv
r0836.0...1	CO/BO: Command Data Set CDS selected / CDS selected
r0837.0...1	CO/BO: Drive Data Set DDS selected / DDS selected
r0898.0...10	CO/BO: Control word sequence control / STW seq_ctrl
r0899.0...11	CO/BO: Status word sequence control / ZSW seq_ctrl
r1198.0...15	CO/BO: Control word setpoint channel / STW setpoint chan
r1199.0...6	CO/BO: Ramp-function generator status word / RFG ZSW
r1204.0...13	CO/BO: Flying restart, V/f control status / FlyRestrt Vf stat
r1205.0...15	CO/BO: Flying restart, vector control status / FlyRestrtVectStat
r1214.0...15	CO/BO: Automatic restart, status / AR status
r1239.8...11	CO/BO: DC brake status word / DC brake ZSW
r1406.4...15	CO/BO: Control word speed controller / STW n_ctrl
r1407.0...13	CO/BO: Status word speed controller / ZSW n_ctrl
r1408.0...12	CO/BO: Status word closed-loop current control / ZSW curr ctrl
r2129.0...15	CO/BO: Trigger word for faults and alarms / Trigger word
r2135.12...15	CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2
r2138.7...15	CO/BO: Control word faults/alarms / STW fault/alarm
r2139.0...12	CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1
r2197.0...12	CO/BO: Status word monitoring 1 / ZSW monitor 1
r2198.0...13	CO/BO: Status word monitoring 2 / ZSW monitor 2
r2199.0...11	CO/BO: Status word monitoring 3 / ZSW monitor 3
r2225.0	CO/BO: Technology controller fixed value selection status word / Tec_ctrl FW status
r2349.0...11	CO/BO: Technology controller status word / Tec_ctrl stat word
r2399.0...8	CO/BO: Hibernation status word / Hib ZSW
r3113.0...15	CO/BO: NAMUR message bit bar / NAMUR bit bar
r3859.0	CO/BO: Status word compound brake / ZSW compound brake

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1.5 Quick commissioning (p0010 = 1)

The following parameters are necessary for quick commissioning (p0010 = 1).

Table 1-4 Quick commissioning (p0010 = 1)

Par.-No.	Name	Access level	Can be changed
p0004	Display filter	1	C(1)UT
p0010	Drive commissioning parameter filter	1	C(1)T
p0100 *)	IEC/NEMA mot stds	4	C(1)
p0205	Power unit application	1	C(1)
p0230	Drive filter type, motor side	3	C(1,2)
p0300	Motor type selection	2	C(1,3)
p0301	Motor code number selection	2	C(1,3)U
p0304	Rated motor voltage	1	C(1,3)
p0305	Rated motor current	1	C(1,3)
p0307	Rated motor power	1	C(1,3)
p0308	Rated motor power factor	1	C(1,3)
p0309 *)	Rated motor efficiency	1	C(1,3)
p0310	Rated motor frequency	1	C(1,3)
p0311	Rated motor speed	1	C(1,3)
p0314	Motor pole pair number	3	C(1,3)
p0322	Maximum motor speed	1	C(1,3)
p0323	Maximum motor current	1	C(1,3)
p0335	Motor cooling type	2	C(1,3)T
p0500	Technology application	1	C(1,5)T
p0640	Current limit	1	C(1,3)UT
p0700	Command source selection	1	C(1)T
p0922	PROFIdrive telegram selection	1	C(1)T

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Table 1-4 Quick commissioning (p0010 = 1), Fortsetzung

Par.-No.	Name	Access level	Can be changed
p1000	Selecting the speed setpoint	1	C(1)T
p1080	Minimum speed	1	C(1)T
p1082	Maximum speed	1	C(1)T
p1120	Ramp-function generator ramp-up time	1	C(1)UT
p1121	Ramp-function generator ramp-down time	1	C(1)UT
p1135	OFF3 ramp-down time	2	C(1)UT
p1300	Open-loop/closed-loop control operating mode	2	C(1)T
p1500	Selecting the torque setpoint	2	C(1)T
p1900	Motor data identification and rotating measurement	1	C(1)T
p3900	Completion of quick commissioning	1	C(1)

*) This function will be realised in next FW version.

When p0010 = 1 is chosen, p0003 (user access level) can be used to select the parameters to be accessed.

At the end of the quick commissioning sequence, set p3900 = 1 to carry out the necessary motor calculations and clear all other parameters (not included in p0010 = 1) to their default settings.

Note

This applies only in Quick Commissioning mode.

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Function diagrams

2

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2.2 Explanations for the function diagrams

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Fig. 2-1 1020 – Explanation of the symbols (Part 1)

Parameters

Symbol	Meaning
Parameter name [Unit] rxxxx[y..z]	Monitoring parameter with unit [Unit] and index range [y..z] or data set [C/D]
Parameter name from ... to [Unit] pxxxx[C/D] (Def)	Setting parameter with min/ max value and unit [Unit] data set [C/D] and factory setting (Def) *)

Connectors

Symbol	Meaning
Parameter name pxxxx[y..z] (Def)	Connector input CI with index range [y..z] or data set [C/D] and factory setting (Def) *)
Parameter name [Unit] rxxxx[y..z]	Connector output CO with unit [Unit] and with index range [y..z]

Binectors

Symbol	Meaning
Parameter name pxxxx[y..z] (Def.y)	Binector input BI with with index range [y..z] or data set [C/D] and factory setting.bit number (Def)
Parameter name rxxxx	Binector output BO

Data sets

Symbol	Meaning
pxxxx[C]	Parameter belongs to the Command Data Set (CDS).
pxxxx[D]	Parameter belongs to the Drive Data Set (DDS).

Connectors/binectors

Symbol	Meaning
Parameter name rxxxx rxxxx	Connector/binector output CO/BO

Pre-assigned connectors

Symbol	Meaning
Parameter name from ... to [Unit] pxxxx[D] (Def)	Setting parameter with min/ max value and unit [Unit] data set [D] and factory setting (Def)

Information on parameters, binectors, connectors

Symbol	Meaning
Parameter name	Parameter name (up to 18 characters)
[Unit]	[dimension unit]
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 applicable index, "[y...z]" specifies the 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 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]

Cross references between diagrams

Symbol	Meaning
Signal path	The function diagrams are sub-divided into signal paths 1...8 in order to facilitate orientation.
Text → [aaaa.b]	Text = Unique signal designation aaaa = Signal goes to target diagram aaa 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] = 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

*) For some parameters the value for the factory setting is calculated during commissioning for they are dependent on Power Module and motor (see Section 1.1.1 "Calculated").

1	2	3	4	5	6	7	8
Explanations for the function diagrams					FP_1020_97.vsd	Function diagram	- 1020 -
Explanation of the symbols (Part 1)					12.02.2009 V4.2	G120 CU230P-2	

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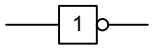
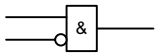
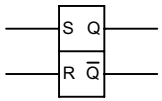
Symbols for logic functions



Logical inversion

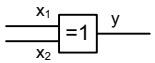


AND element with logical inversion of an input signal



R/S flip-flop

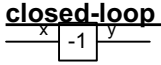
S = setting input
R = reset input
Q = non-inverted output
$\overline{Q}$ = inverted output



Exclusiv-OR/XOR

y = 1 when x1 != x2 is.

Symbols for computational and closed-loop control functions

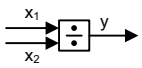


Sign reversal

y = -x

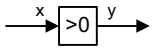
Absolute value generator

y = |x|



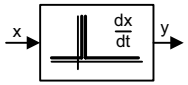
Divider

$y = \frac{x_1}{x_2}$



Comparator

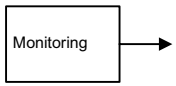
Output y = a logical "1", if the analog signal x > 0, i.e. is positive.



Differentiator

$y = \frac{dx}{dt}$

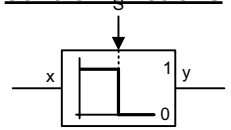
Symbol for monitoring



Monitoring

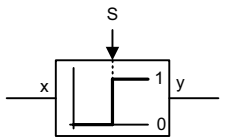
In the bottom right-hand corner of the diagram.

Symbols for computational and closed-loop control functions



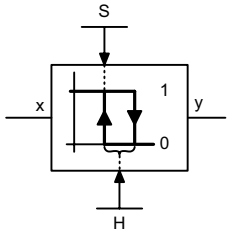
Threshold value switch 1/0

Outputs at y a logical "1" if x < S.



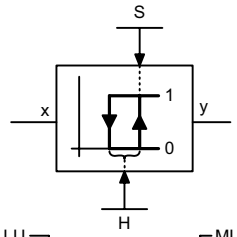
Threshold value switch 0/1

Outputs at y a logical "1" if x > S.



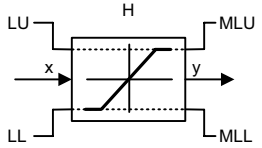
Threshold value 1/0 with hysteresis

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
Explanations for the function diagrams					FP_1021_97.vsd	Function diagram	- 1021 -
Explanation of the symbols (Part 2)					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-2 1021 – Explanation of the symbols (Part 2)

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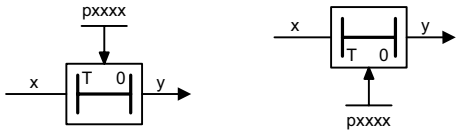
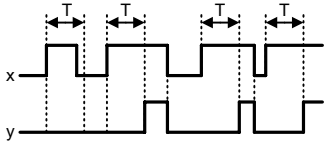
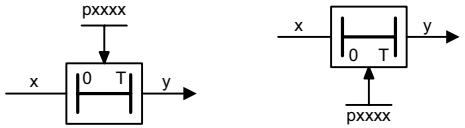
Switch-on delay



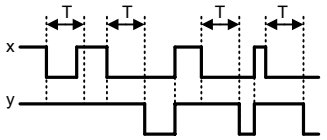
The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".



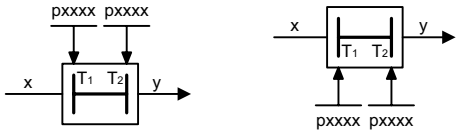
Switch-off delay



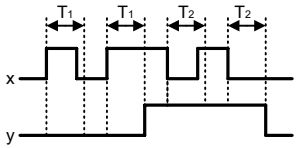
The digital signal x must have the value "0" without interruption during the time T before output y changes to "0".



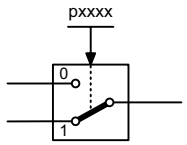
Delay (switch-on and switch-off)



The digital signal x must have the value "1" without interruption during time T1 or must have the value "0" during time T2 before output y changes its signal state.



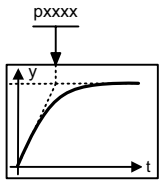
Switch symbol



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).

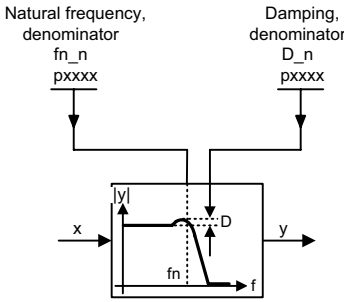
PT1 element



Delay element, first order.

pxxxx = time constant

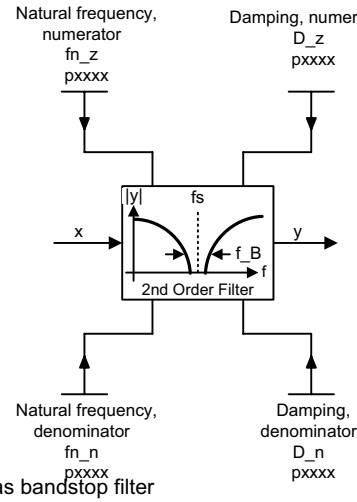
PT2 low pass



Transfer function

$$H(s) = \frac{1}{\left(\frac{s}{2\,\pi\,fn_n}\right)^2 + \frac{2 \cdot D_n}{2\,\pi\,fn_n} \cdot s + 1}$$

2nd-order filter (bandstop/general filter)



Used as bandstop filter

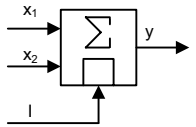
- center frequency fs:fn_z = fs
  fn_n = fs
- bandwidth f_B: D_z = 0

$$D_n = \frac{f_B}{2 \bullet fs}$$

Transfer function when used as general filter

$$H(s) = \frac{\left(\frac{s}{2\,\pi\,fn_z}\right)^2 + \frac{2 \cdot D_z}{2\,\pi\,fn_z} \cdot s + 1}{\left(\frac{s}{2\,\pi\,fn_n}\right)^2 + \frac{2 \cdot D_n}{2\,\pi\,fn_n} \cdot s + 1}$$

Analog adder can be activated



The following applies to I = 1 signal: y = x1 + x2

The following applies to I = 0 signal: y = x1

1	2	3	4	5	6	7	8
Explanations for the function diagrams					FP_1022_97.vsd	Function diagram	- 1022 -
Explanation of the symbols (Part 3)					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-3 1022 – Explanation of the symbols (Part 3)

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Handling BICO technology

Binector: r0723.15

Connector: r0723

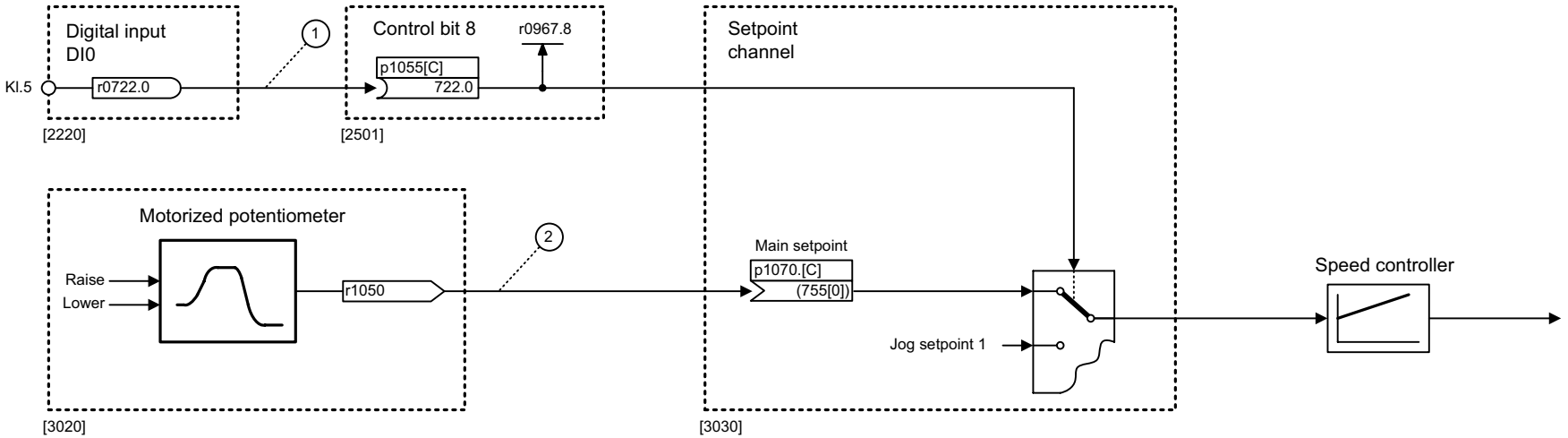
Connectors are "analog signals" that can be freely interconnected (e.g. percentage variables, speeds or torques).
Connectors are also "CO:" display parameters (CO = Connector Output).

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 DI0 (BO: r0722.0, Terminal 5 (KI.5)) on the CU230.



Parameterizing steps:

(1) p1055[0] = 722.0 Terminal 5 (KI.5) 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
Explanations for the function diagrams					FP_1030_97.vsd	Function diagram	- 1030 -
Handling BICO technology					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-4 1030 – Handling BICO technology

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2.3 Overview

Function diagrams

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1700 – Vector control, speed control and generation of the torque limits	2-358
1710 – Vector control, current control	2-359
1750 – Monitoring functions, faults, alarms	2-360

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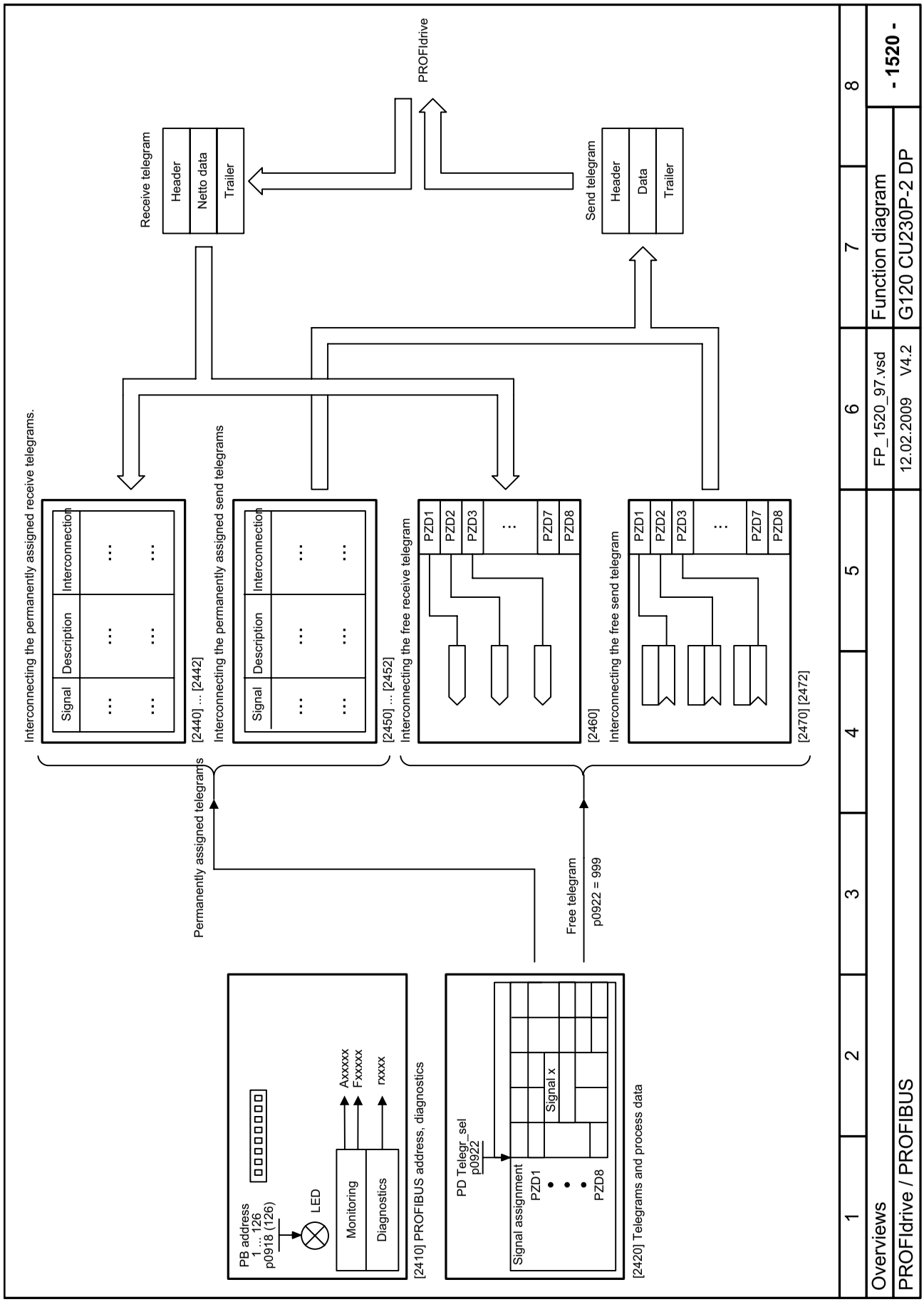

Fig. 2-5 1520 – PROFIdrive

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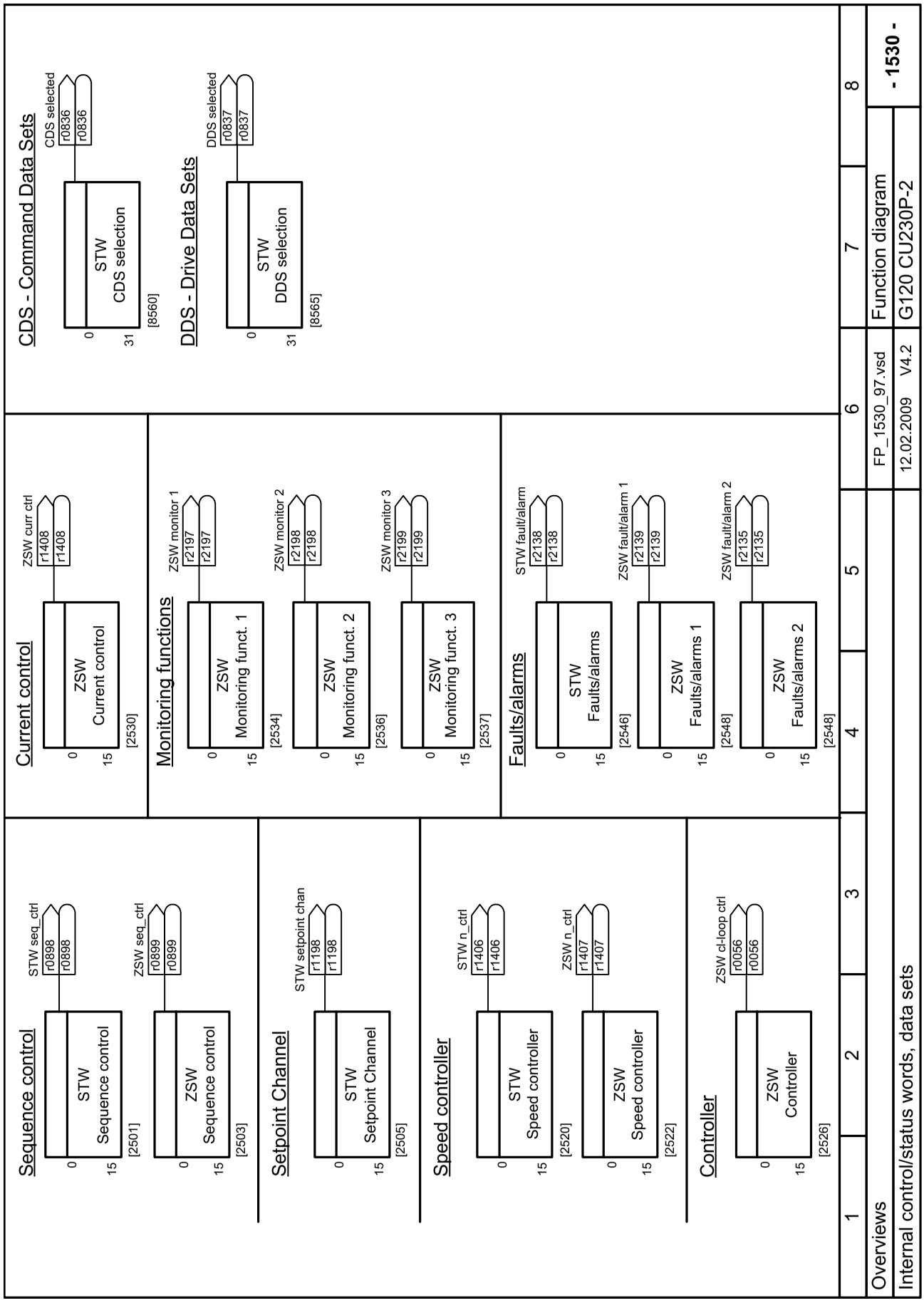

Fig. 2-6 1530 – Internal control/status words, data sets

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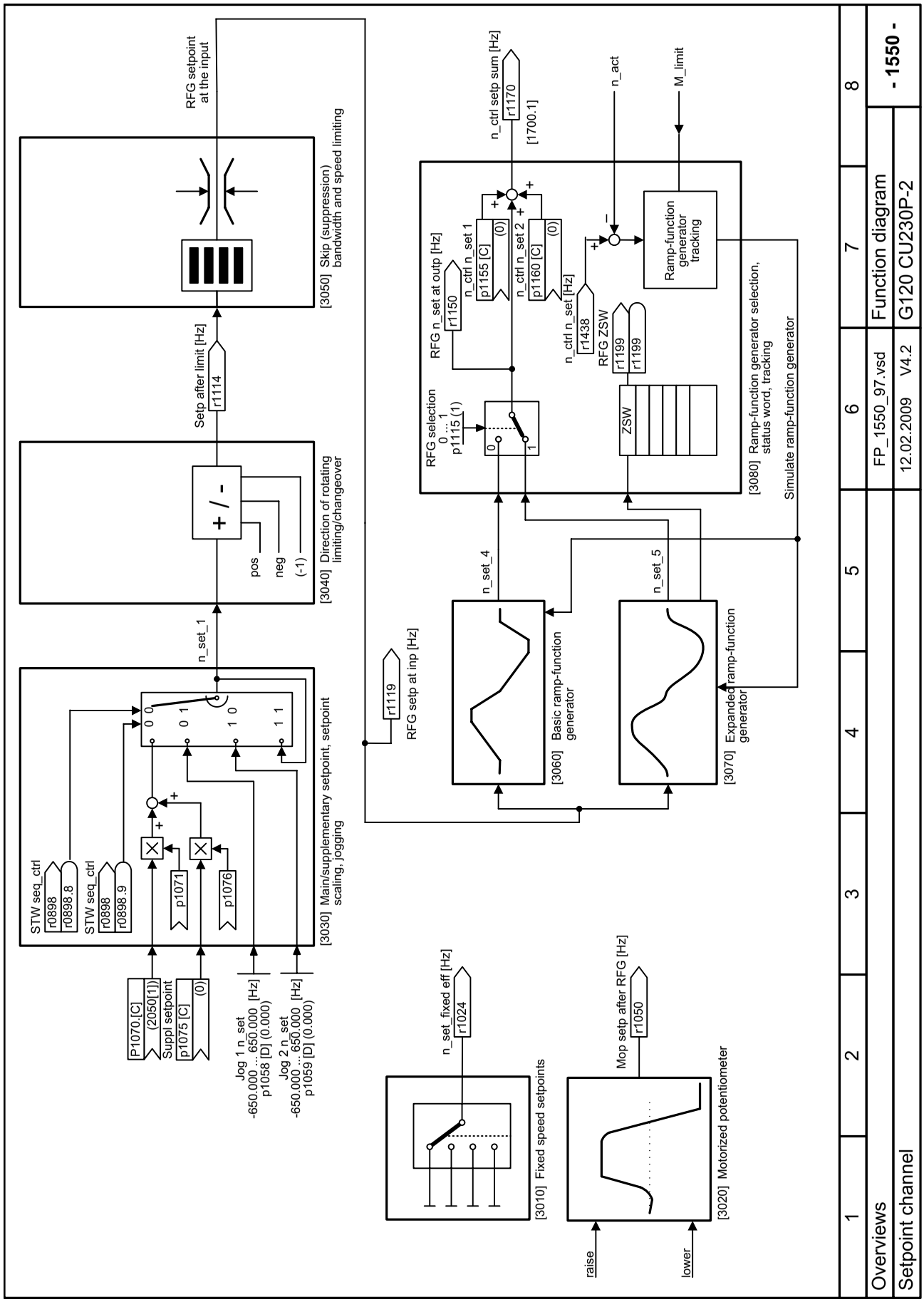

Fig. 2-7 1550 – Setpoint channel

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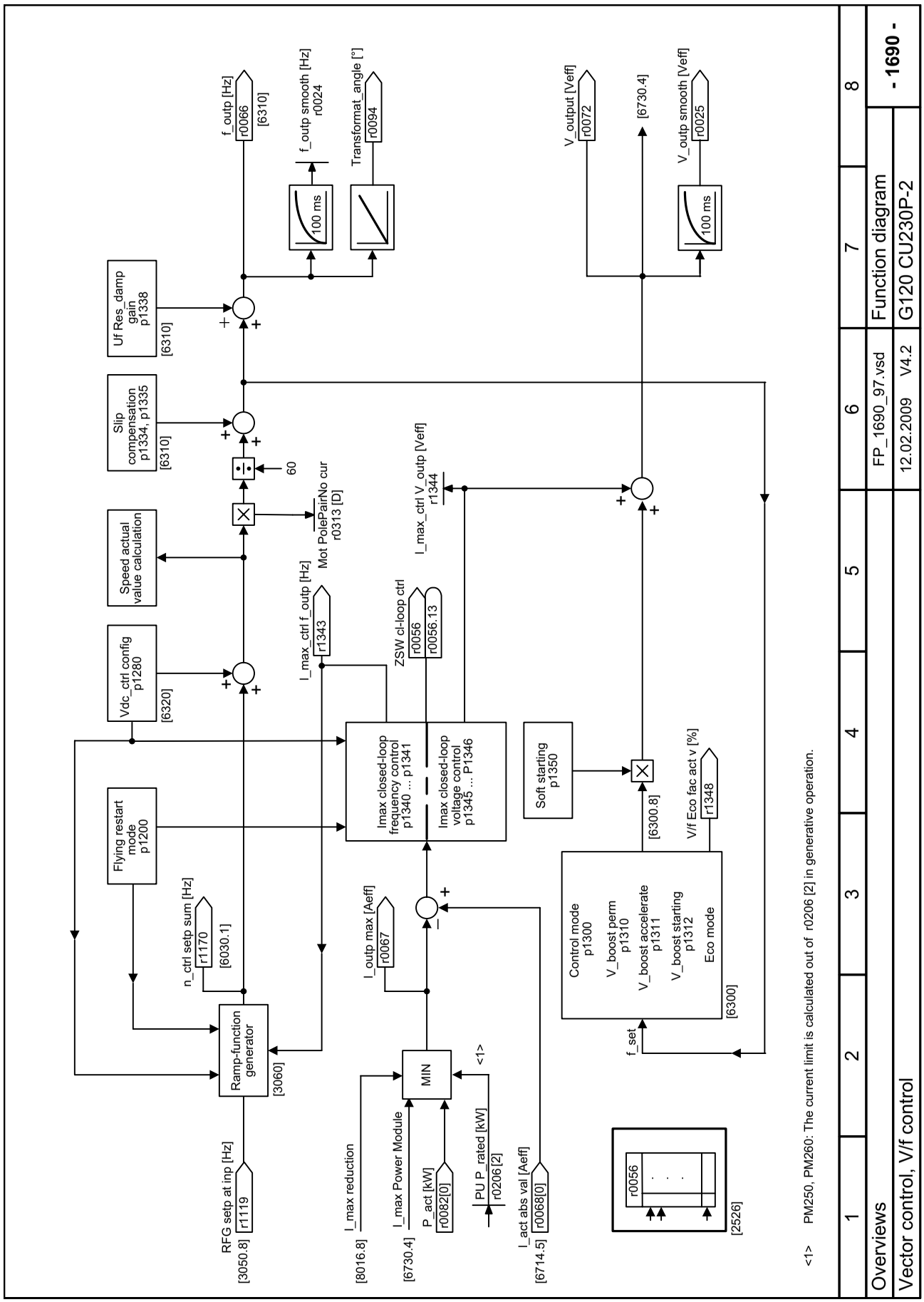

Fig. 2-8 1690 – Vector control, V/f control

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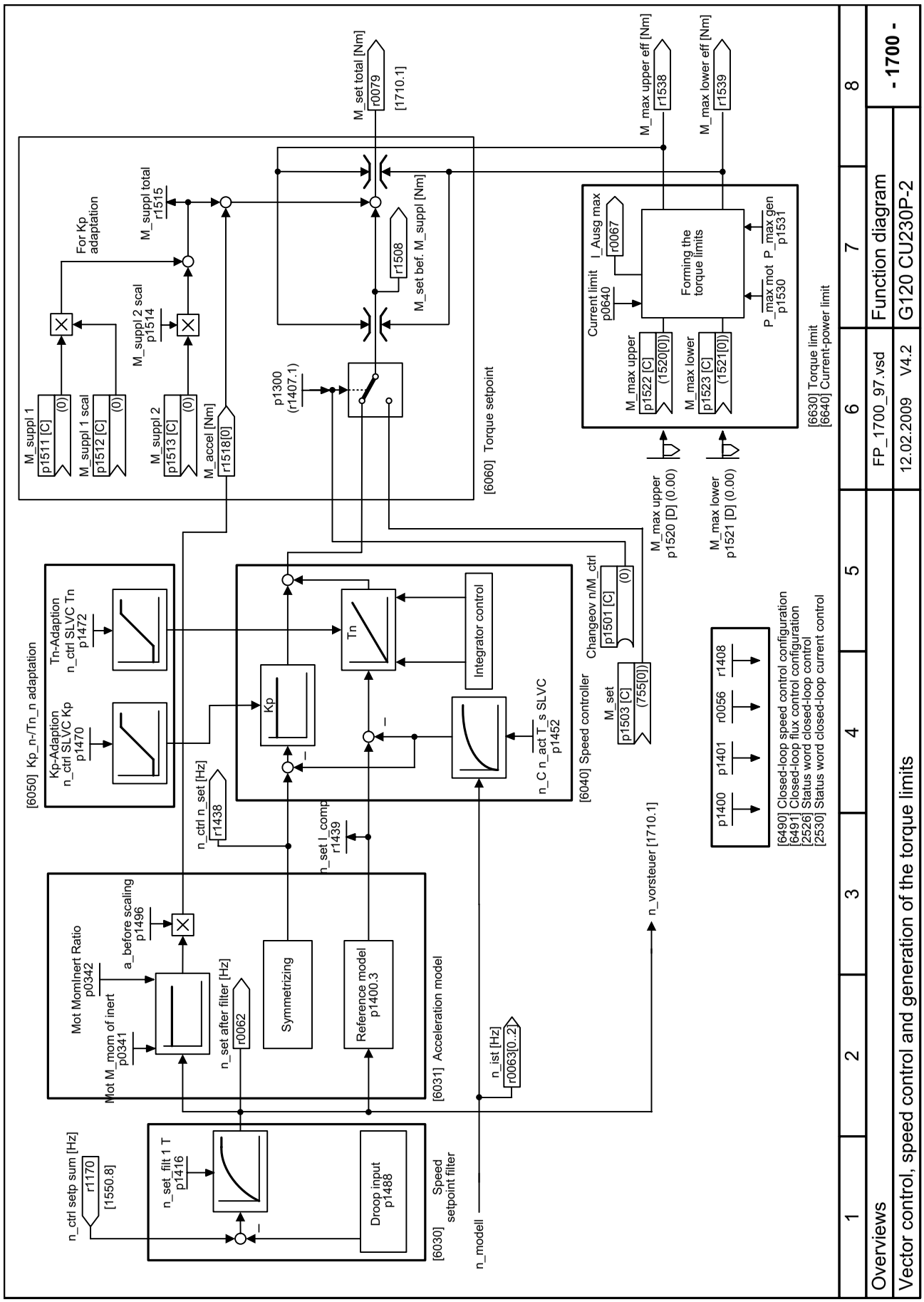

Fig. 2-9 1700 – Vector control, speed control and generation of the torque limits

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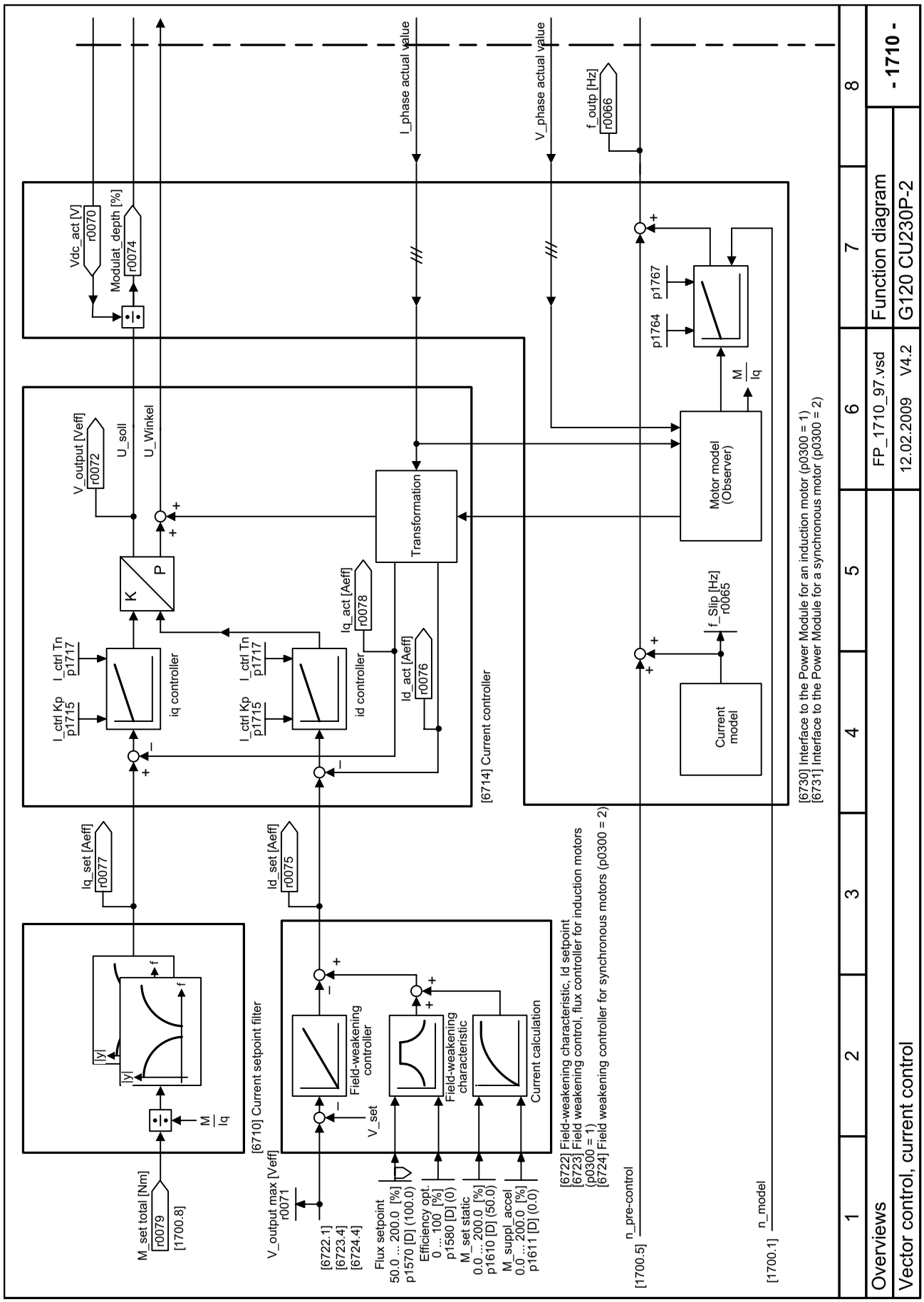

Fig. 2-10 1710 – Vector control, current control

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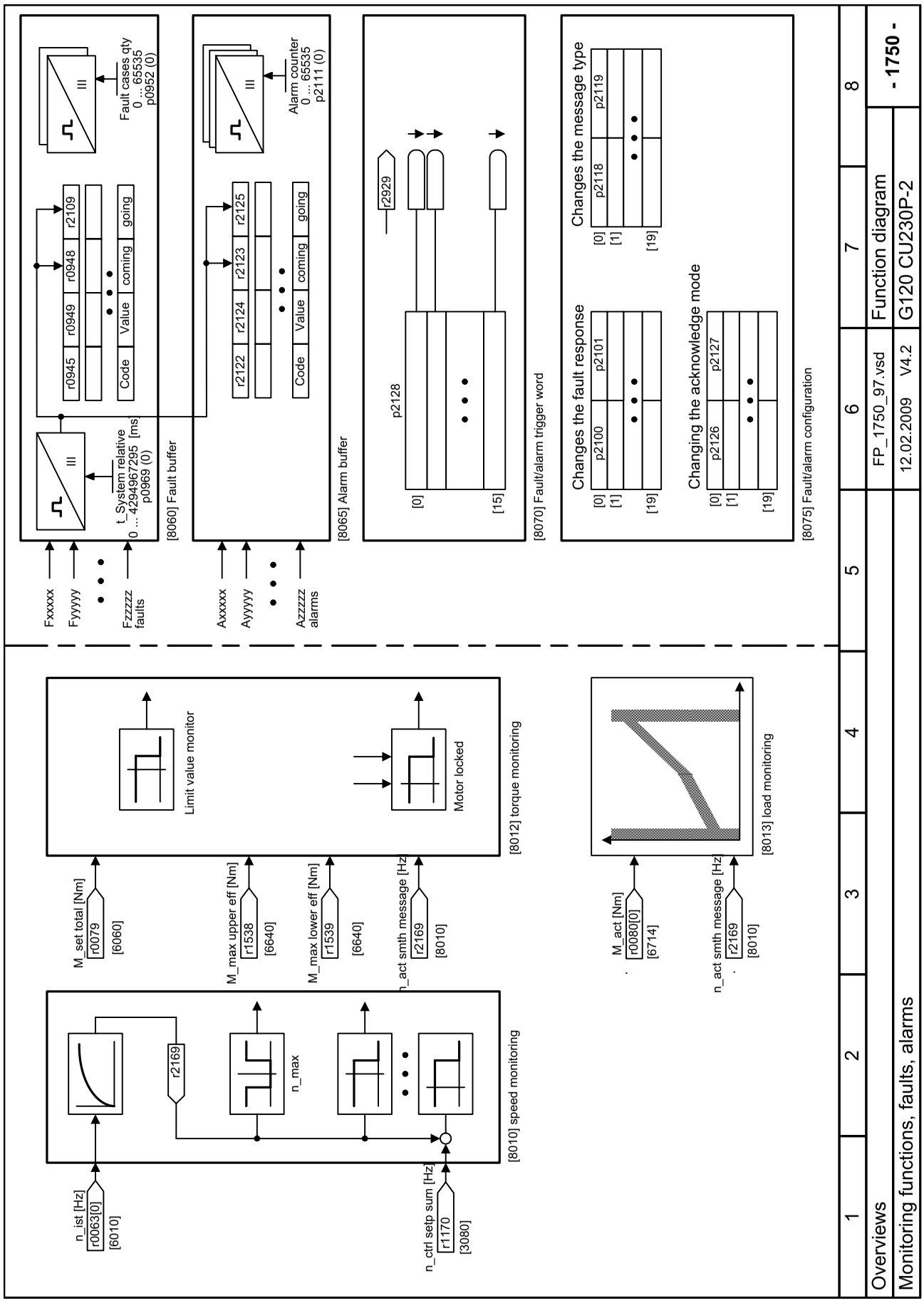

Fig. 2-11 1750 – Monitoring functions, faults, alarms

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2.4 Input/Output Terminals

Function diagrams

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9568 – Analog input 2 (AI2)	2-366
9576 – Temperature evaluation Ni1000/PT1000 (AI3)	2-367
9572 – Analog outputs 0 ... 1 (AO0 ... AO1)	2-368

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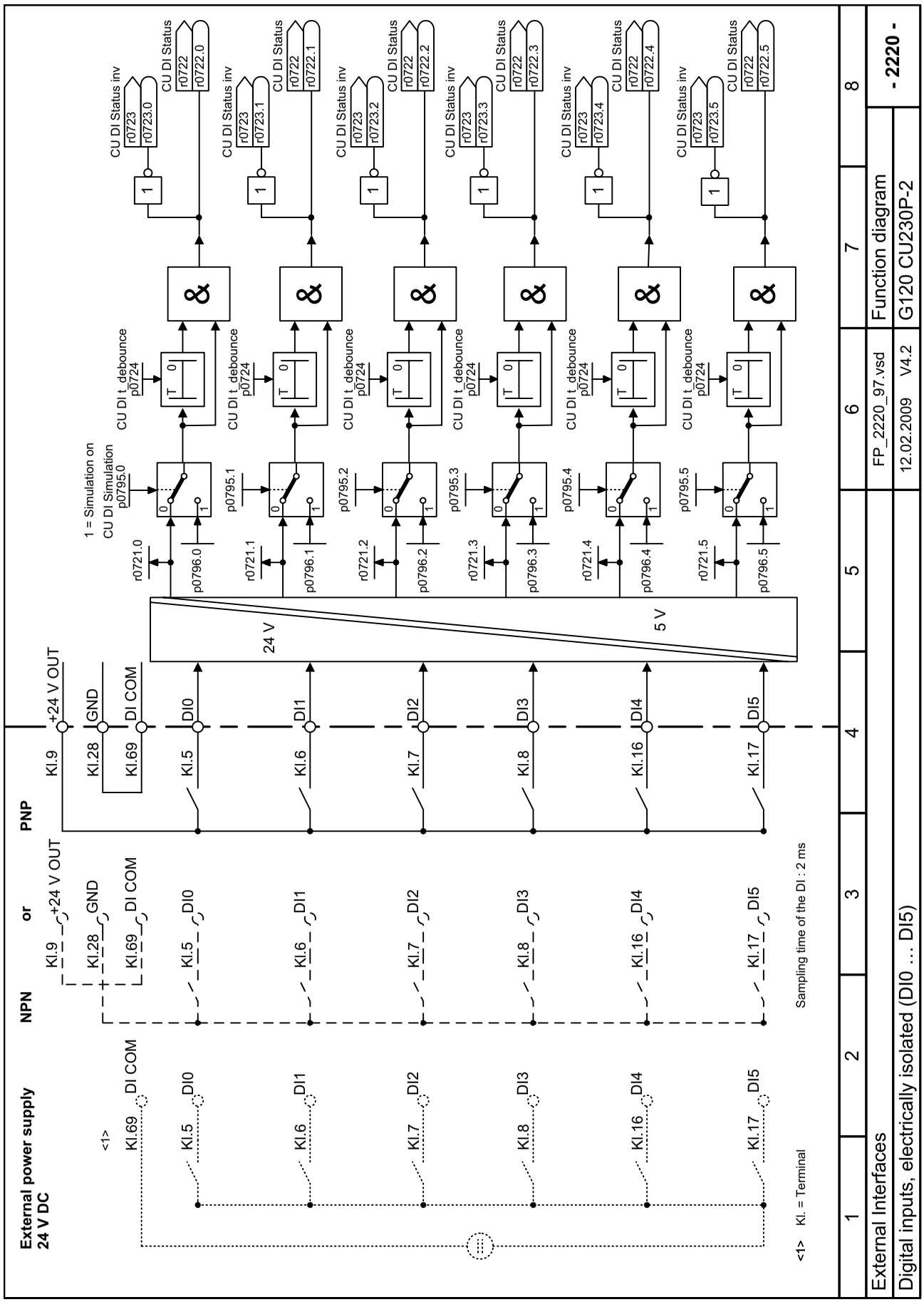

Fig. 2-12 2220 – Digital inputs, electrically isolated (DI0 ... DI5)

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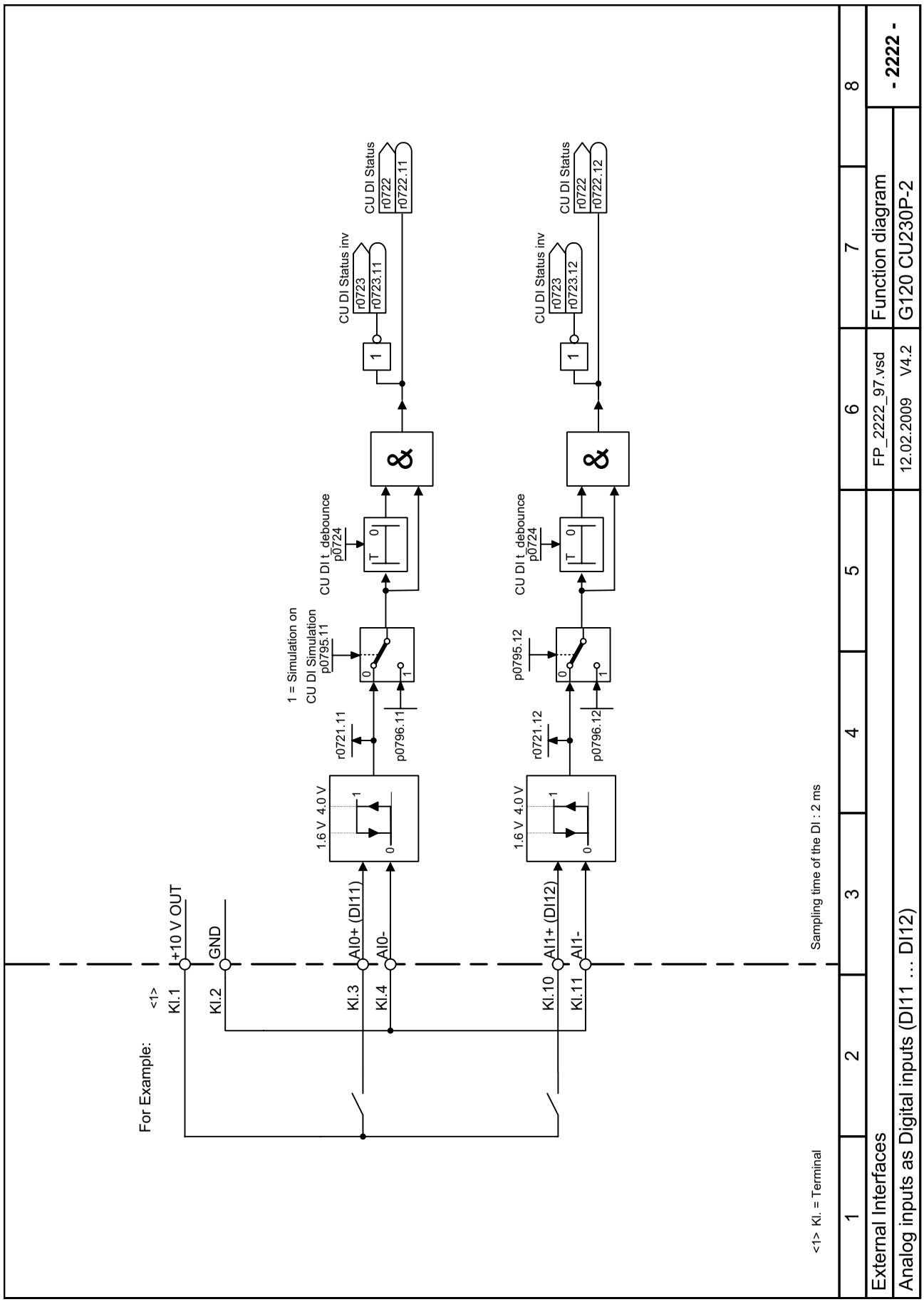

Fig. 2-13 2221 – Analog inputs as Digital inputs (DI11 ... DI12)

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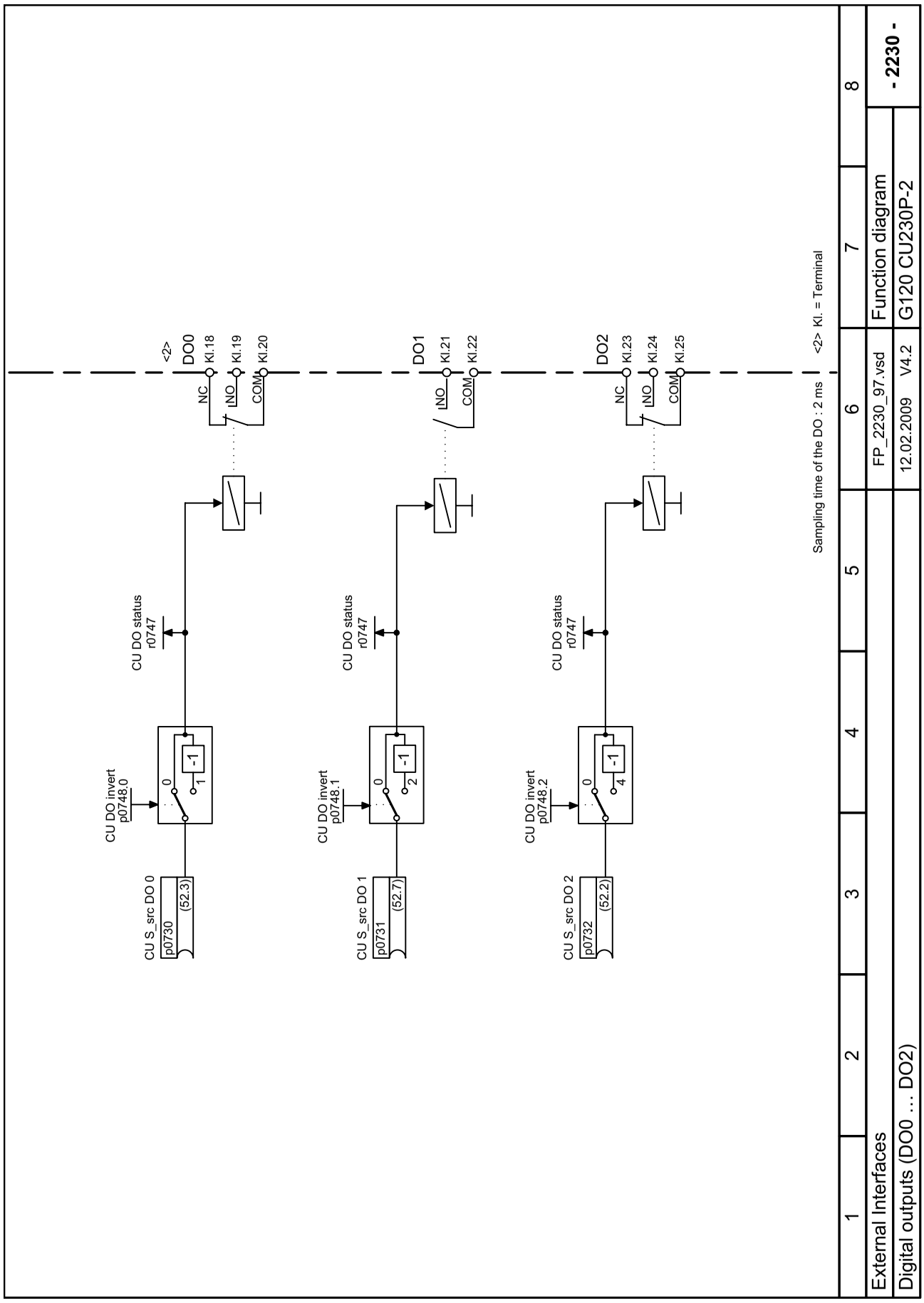

Fig. 2-14 2230 – Digital outputs (DO0 ... DO2)

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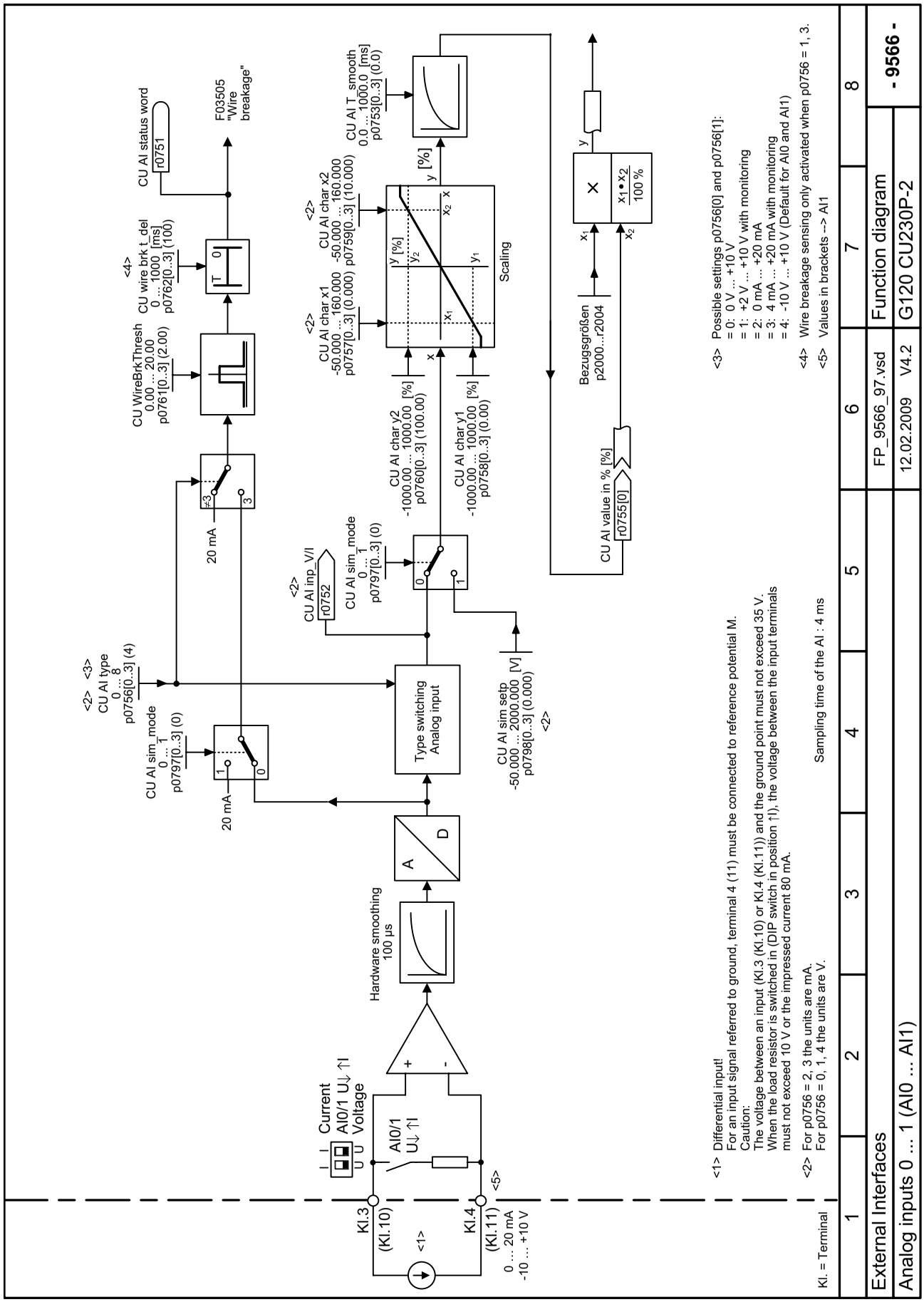

Fig. 2-15 9566 – Analog inputs 0 ... 1 (AI0 ... AI1)

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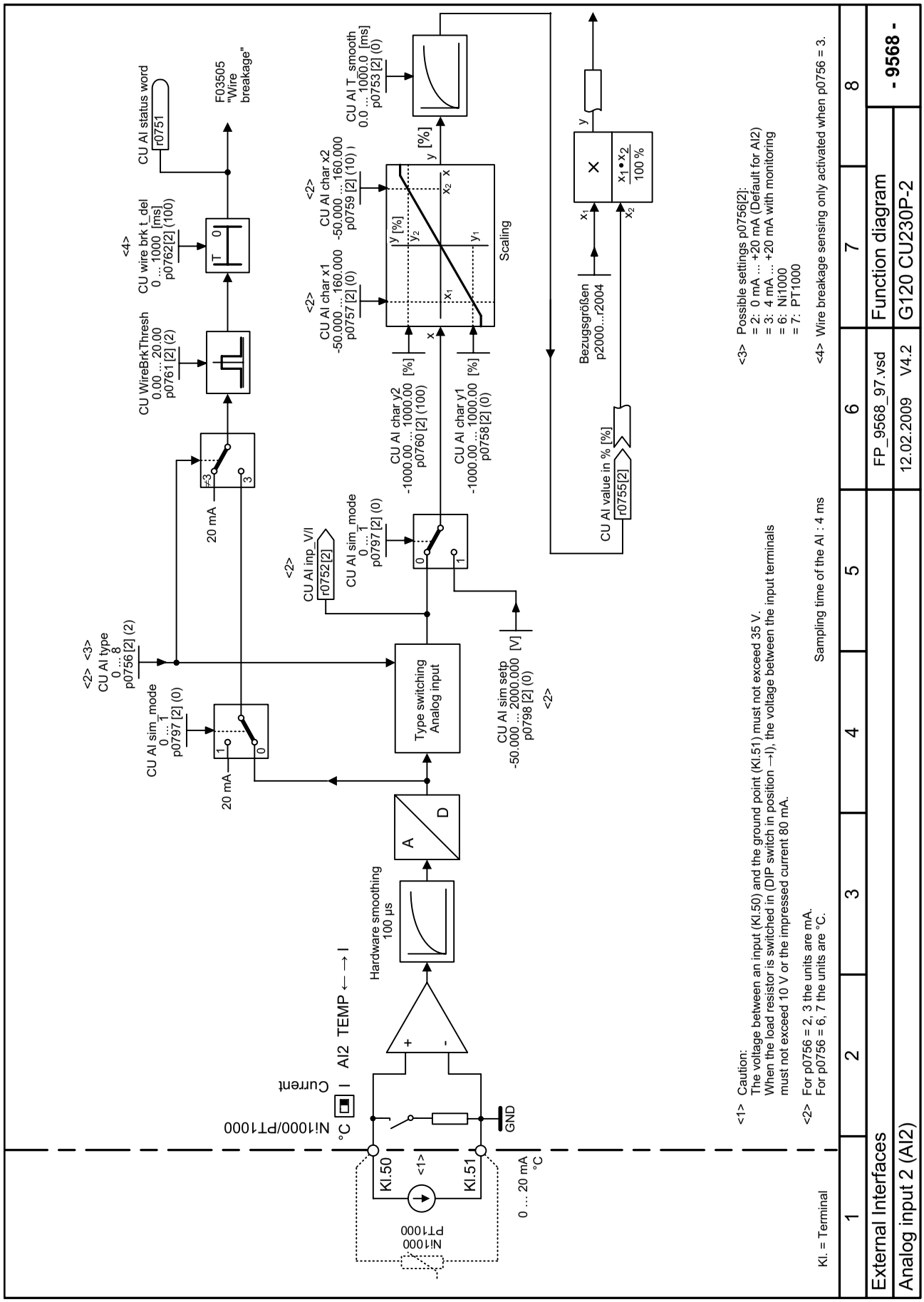

Fig. 2-16 9568 – Analog input 2 (AI2)

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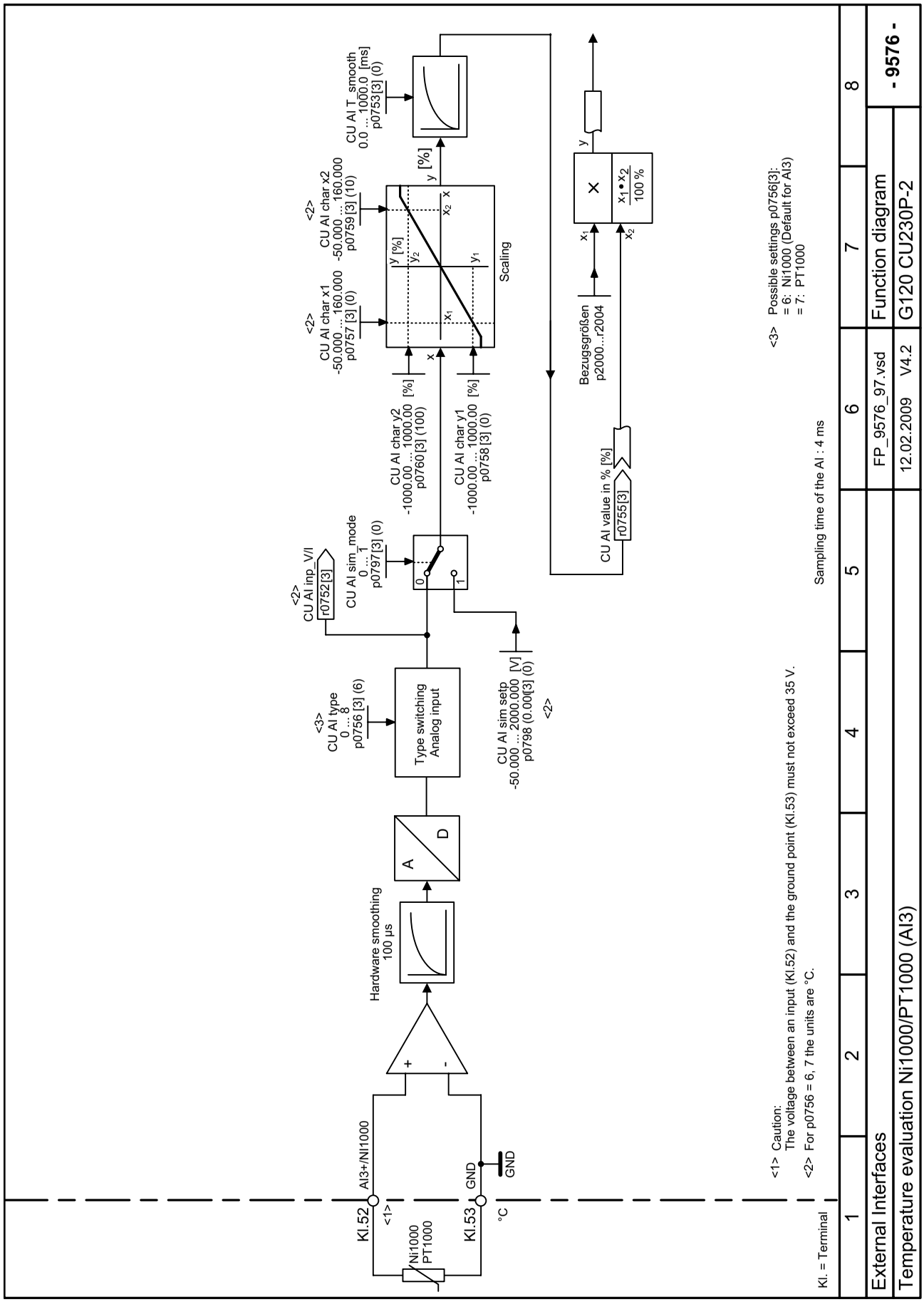

Fig. 2-17 9576 – Temperature evaluation Ni1000/PT1000 (AI3)

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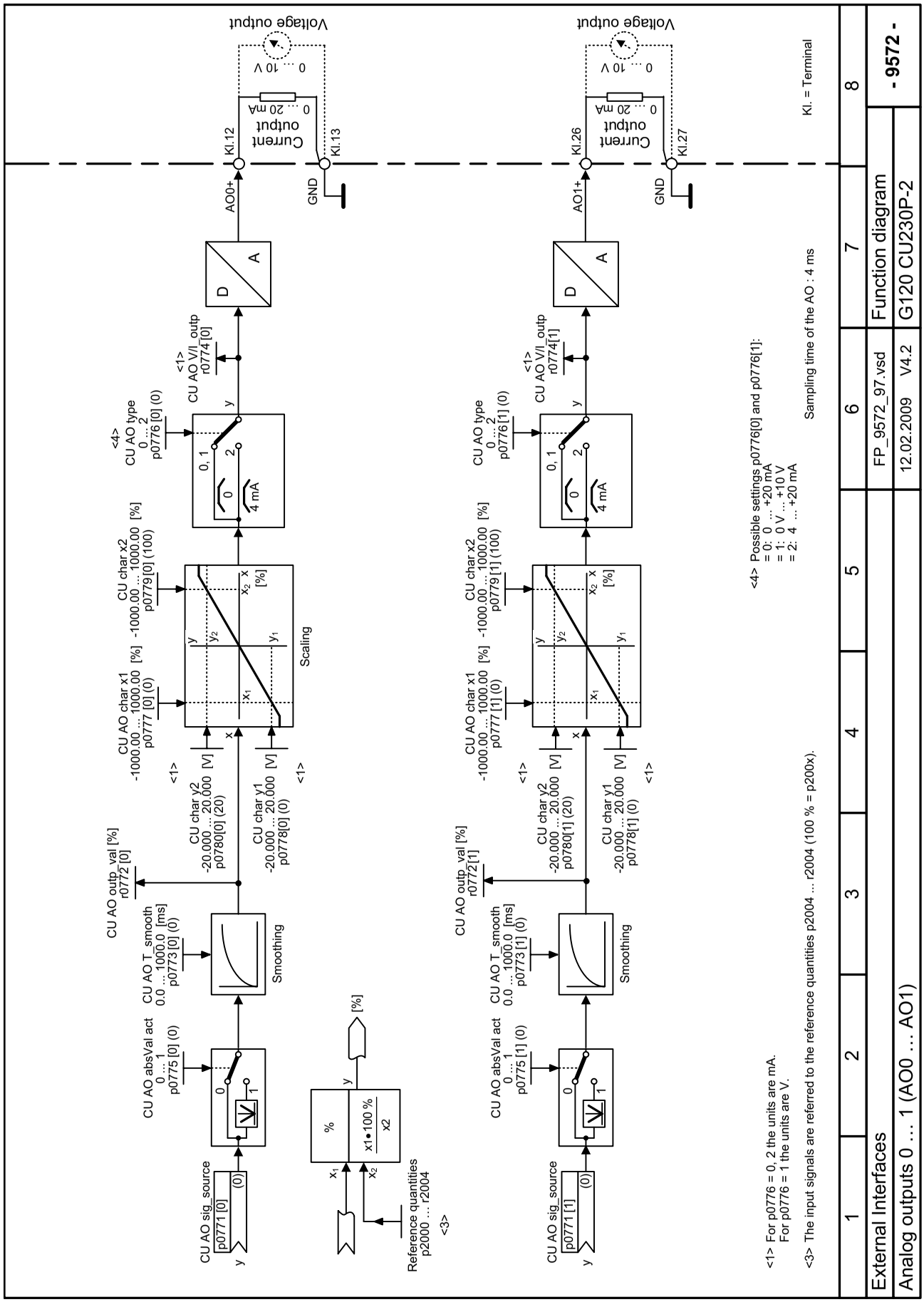

Fig. 2-18 9572 – Analog outputs 0 ... 1 (AO0 ... AO1)

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2.5 Communication

2.5.1 Fieldbus Interface (USS, Modbus) (CU230P-2 HVAC)

Function diagrams

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9370 – Send telegram, free interconnection via BICO	2-374
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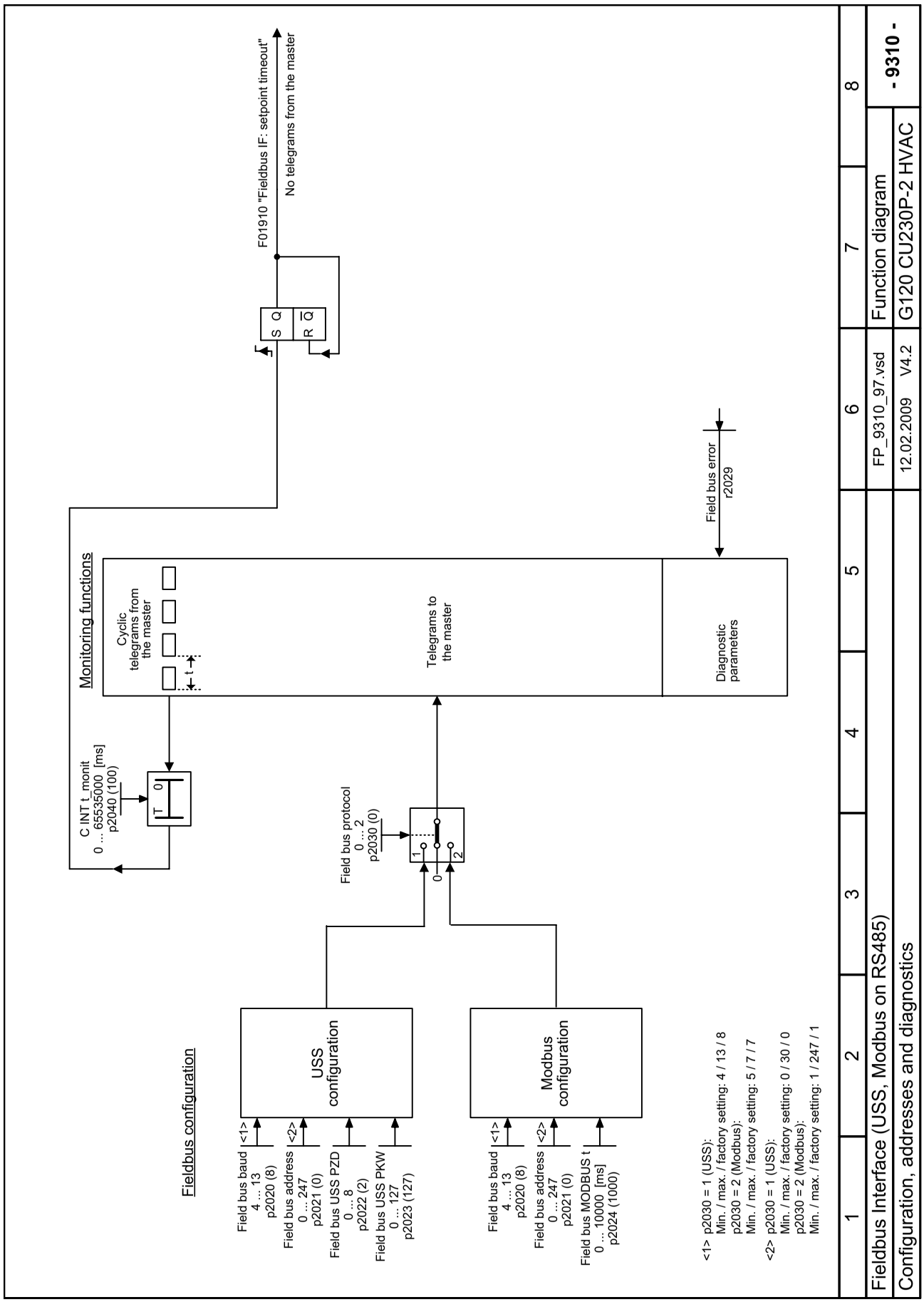

Fig. 2-19 9310 – Configuration, addresses and diagnostics

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Signal targets for fieldbus STW1 (p0700 = 6)

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 cancllation & ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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	⌜▲⌟ = Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-
STW1.8	Reserved	-	-	-	-
STW1.9	Reserved	-	-	-	-
STW1.10	1 = Control via PLC <1>	p0854[0] = r2090.10	[2501.3]	[2501]	-
STW1.11	1 = Dir of rot reversal	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	1 = Motorized potentiometer, setpoint, raise	p1035[0] = r2090.13	[2505.3]	[3020]	-
STW1.14	1 = Motorized potentiometer, setpoint, lower	p1036[0] = r2090.14	[2505.3]	[3020]	-
STW1.15	Reserved	-	-	-	-

<1> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
Fieldbus Interface (USS, Modbus on RS485)					FP_9342_97.vsd	Function diagram	- 9342 -
STW1 control word interconnection					12.02.2009 V4.2	G120 CU230P-2 HVAC	

Fig. 2-20 9342 – STW1 control word interconnection

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Signal sources for fieldbus ZSW1 (p0700 = 6)

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <1>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	Sequence control	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	Sequence control	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-
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]	Sequence control	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	Sequence control	-
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 <2>	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] = r1407.7	[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]	[8010]	-
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✔

<1> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)
<2> The drive is ready to accept data.

1	2	3	4	5	6	7	8
Fieldbus Interface (USS, Modbus on RS485)					FP_9352_97.vsd	Function diagram	- 9352 -
ZSW1 status word interconnection					12.02.2009 V4.2	G120 CU230P-2 HVAC	

Fig. 2-21 9352 – ZSW1 status word interconnection

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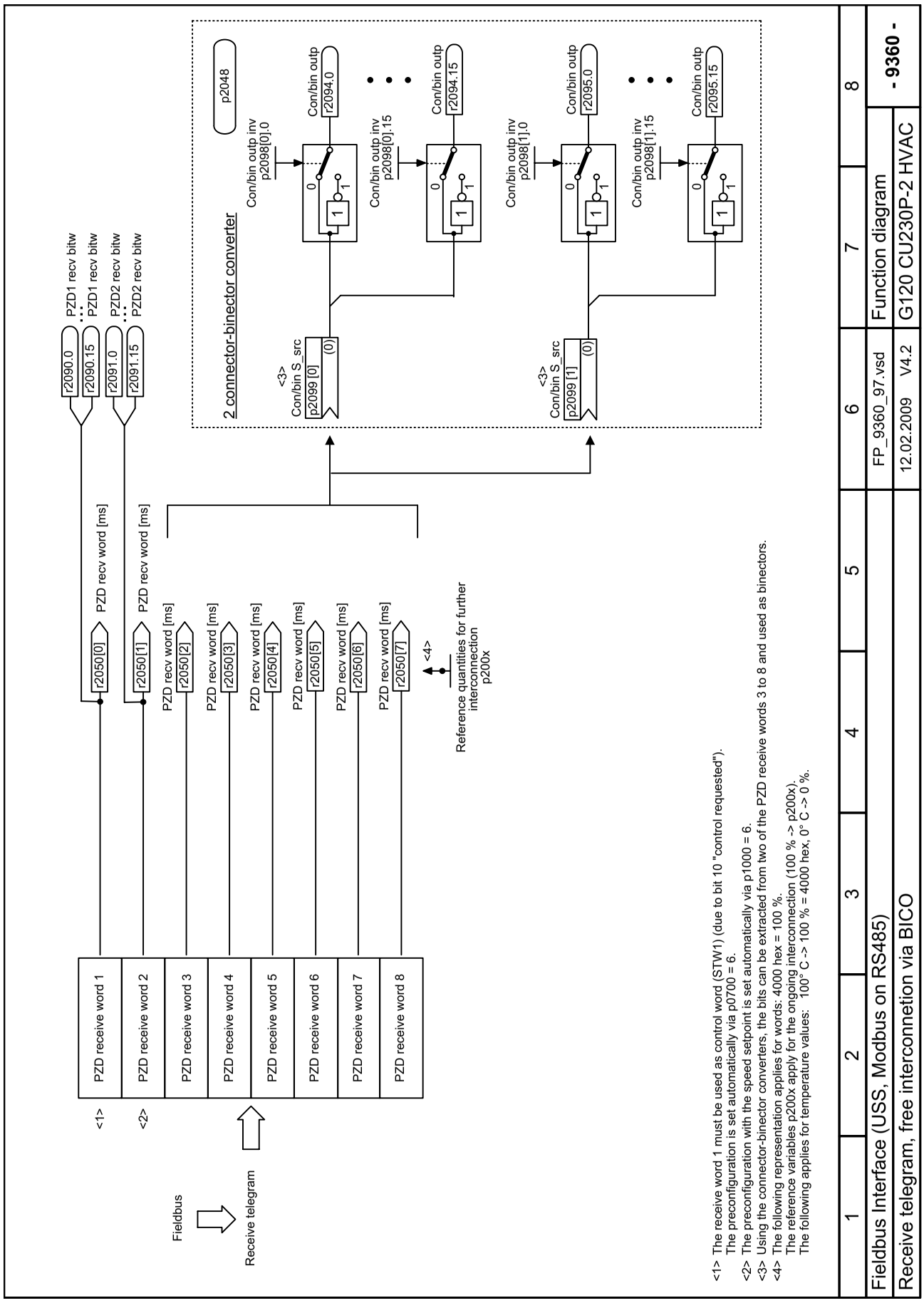

Fig. 2-22 9360 – Receive telegram, free interconnetion via BICO

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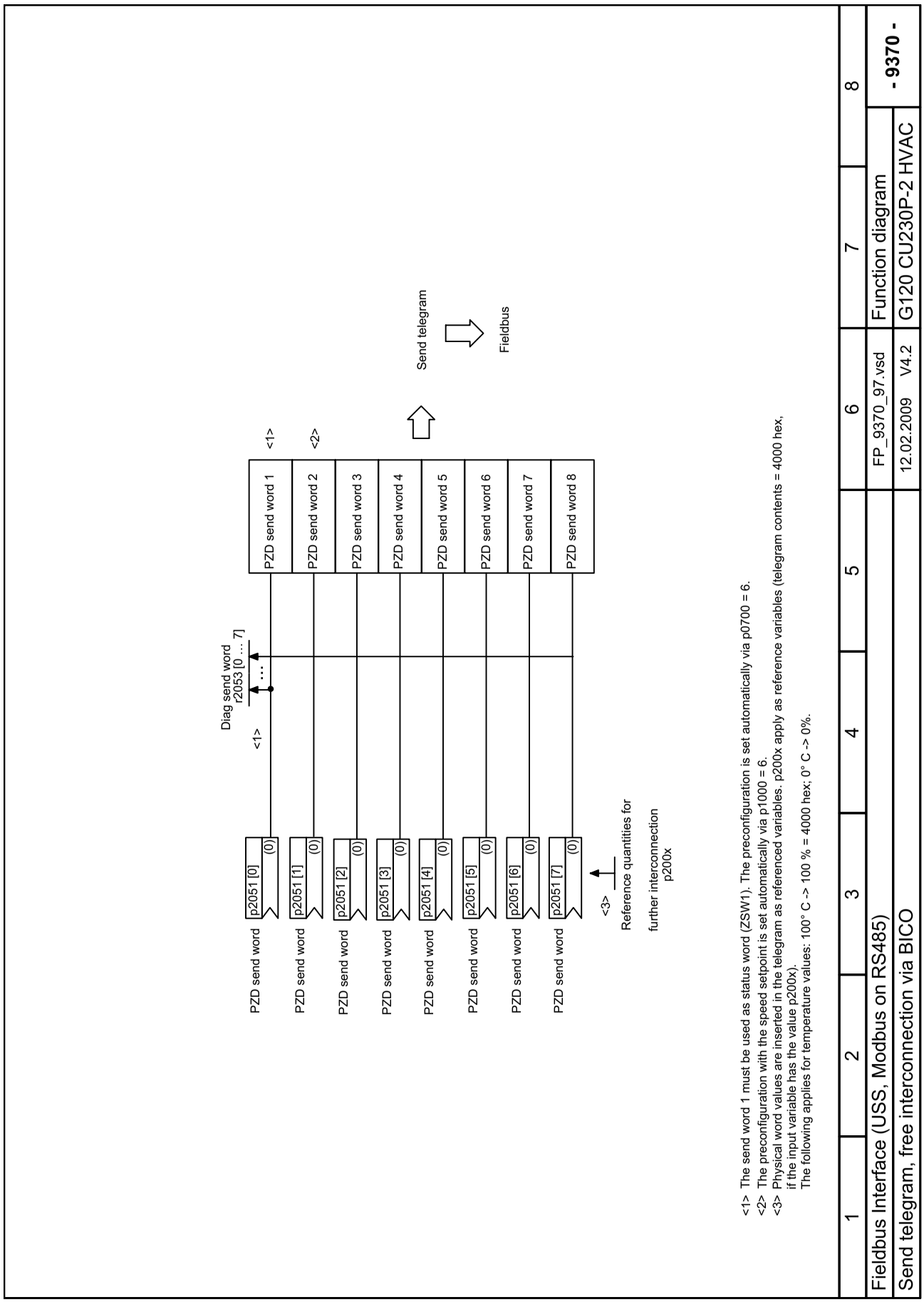

Fig. 2-23 9370 – Send telegram, free interconnection via BICO

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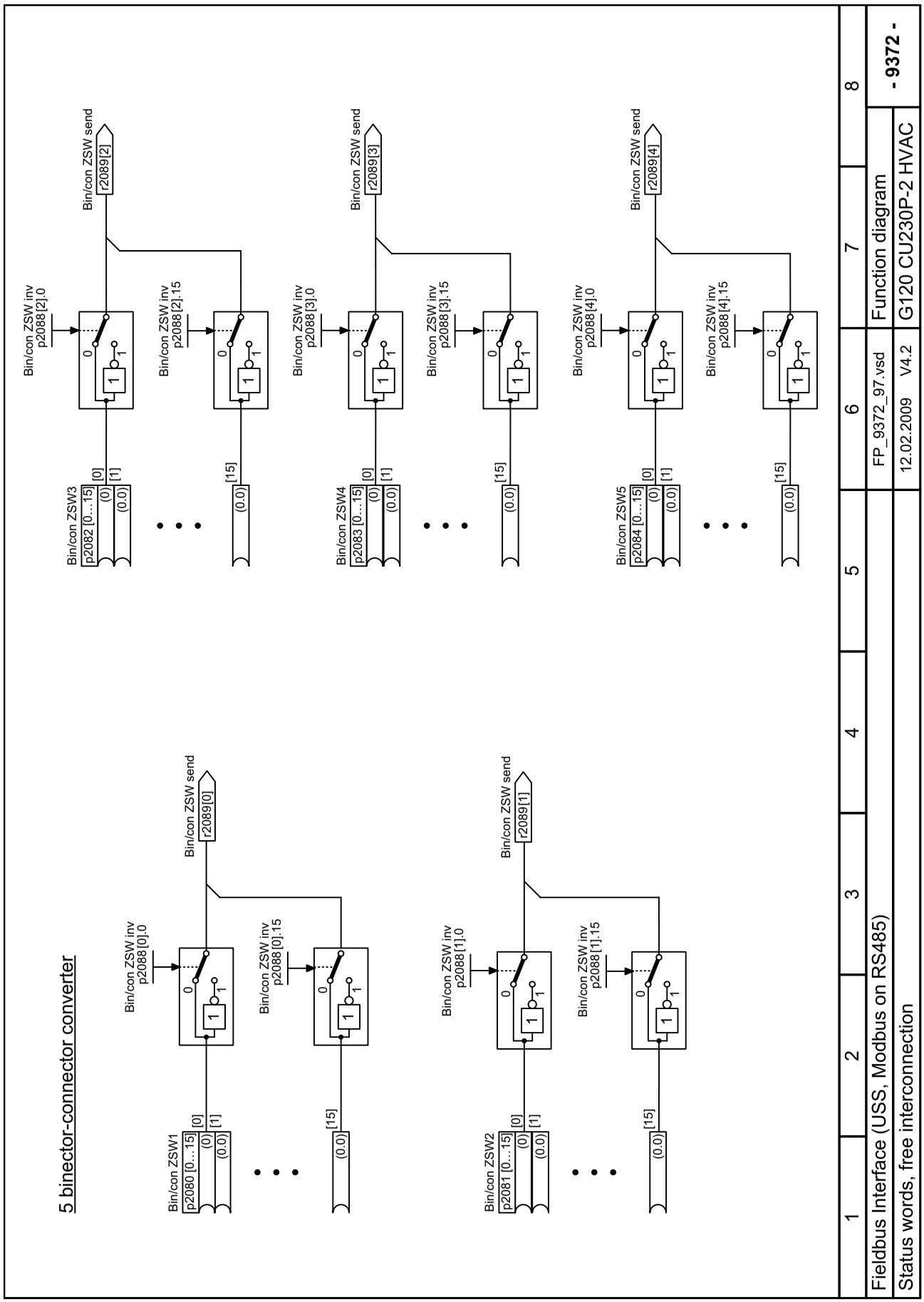

Fig. 2-24 9372 – Status words, free interconnection

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2.5.2 PROFIdrive / PROFIBUS (CU230P-2 DP)

Function diagrams

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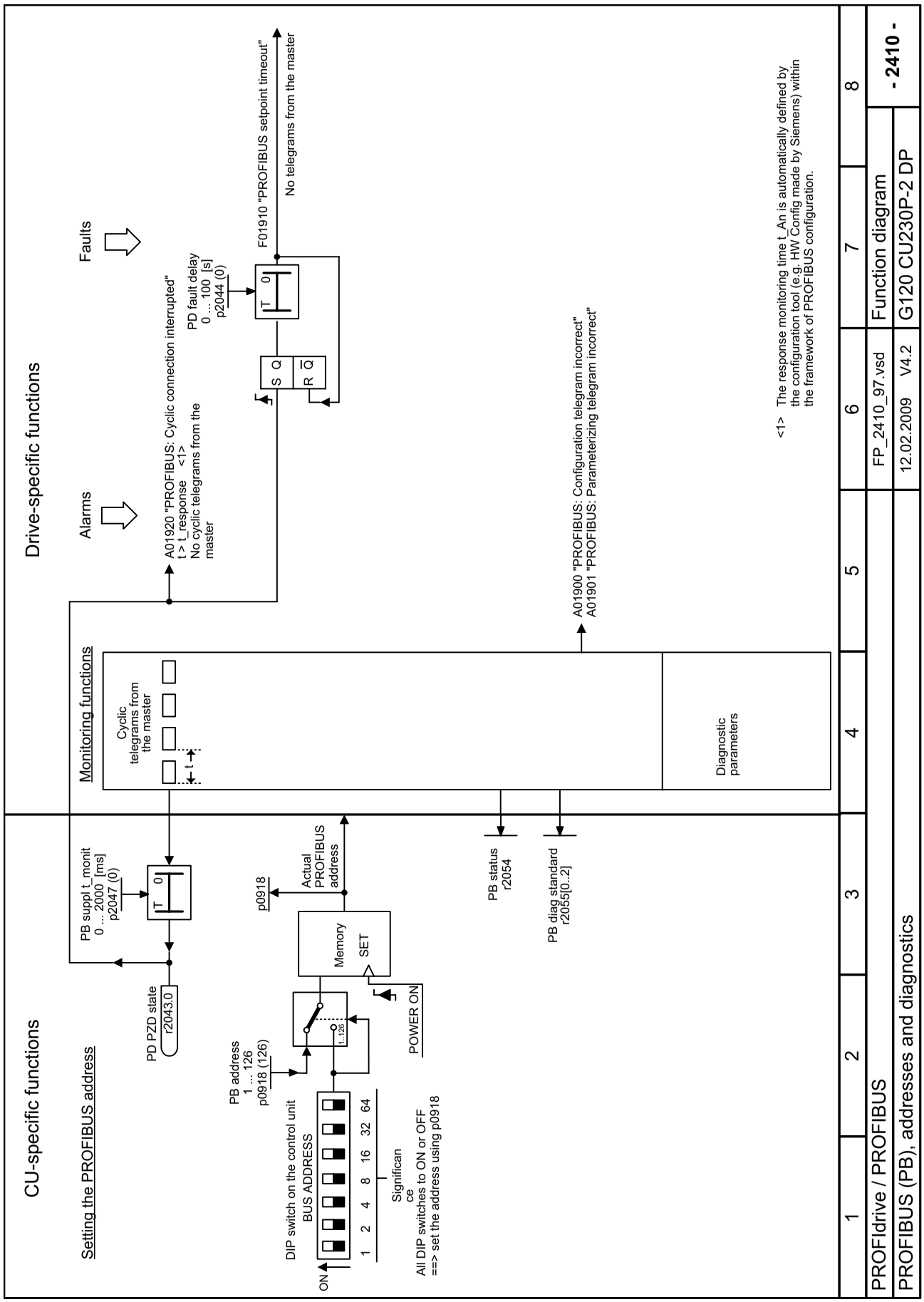

Fig. 2-25 2410 – PROFIBUS, addresses and diagnostics

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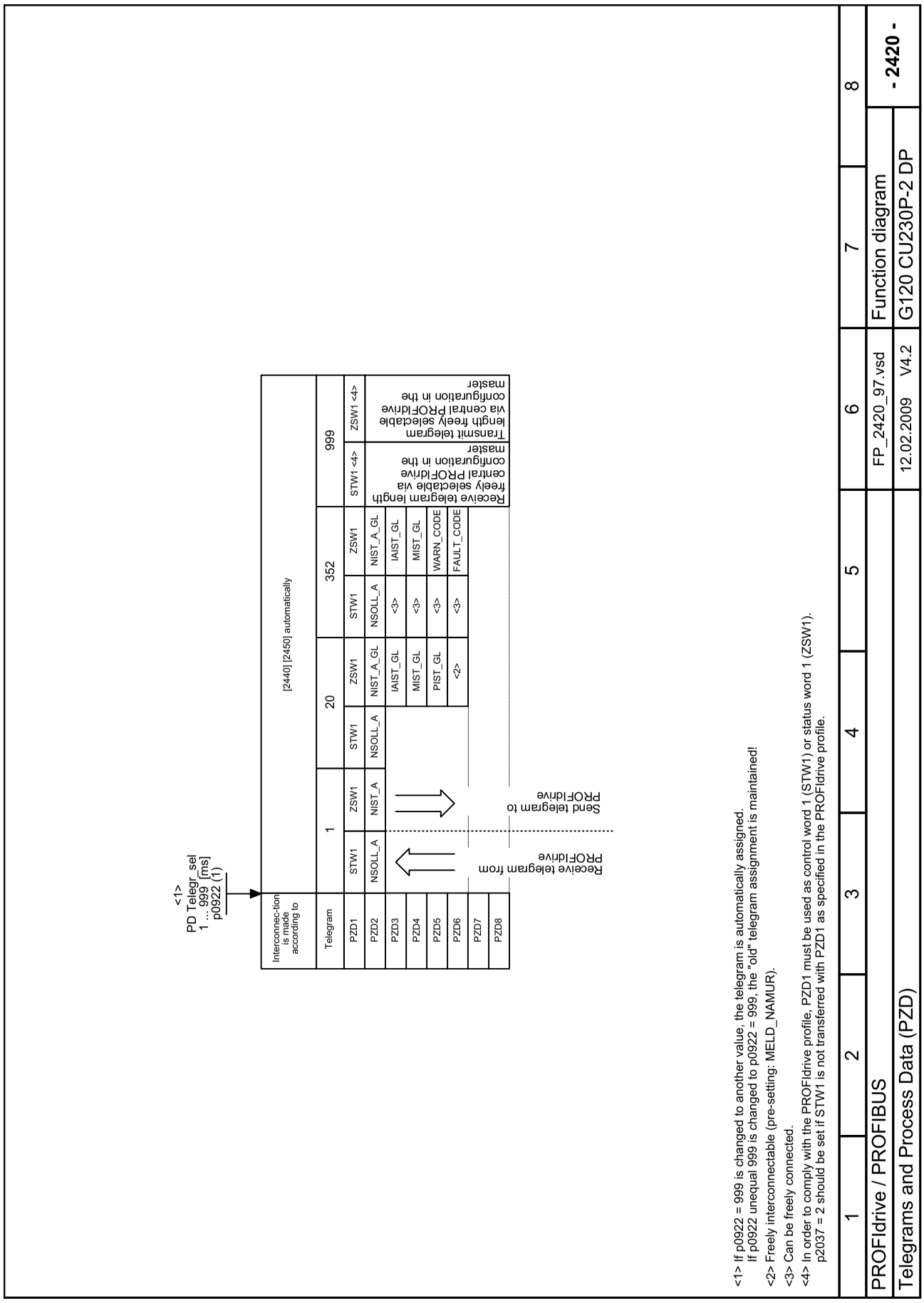

Fig. 2-26 2420 – Telegrams and Process Data (PZD)

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Signal receivers for PZD receive signals

Signal	Meaning	PROFIdrive Signal No. <1>	Interconnection parameter <1>	Function diagram <2>	Data type <2>	Normalization
STW1	Control word 1	1	(bit serial)	[2442]	U16	-
NSOLL_A	Speed setpoint A (16-bit)	5	p1070	[3030.2]	I16	4000 hex ≙ p2000

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS are automatically set to 0.
<2> Data type according to to the PROFIdrive profile: I16 = Integer16, U16 = Unsigned16.
<3> Display parameters for receive data according to [2460].

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2440_97.vsd	Function diagram	- 2440 -
PZD receive signals interconnection					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-27 2440 – PZD receive signals interconnection

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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 cancllation & ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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	↑ = 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 = Dir of rot reversal	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	Reserved	-	-	-	-
STW1.14	Reserved	-	-	-	-
STW1.15	1 = CDS selection	p0810[0] = 2090.15 <3>	-	[8565]	-

<1> Used in telegram 20.
<2> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
<3> Interconnection is not disabled.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2441_97.vsd	Function diagram	- 2441 -
STW1 control word interconnection (p2038 = 2)					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-28 2441 – STW1 control word interconnection

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Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0) <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 cancllation & ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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	⌐▲ = 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 = Dir of rot reversal	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	1 = Motorized potentiometer, setpoint, raise	p1035[0] = r2090.13	[2505.3]	[3020]	-
STW1.14	1 = Motorized potentiometer, setpoint, lower	p1036[0] = r2090.14	[2505.3]	[3020]	-
STW1.15	Reserved	-	-	-	-

<1> Used in telegrams 1, 352.
<2> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2442_97.vsd	Function diagram	- 2442 -
STW1 control word interconnection (p2038 = 0)					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-29 2442 – STW1 control word interconnection (p2038 = 0)

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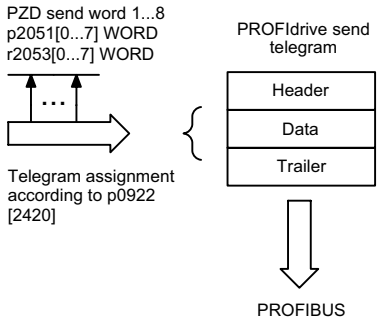
Fig. 2-30 2450 – PZD send signals interconnection

Signal sources for PZD send signals

Signal	Description	PROFIdrive Signal No.	Interconnection parameter	Function diagram	Data type <1>	Normalization
ZSW1	Status word 1	2	r2089[0]	[2452]	U16	-
NIST_A	Actual speed A (16 bit)	6	r0063[0]	-	I16	4000 hex – p2000
IAIST_GLATT	Absolute actual current, smoothed	51	r0068[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]	-	I16	4000 hex ≙ p2000
MELD_NAMUR	VIK-NAMUR message bit bar	58	r3113	-	U16	
FAULT_CODE	Fault code	301	r2131	[8060]	U16	
WARN_CODE	Alarm code	303	r2132	[8065]	U16	



<1> Data type according to the PROFIdrive profile: I16 = Integer16, U16 = Unsigned16.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2450_97.vsd	Function diagram	- 2450 -
PZD send signals interconnection					12.02.2009 V4.2	G120 CU230P-2 DP	

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Signal sources for ZSW1 in Interface Mode VIK-NAMUR (p2038 = 2) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	Sequence control	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	Sequence control	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-
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]	Sequence control	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	Sequence control	-
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]	[8010]	-
ZSW1.15	1 = Display CDS	p2080[15] = r0836.0 <4>	-	-	-

<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
PROFIdrive / PROFIBUS					FP_2451_97.vsd	Function diagram	- 2451 -
ZSW1 status word interconnection (p2038 = 2)					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-31 2451 – ZSW1 status word interconnection (p2038 = 2)

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Signal sources for ZSW1 im Interface Mode SINAMICS (p2038 = 0) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted <2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	Sequence control	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	Sequence control	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	Sequence control	-
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]	Sequence control	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	Sequence control	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	Sequence control	-
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] = r1407.7	[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]	[8010]	-
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✔

<1> Used in telegrams 1, 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 is ready to accept data.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2452_97.vsd	Function diagram	- 2452 -
ZSW1 status word interconnection (p2038 = 0)					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-32 2452 – ZSW1 status word interconnection (p2038 = 0)

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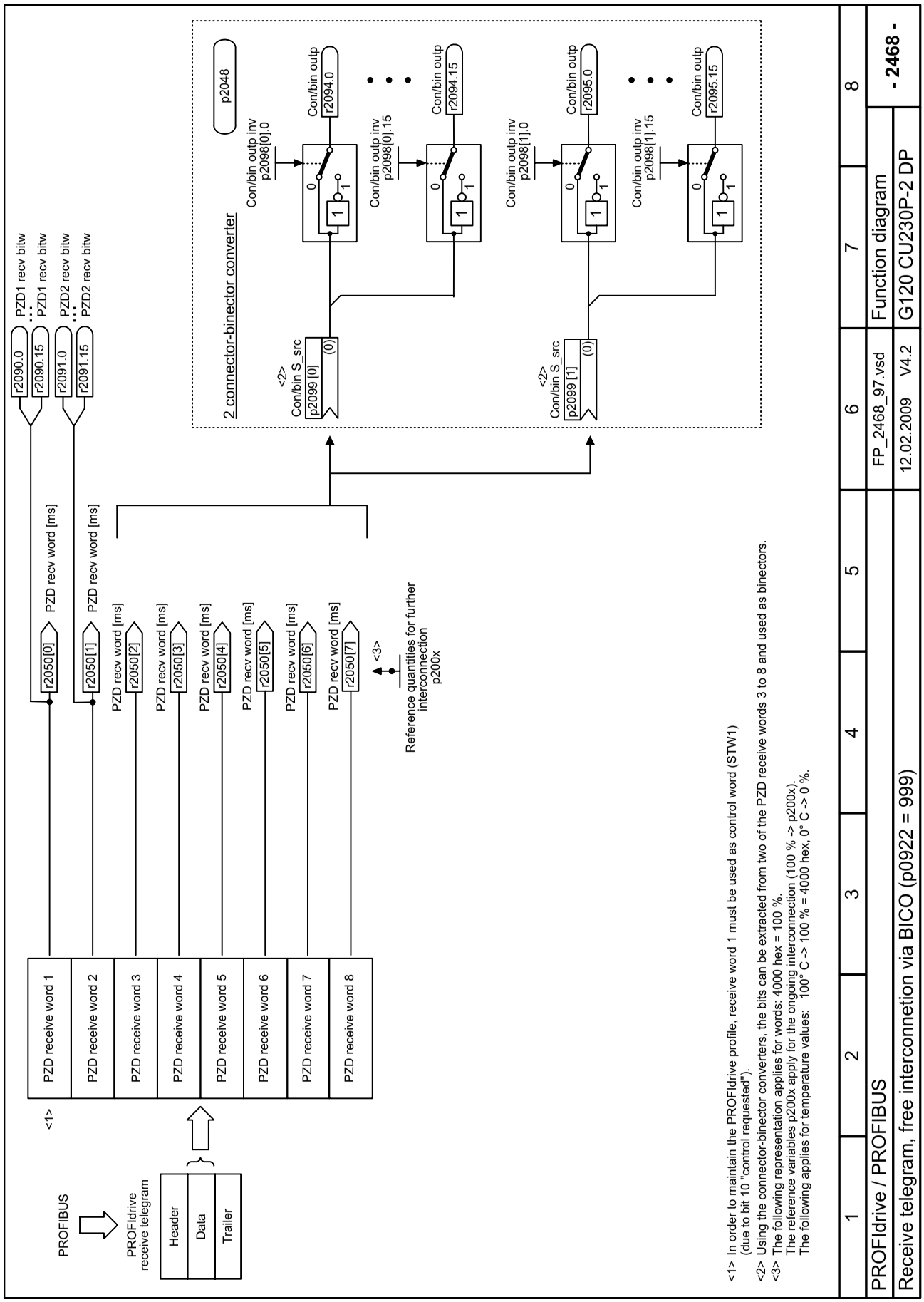

Fig. 2-33 2468 – Receive telegram, free interconnetion via BICO (p0922 = 999)

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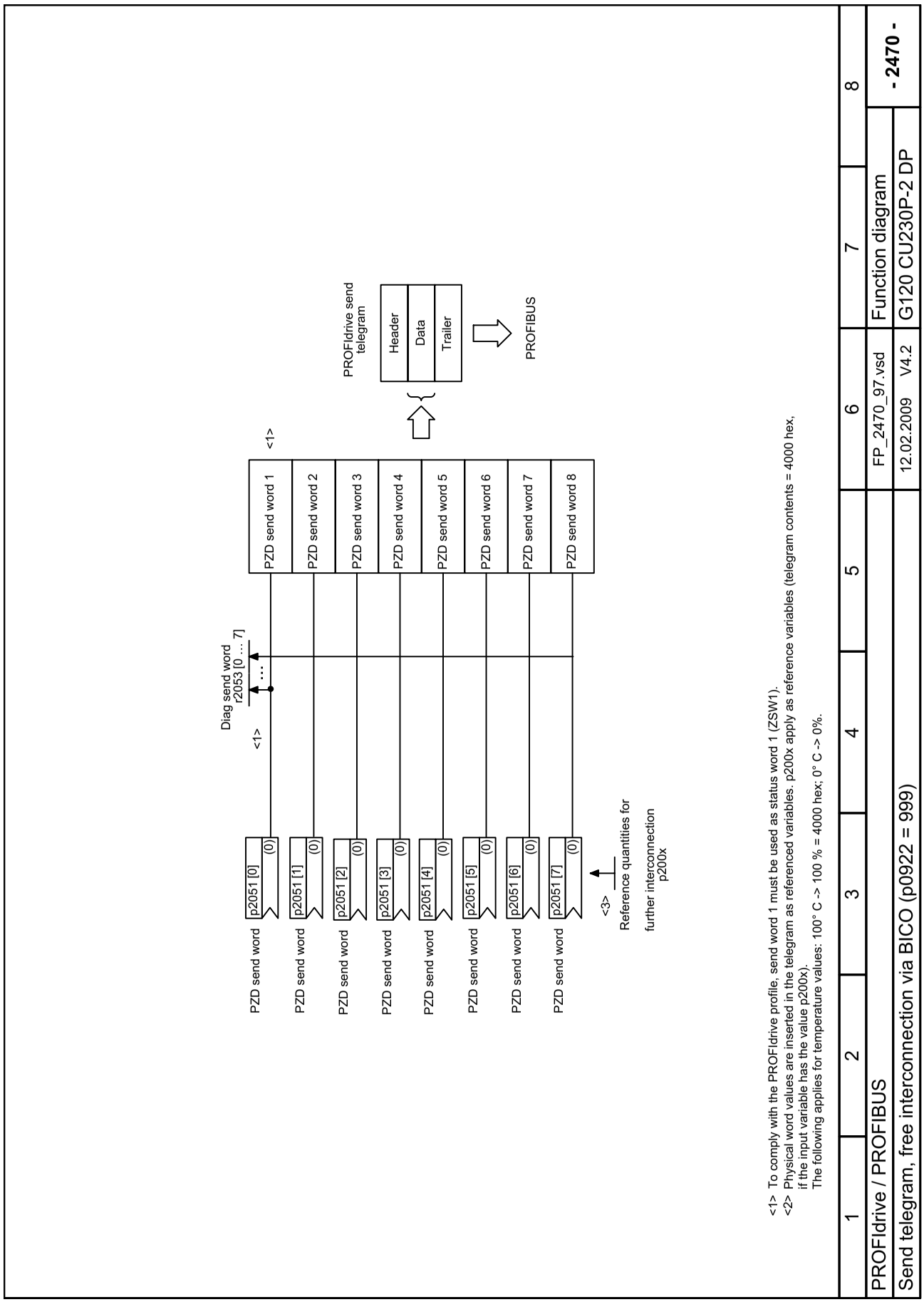

Fig. 2-34 2470 – Send telegram, free interconnection via BICO (p0922 = 999)

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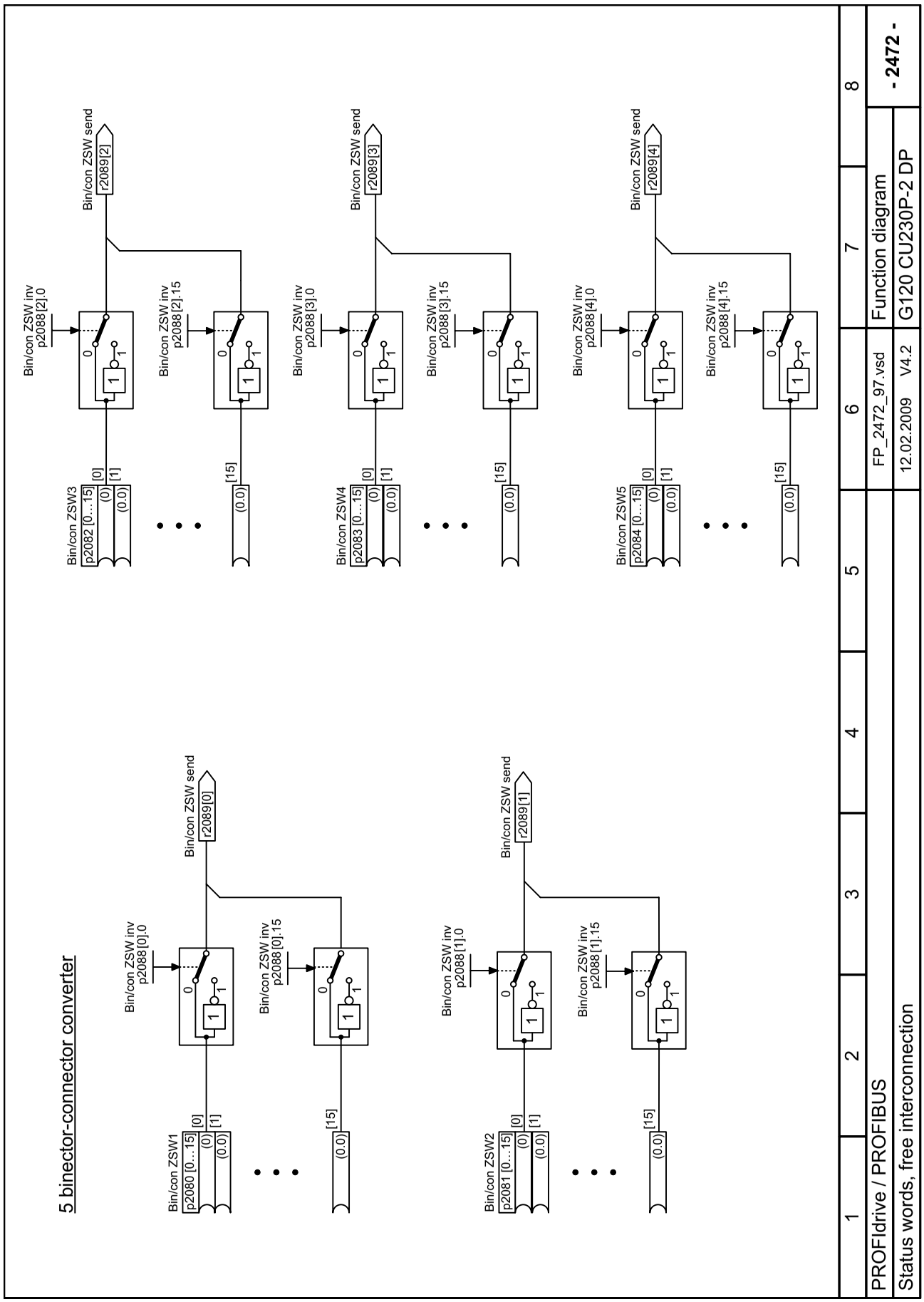

Fig. 2-35 2472 – Status words, free interconnection

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2.5.3 CANopen (CU230P-2 CAN)

Function diagrams

9204 – Receive telegram, free PDO mapping (p8744 = 2)	2-389
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9226 – Status word, CANopen	2-394

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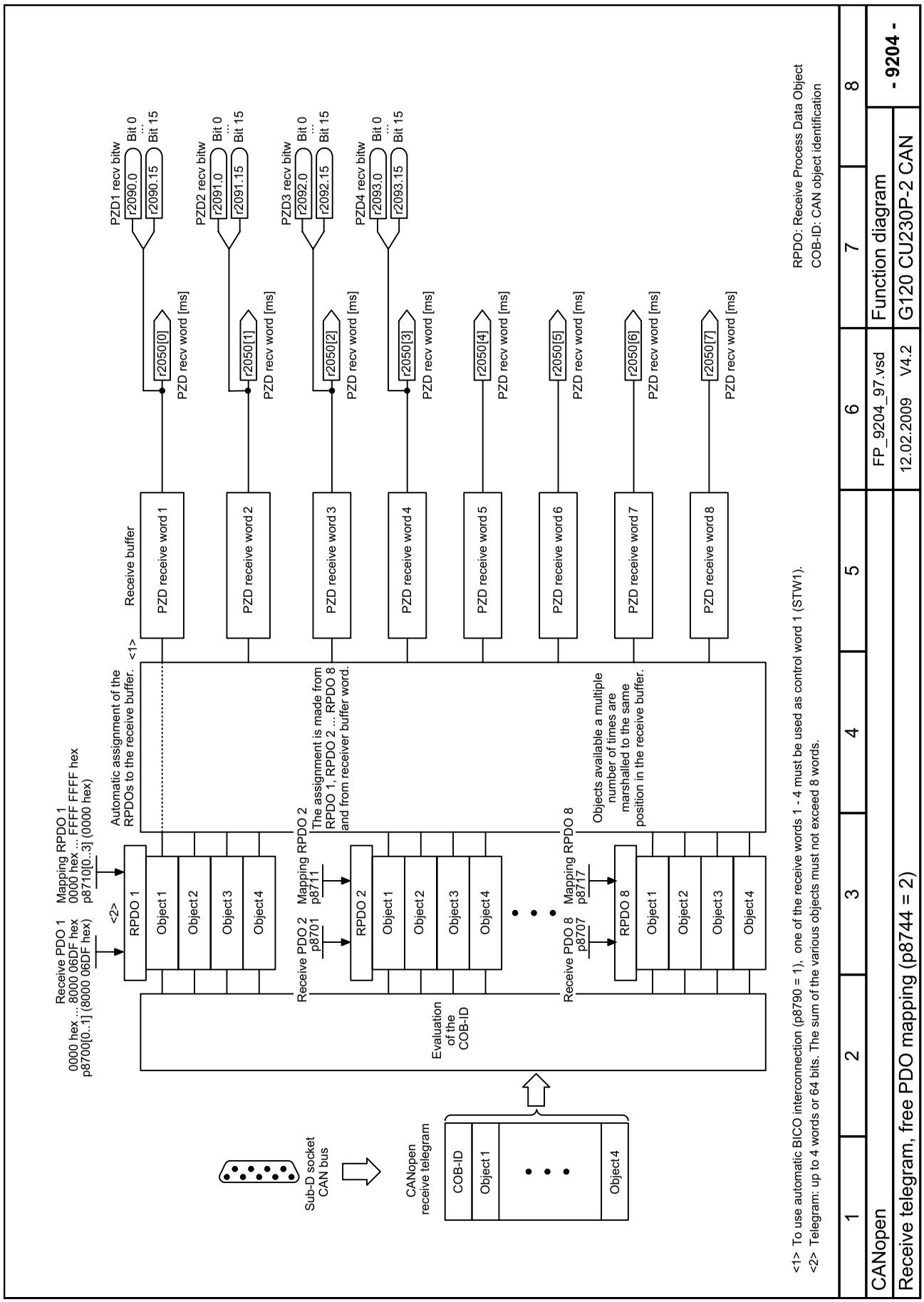

Fig. 2-36 9204 – Receive telegram, free PDO mapping (p8744 = 2)

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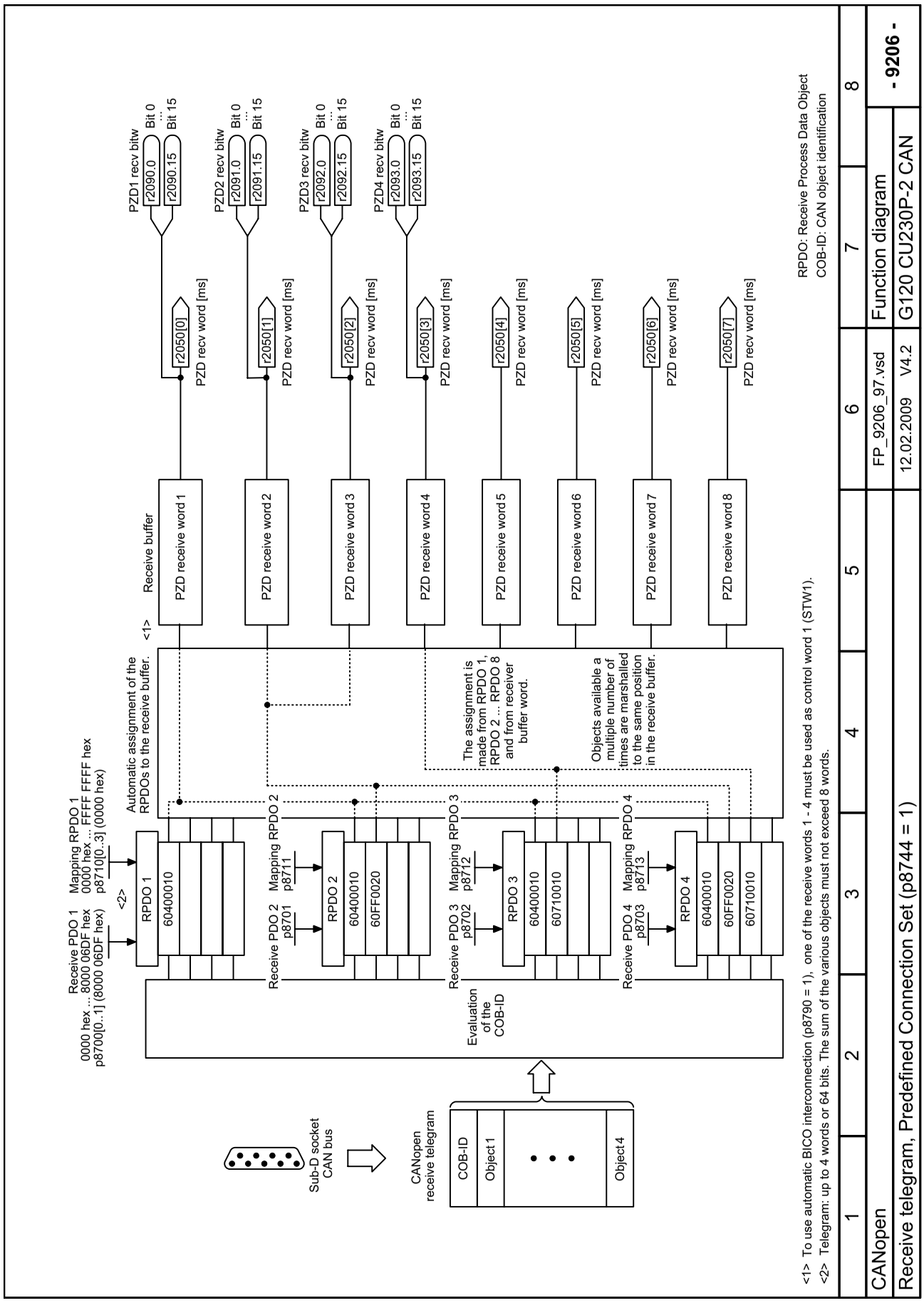

Fig. 2-37 9206 – Receive telegram, Predefined Connection Set (p8744 = 1)

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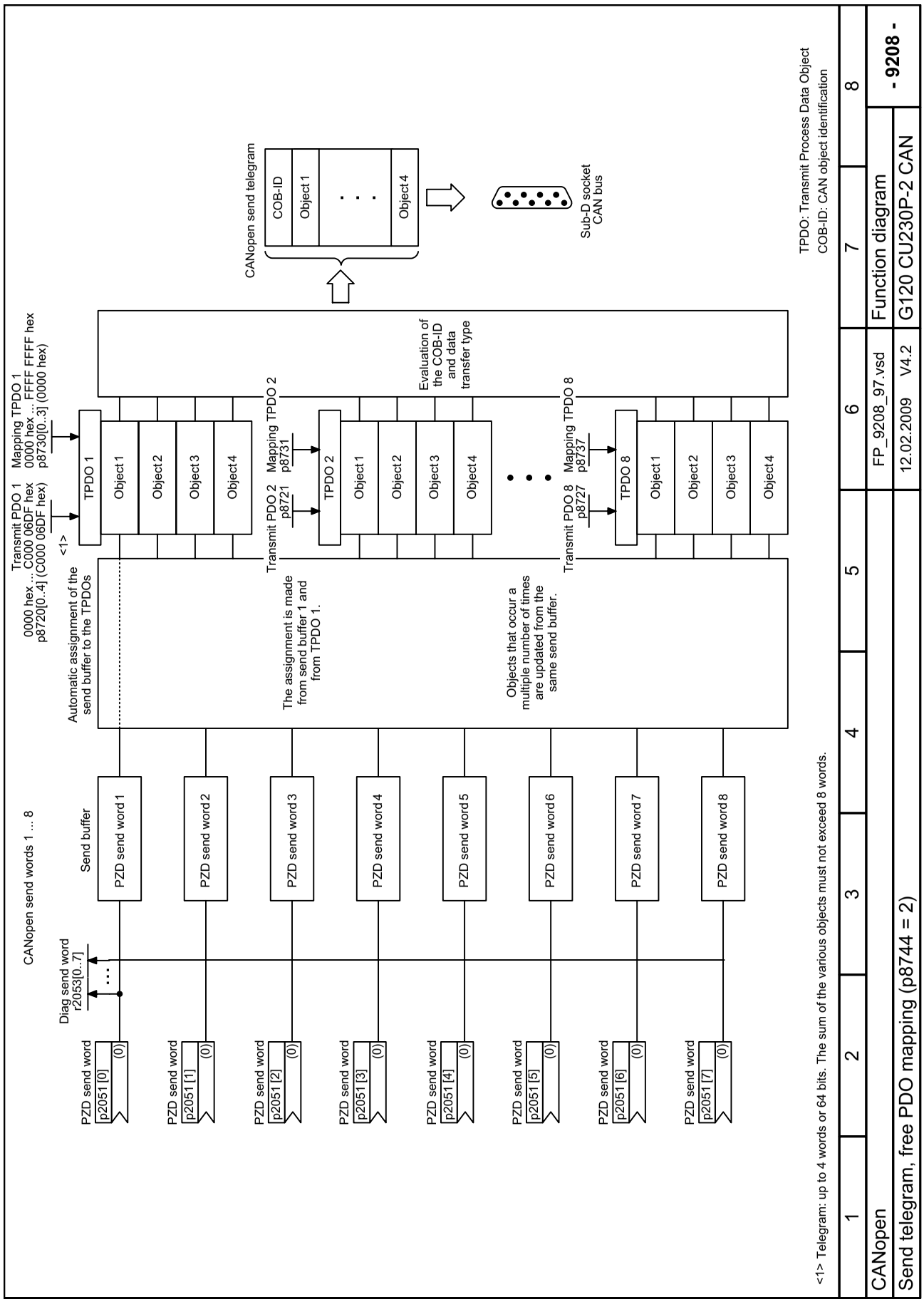

Fig. 2-38 9208 – Send telegram, free PDO mapping (p8744 = 2)

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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 cancllation & ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	Sequence control	-
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	Sequence control	-
STW1.2	1 = No OFF3 (enable is possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	Sequence control	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	Sequence control	-
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	⤒ = 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 = Dir of rot reversal	p1113[0] = r2090.11	[2505.3]	[3040]	-
STW1.12	Reserved	-	-	-	-
STW1.13	Reserved	-	-	-	-
STW1.14	Reserved	-	-	-	-
STW1.15	1 = CDS selection	p0810[0] = 2090.15 <3>	-	[8565]	-

<1> Used in telegram 20.
<2> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
<3> Interconnection is not disabled.

1	2	3	4	5	6	7	8
PROFIdrive / PROFIBUS					FP_2441_97.vsd	Function diagram	- 2441 -
STW1 control word interconnection (p2038 = 2)					12.02.2009 V4.2	G120 CU230P-2 DP	

Fig. 2-39 9210 – Send telegram, Predefined Connection Set (p8744 = 1)

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Signal targets for control word CANopen (r8795)

Signal	Meaning	Interconnection parameters <1>	[Function diagram] internal control word	[Function diagram] signal target
STW1.0	↑ = ON (pulses can be enabled) 0 = OFF1 (braking with RFG, then pulse cancellation and ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	-
STW1.1	1 = No coast-down activated (enable possible) 0 = Activate coast-down (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	-
STW1.2	1 = No fast stop activated (enable possible) 0 = Activate fast stop (OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	-
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	-
STW1.4	Reserved	-	-	-
STW1.5	Reserved	-	-	-
STW1.6	Reserved	-	-	-
STW1.7	↑ = Acknowledge fault	p2103[0] = r2090.7	[2546.1]	[8060]
STW1.8	Reserved	-	-	-
STW1.9	Reserved	-	-	-
STW1.10	Reserved	-	-	-
STW1.11	Can be freely connected	pxxxx[y] = r2090.11	-	-
STW1.12	Can be freely connected	pxxxx[y] = r2090.12	-	-
STW1.13	Can be freely connected	pxxxx[y] = r2090.13	-	-
STW1.14	Can be freely connected	pxxxx[y] = r2090.14	-	-
STW1.15	Can be freely connected	pxxxx[y] = r2090.15	-	-

<1> Depending on the position of the CANopen control word in p8750, the number of the binector to be connected changes.

1	2	3	4	5	6	7	8
CANopen					FP_9220_97.vsd	Function diagram	- 9220 -
Control word, CANopen					12.02.2009 V4.2	G120 CU230P-2 CAN	

Fig. 2-40 9220 – Control word, CANopen

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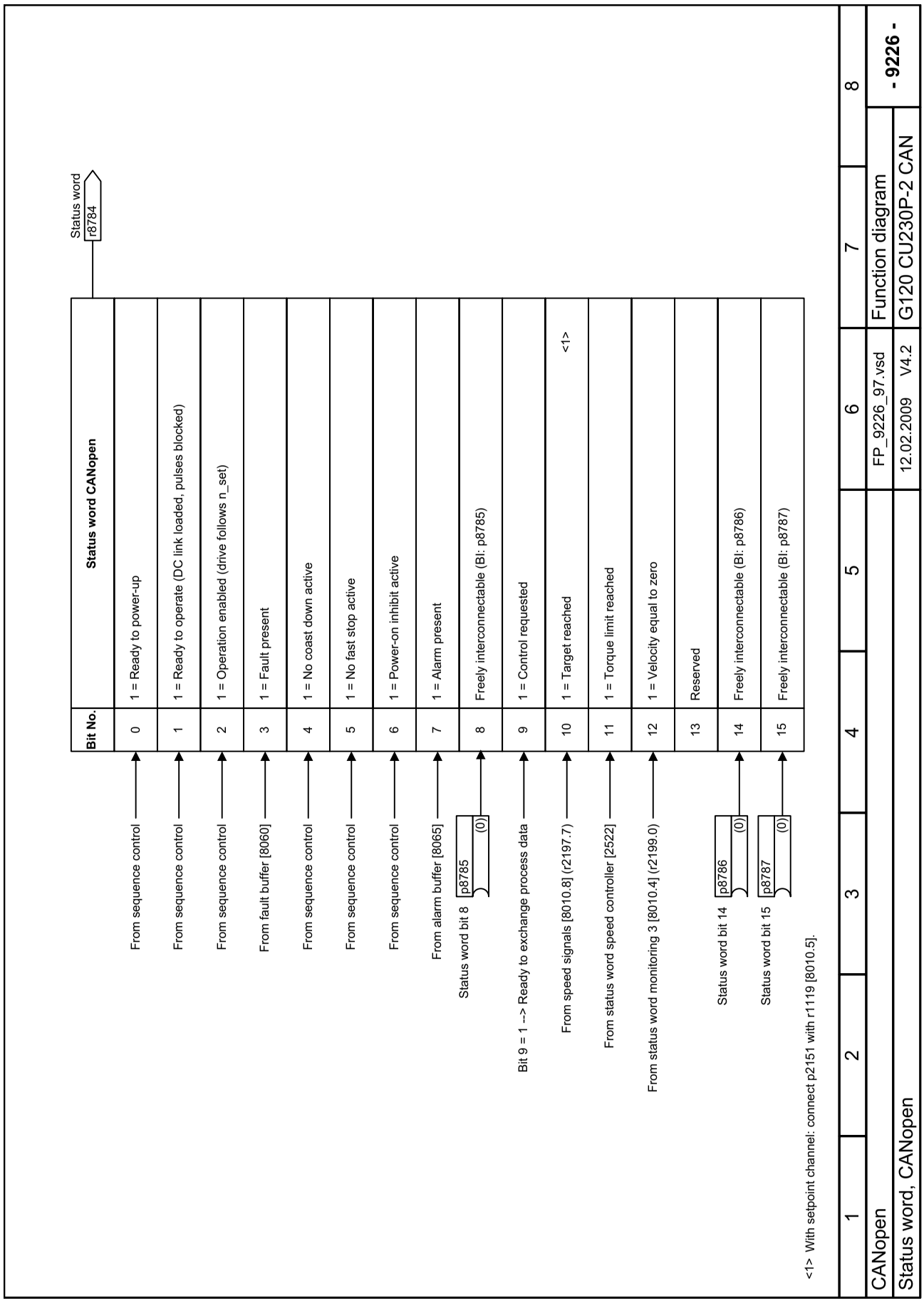

Fig. 2-41 9226 – Status word, CANopen

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2.6 Internal control/status words

Function diagrams

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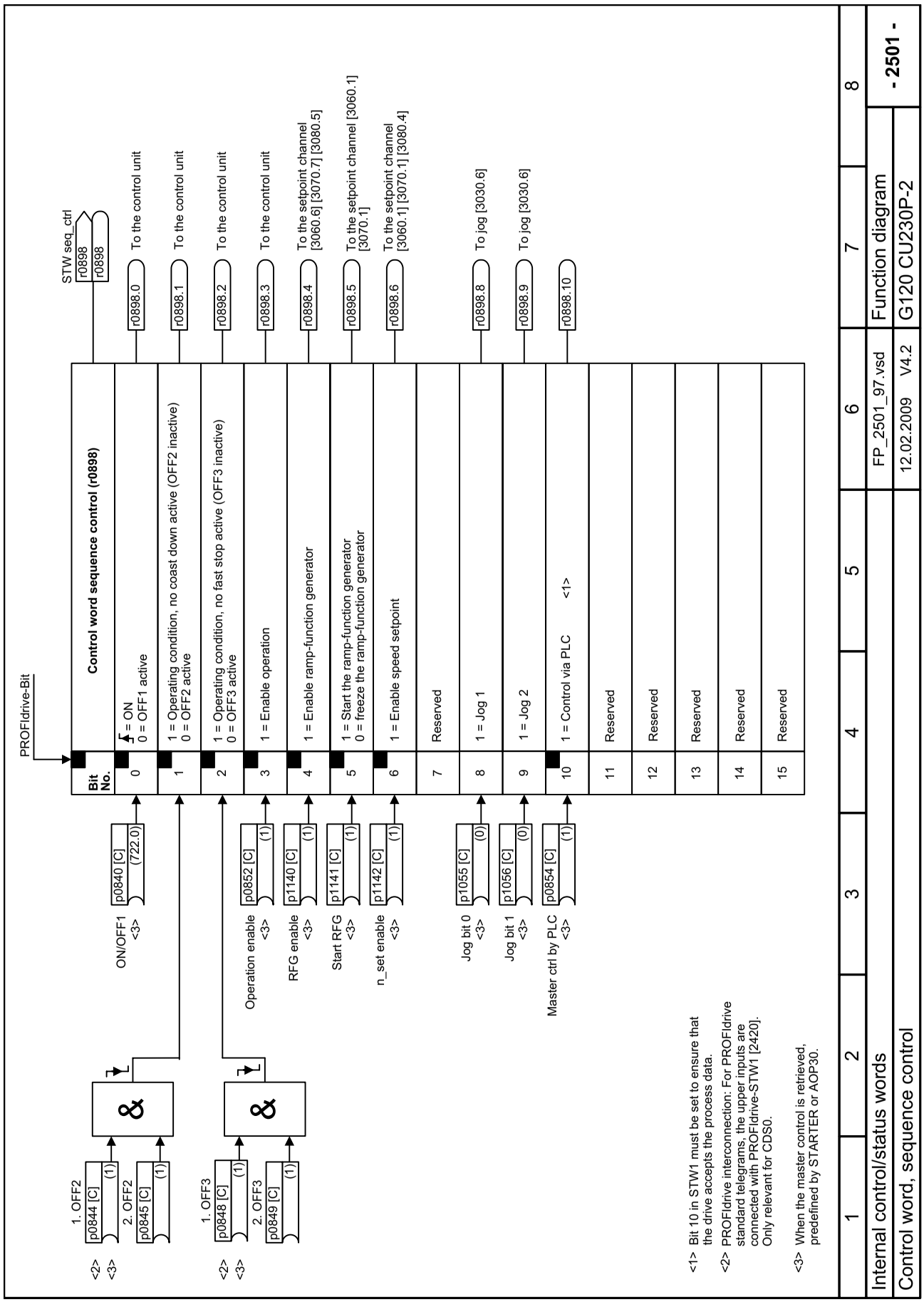

Fig. 2-42 2501 – Control word, sequence control

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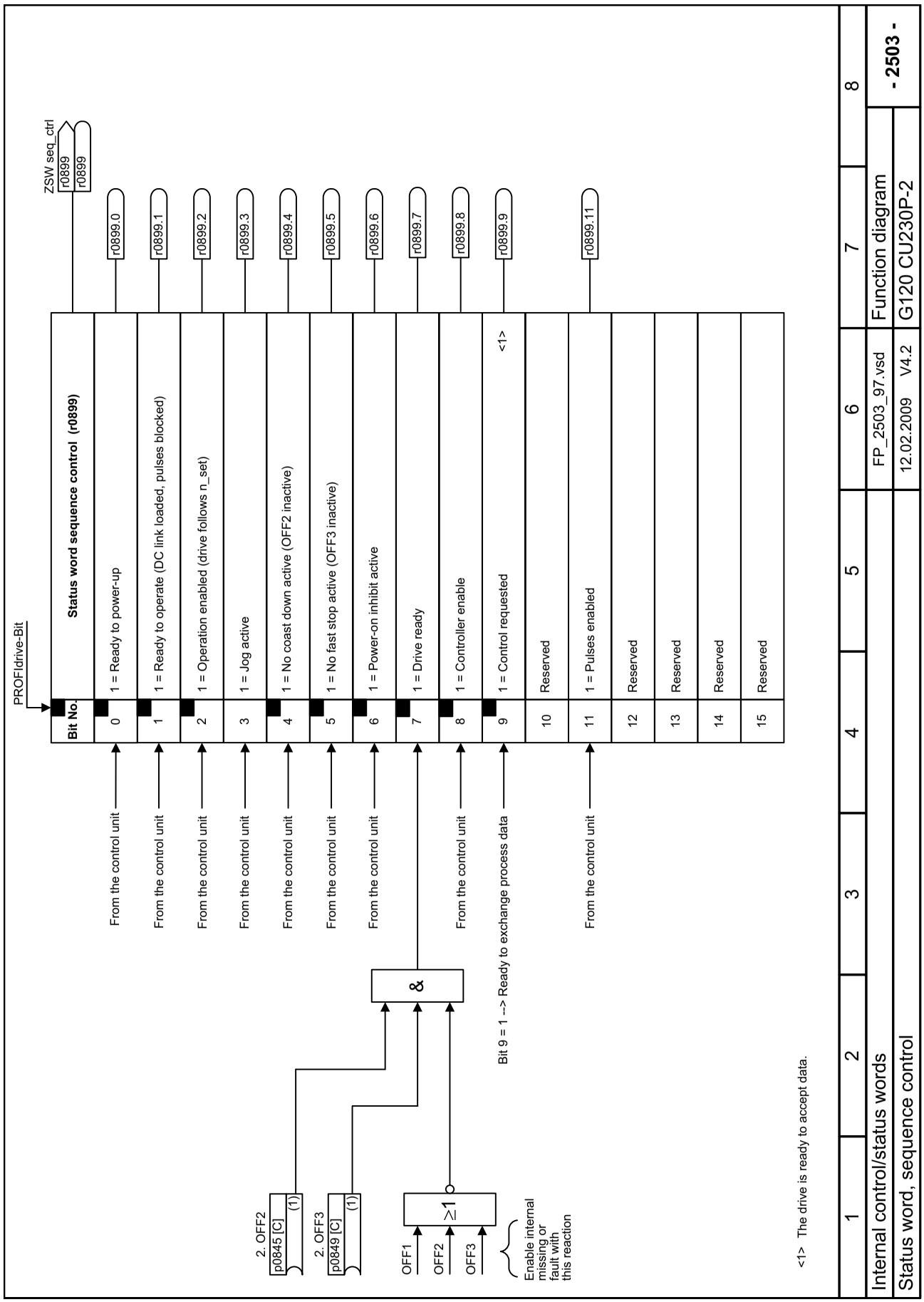

Fig. 2-43 2503 – Status word, sequence control

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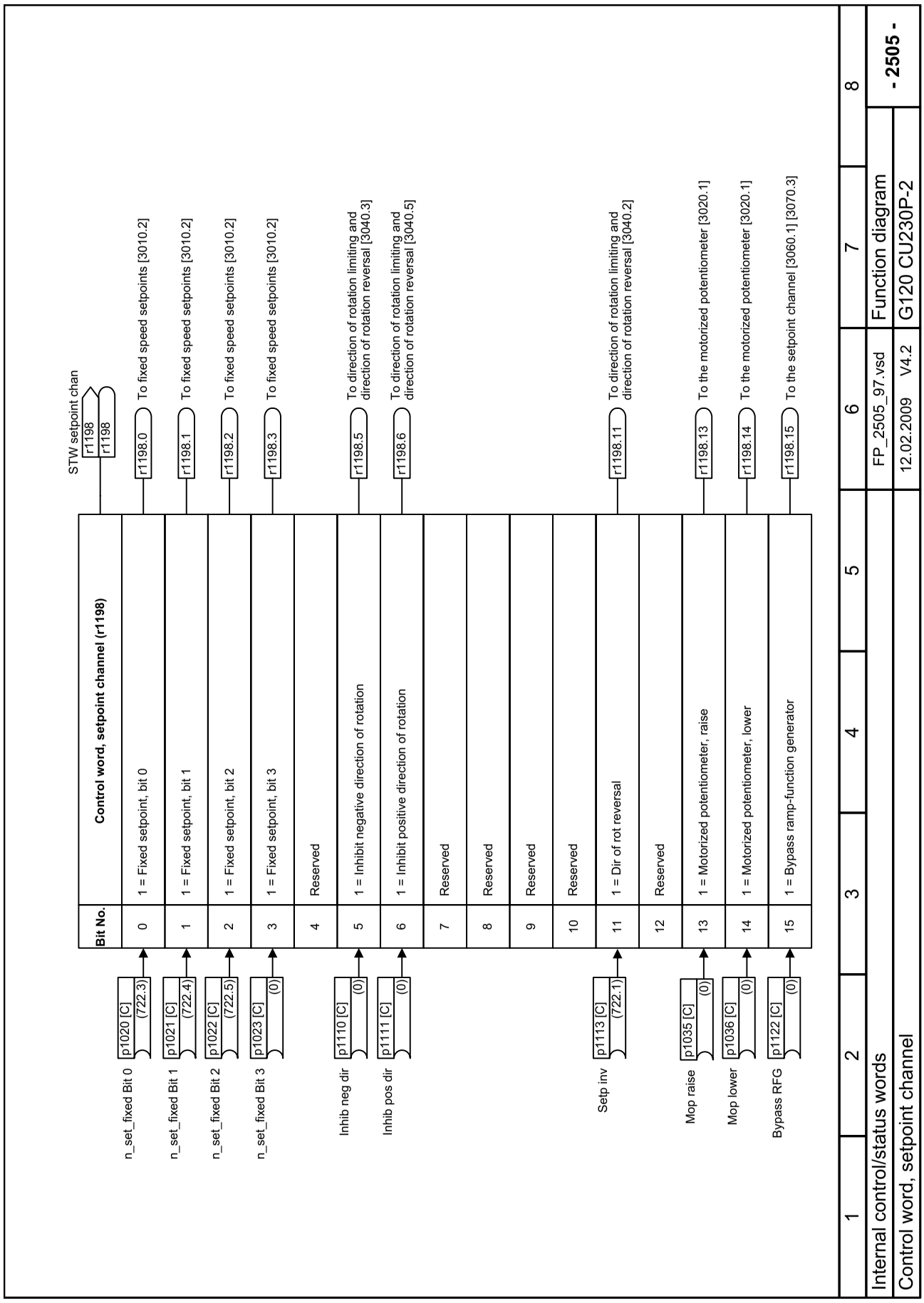

Fig. 2-44 2505 – Control word, setpoint channel

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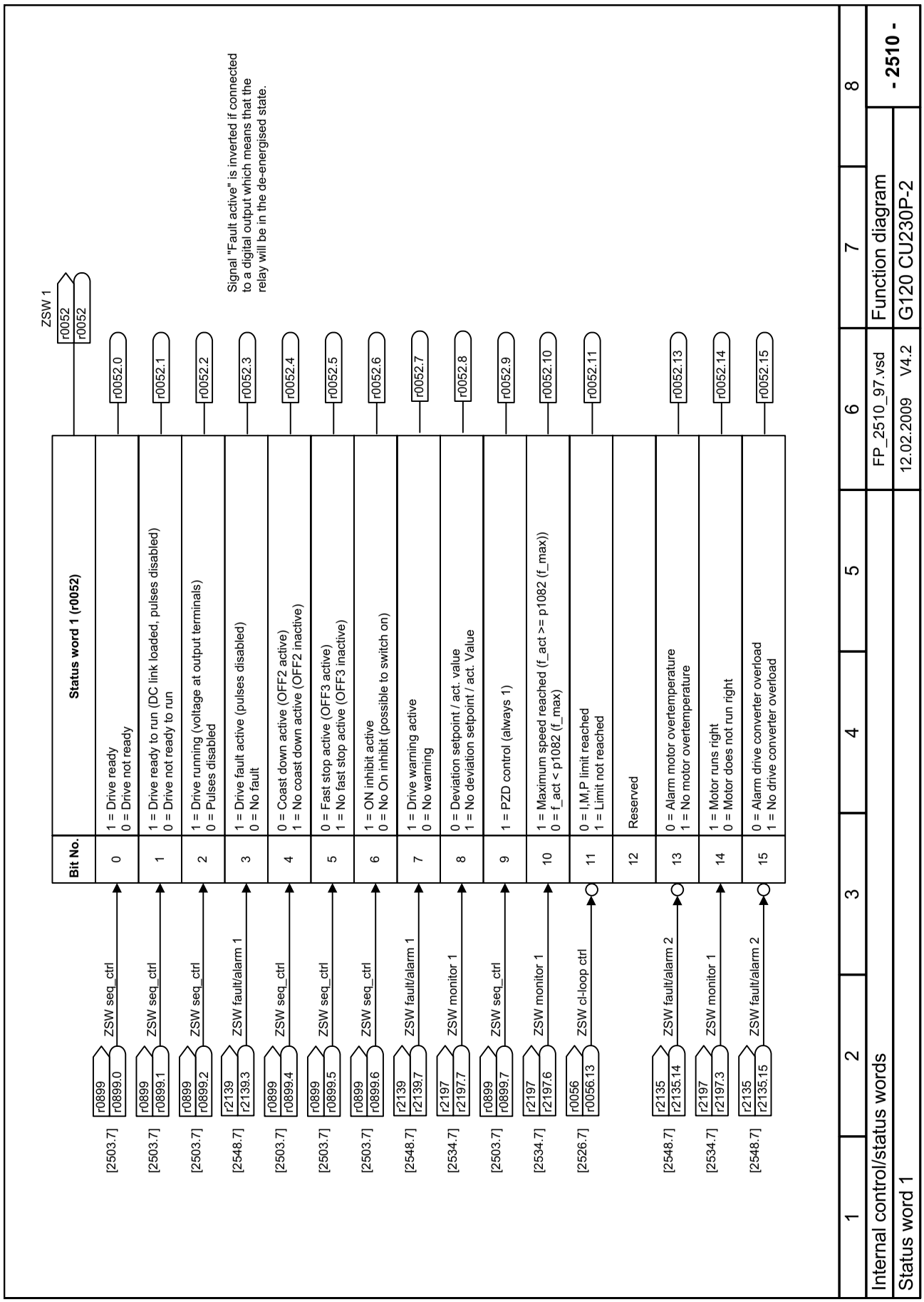

Fig. 2-45 2510 – Status word 1 (r0052)

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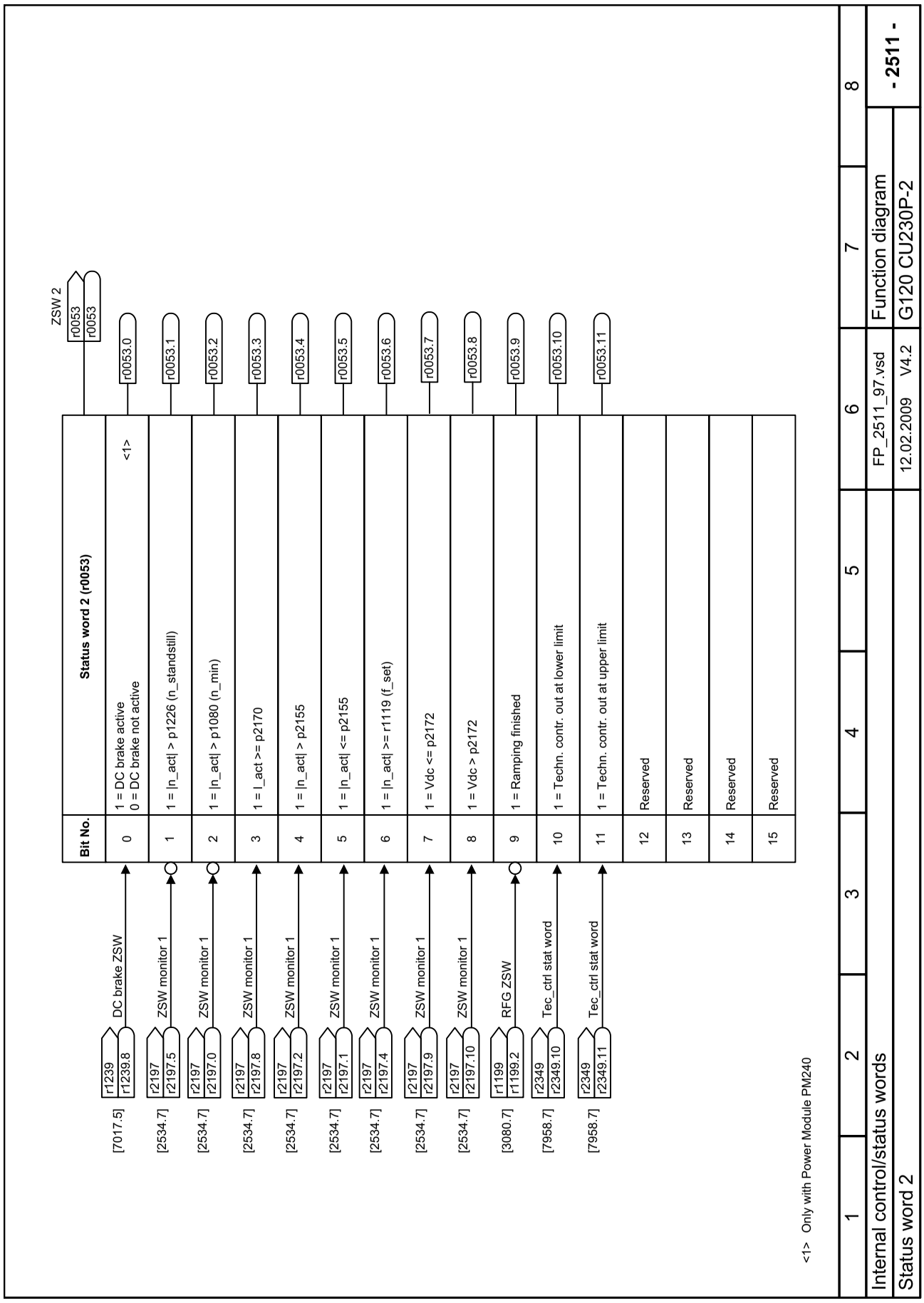

Fig. 2-46 2511 – Status word 2 (r0053)

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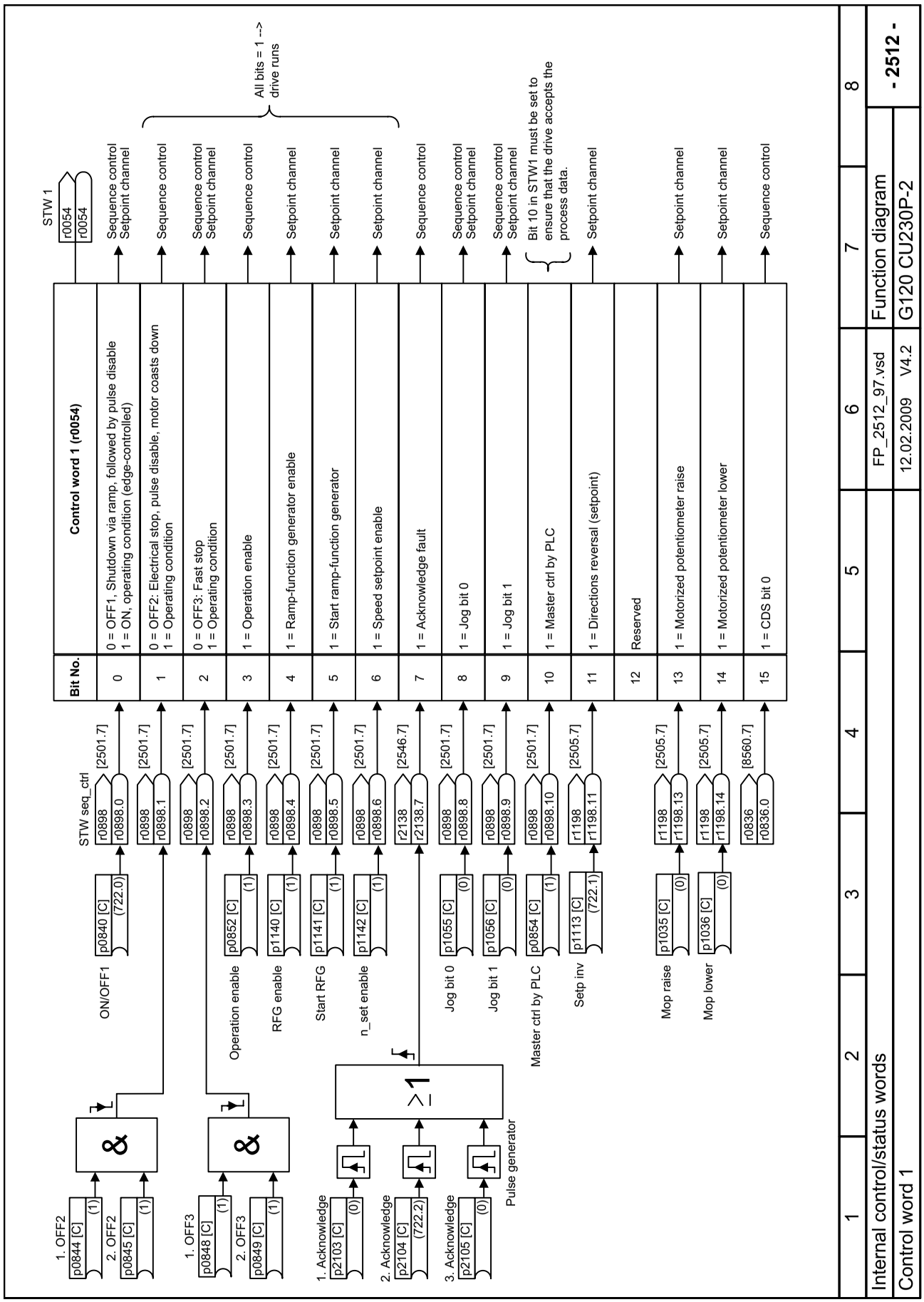

Fig. 2-47 2512 – Control word 1 (r0054)

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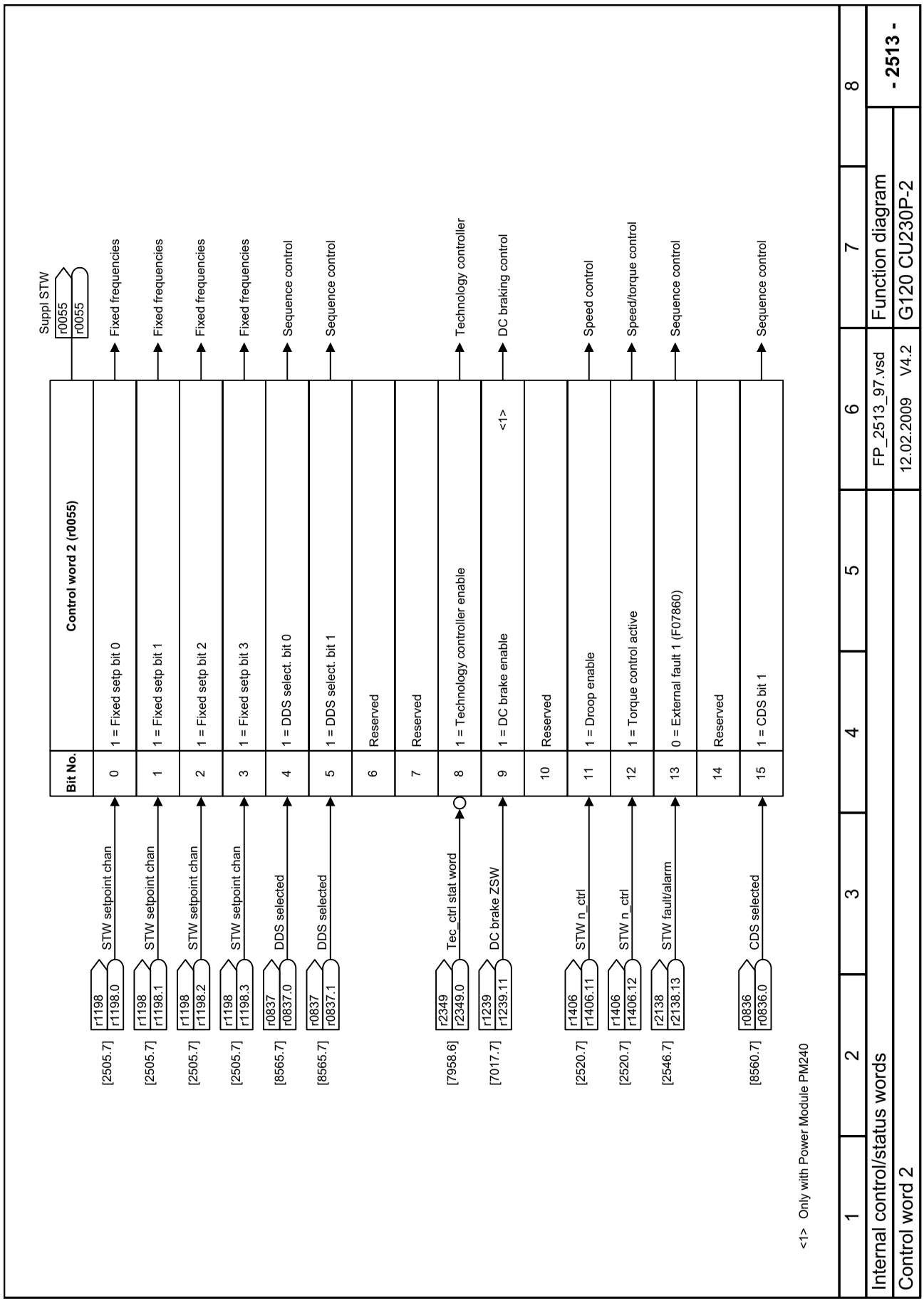

Fig. 2-48 2513 – Control word 2 (r0055)

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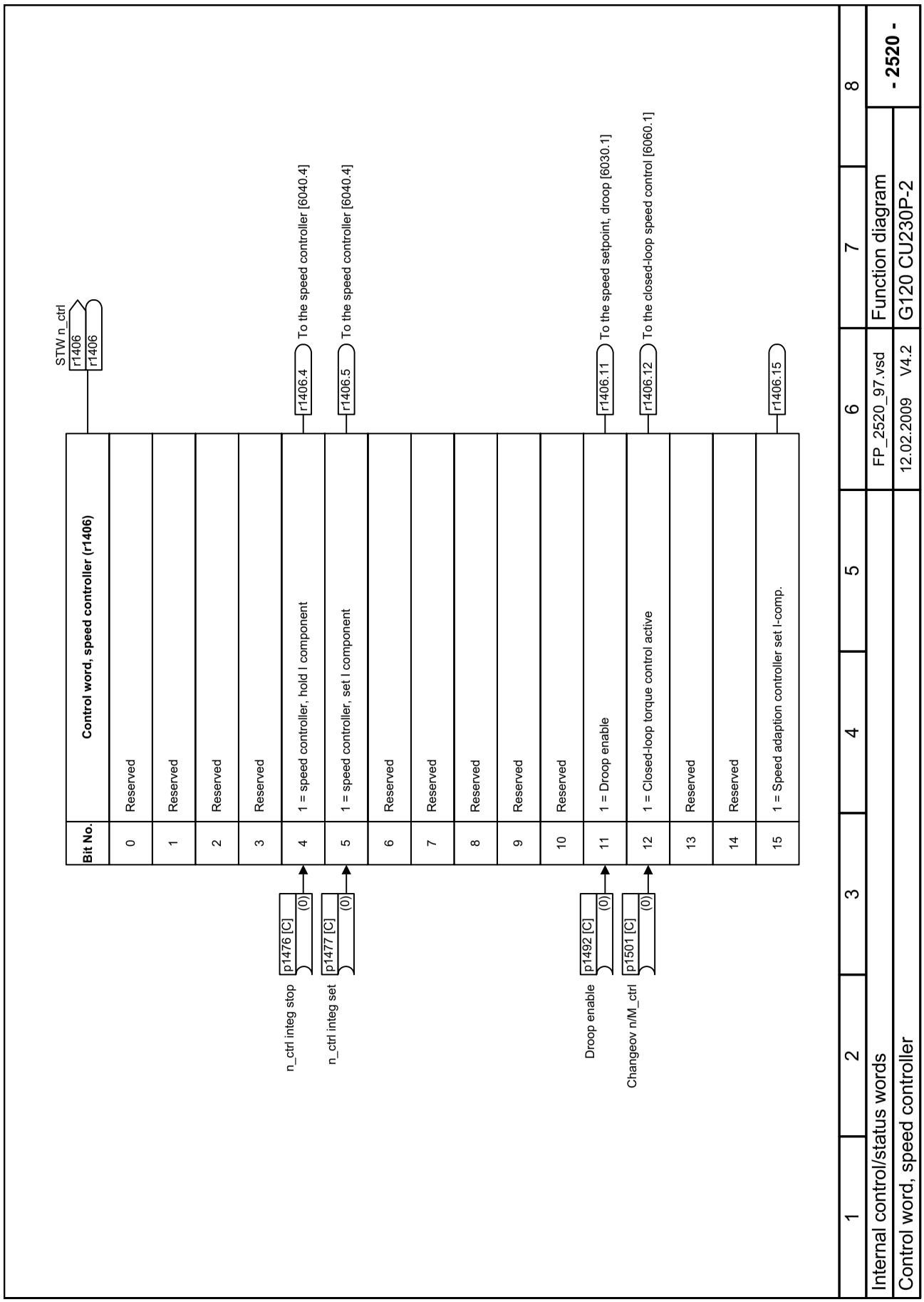

Fig. 2-49 2520 – Control word, speed controller

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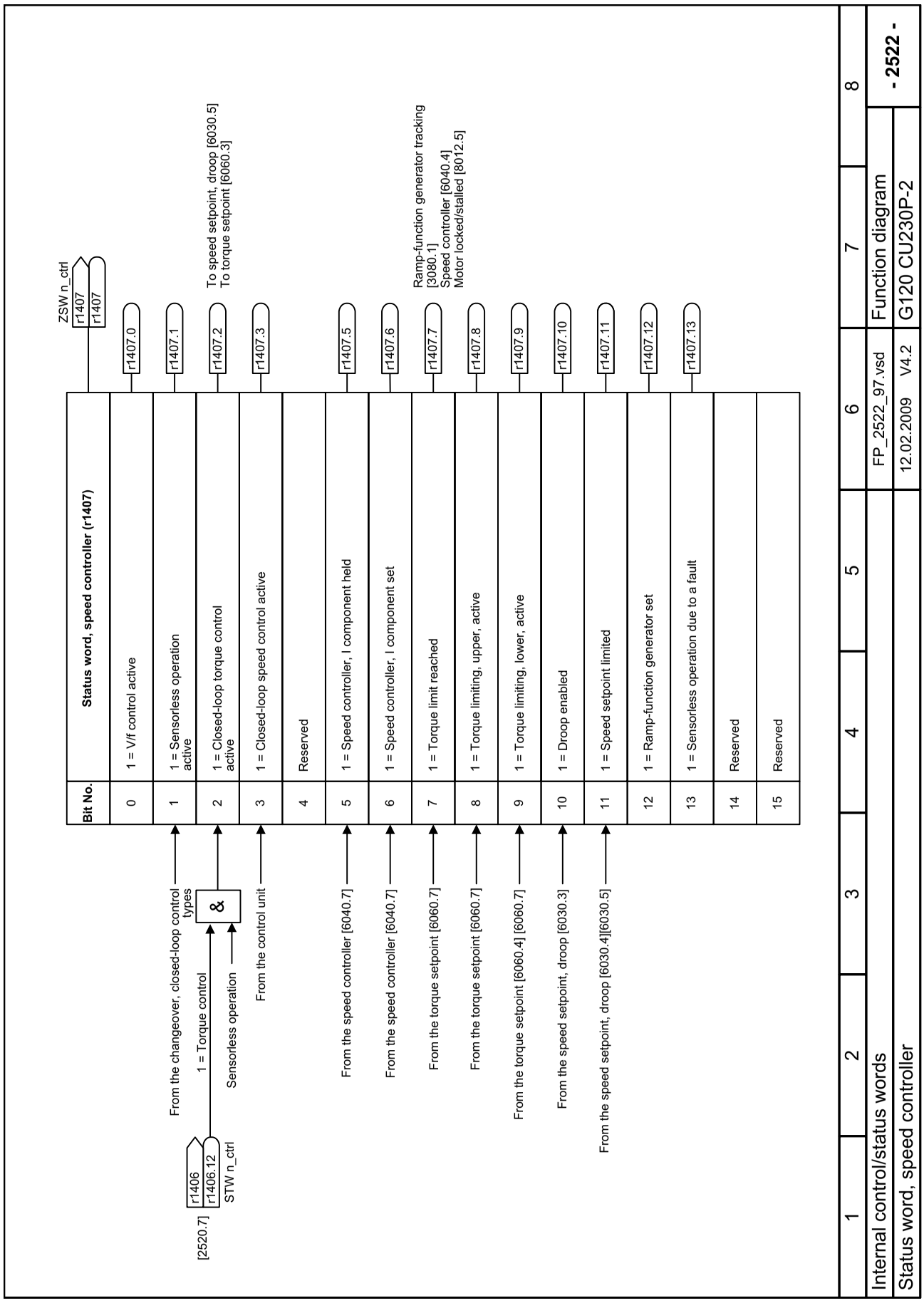

Fig. 2-50 2522 – Status word, speed controller

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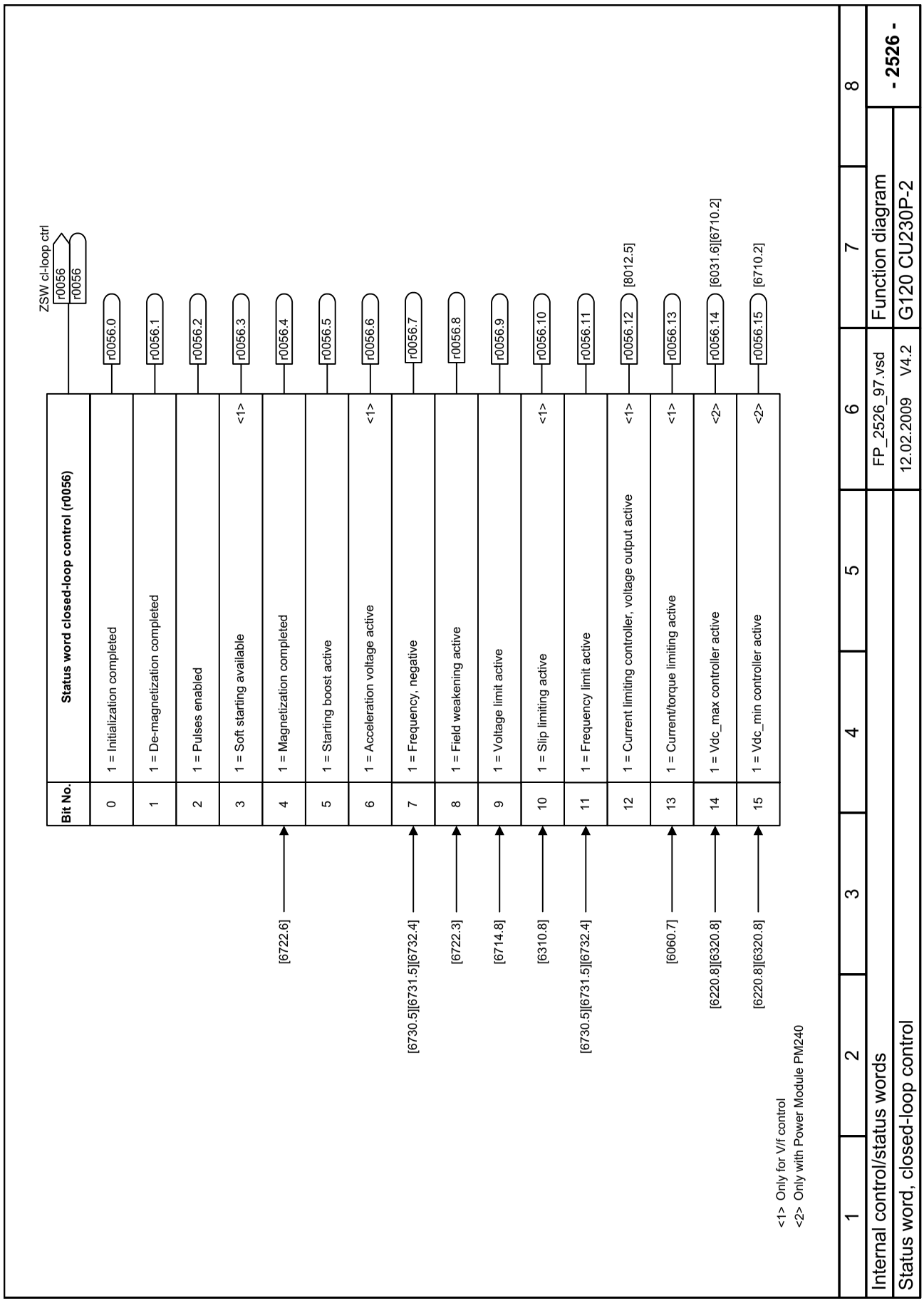

Fig. 2-51 2526 – Status word, closed-loop control

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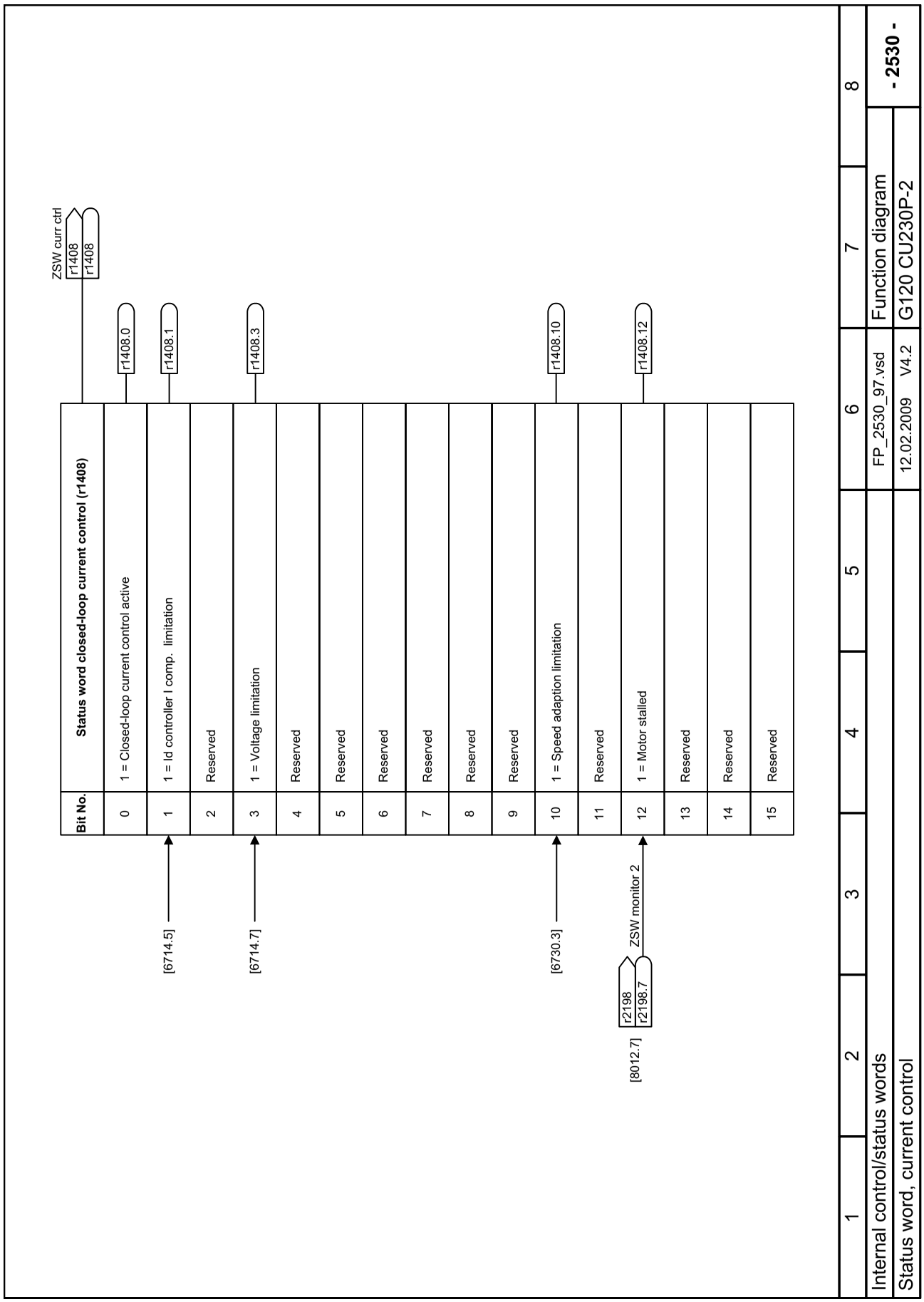

Fig. 2-52 2530 – Status word, current control

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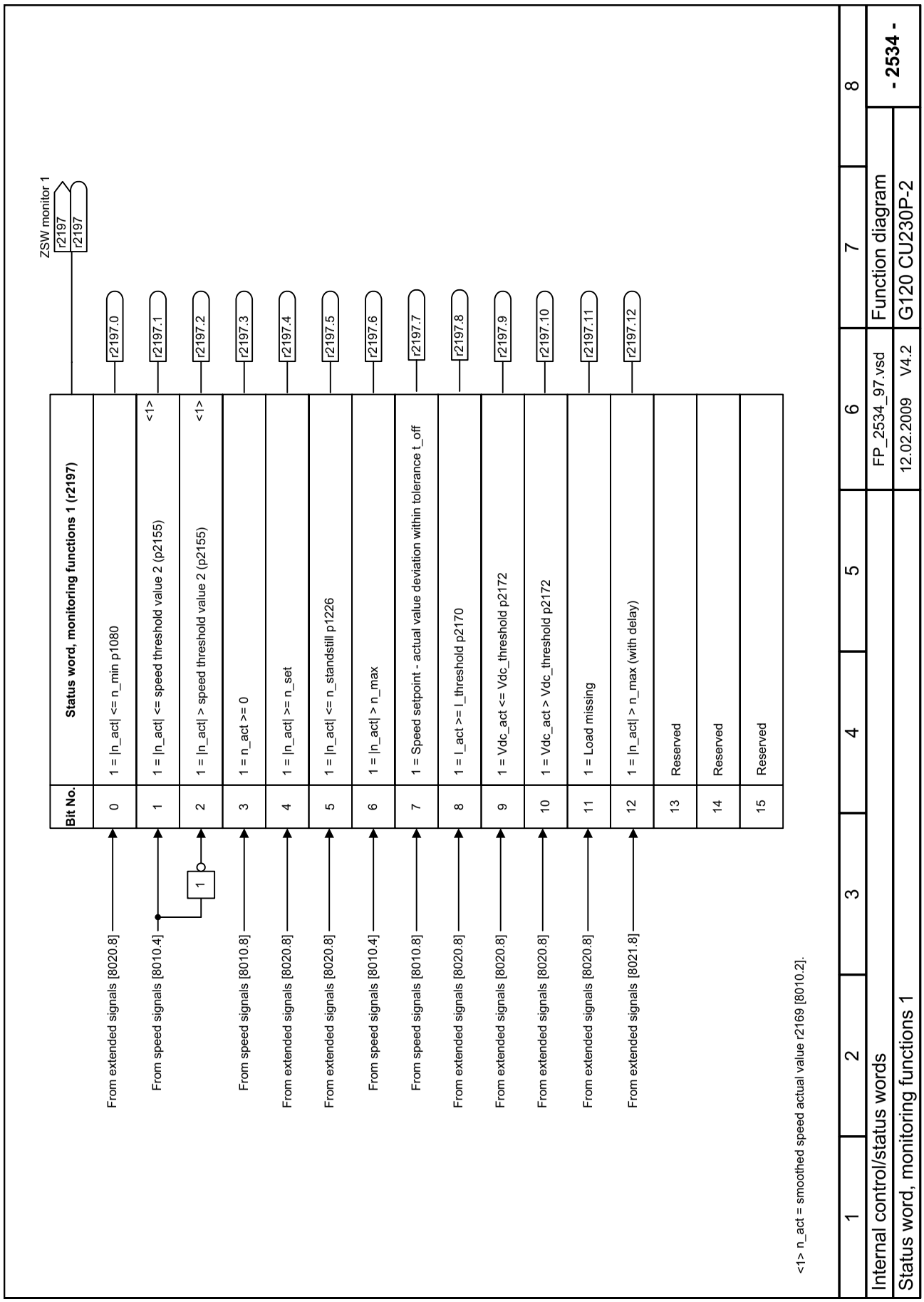

Fig. 2-53 2534 – Status word, monitoring functions 1

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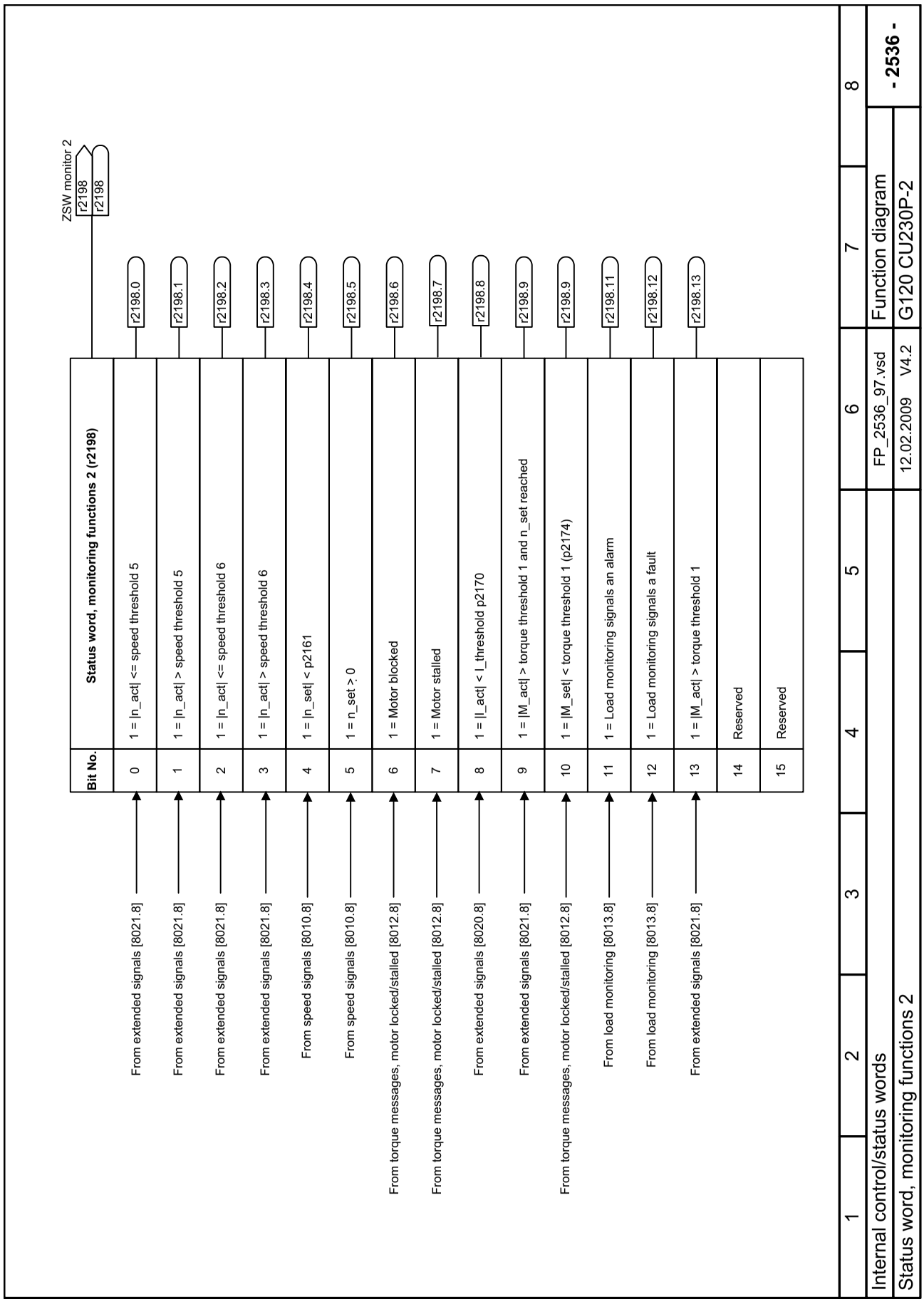

Fig. 2-54 2536 – Status word, monitoring functions 2

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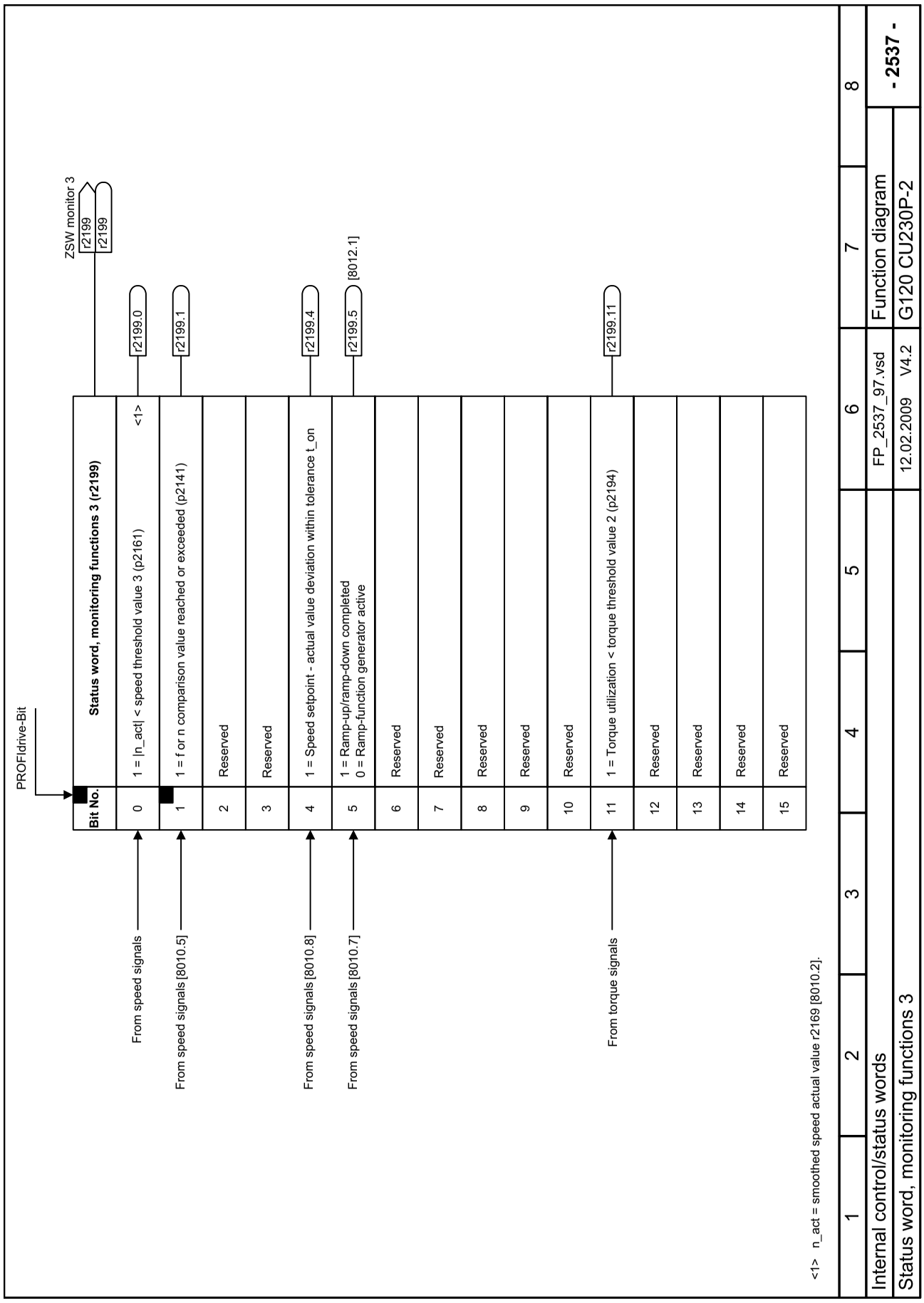

Fig. 2-55 2537 – Status word, monitoring functions 3

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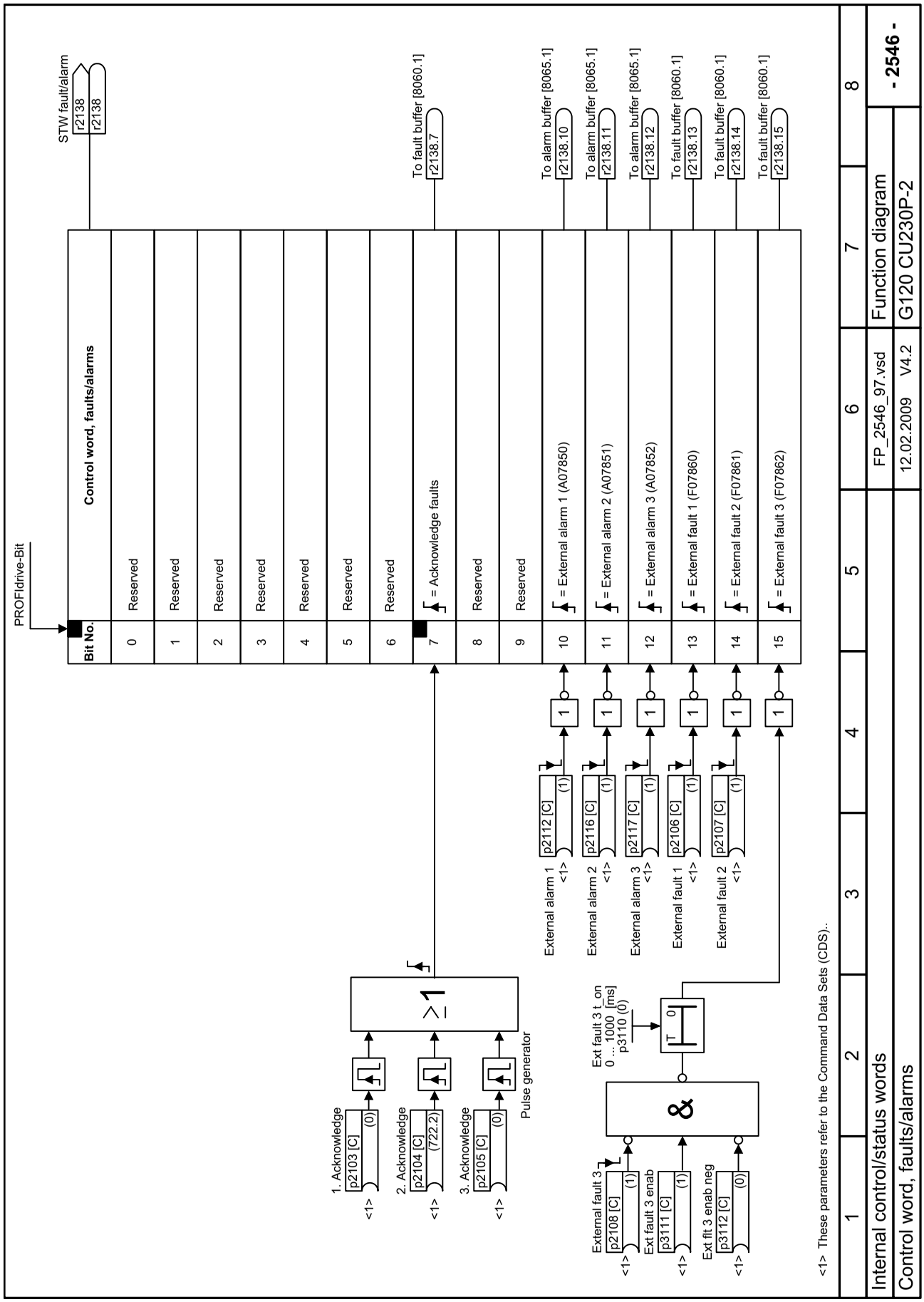

Fig. 2-56 2546 – Control word, faults/alarms

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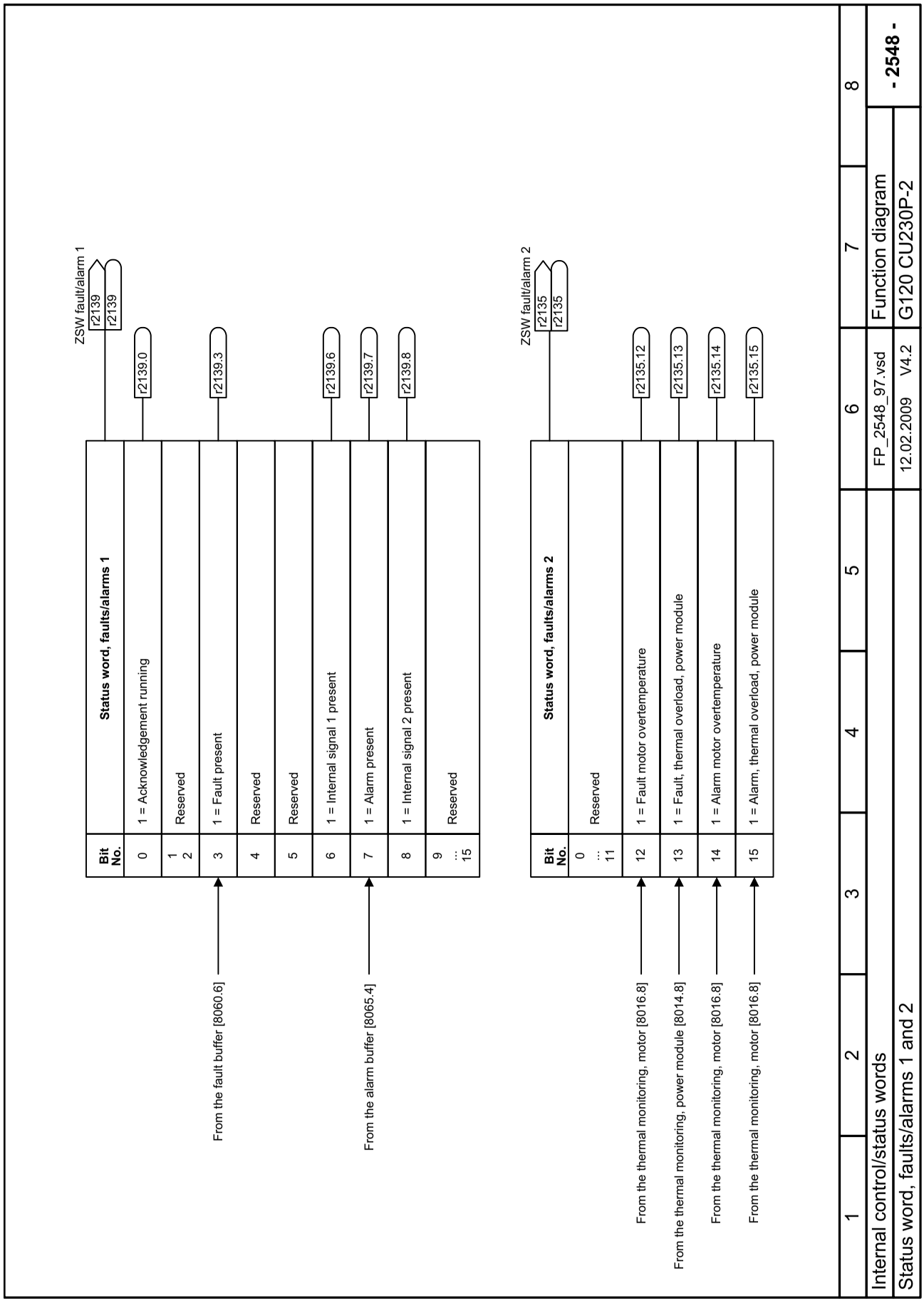

Fig. 2-57 2548 – Status word, faults/alarms 1 and 2

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2.7 Setpoint channel

Function diagrams

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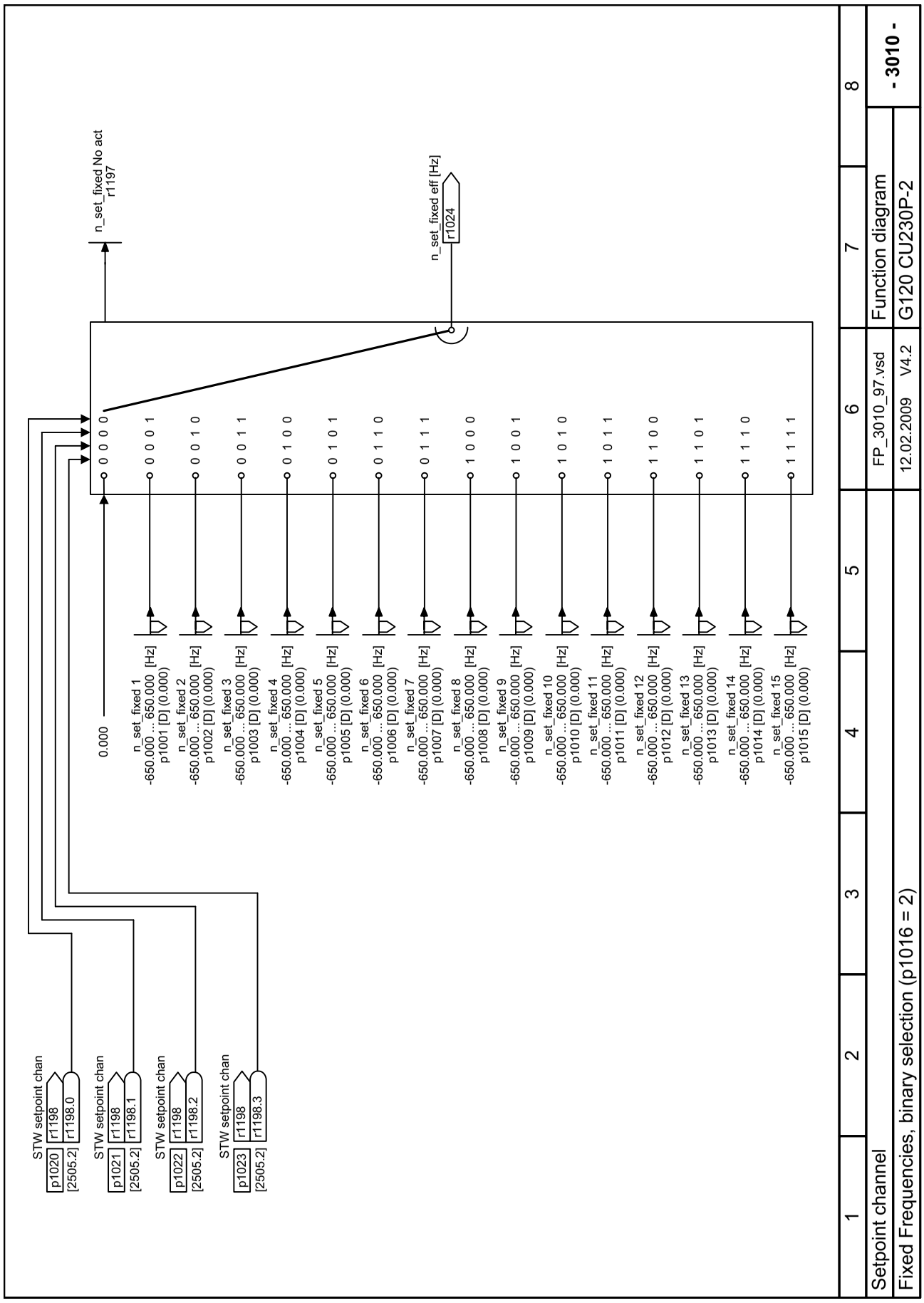

Fig. 2-58 3010 – Fixed Frequencies, binary selection

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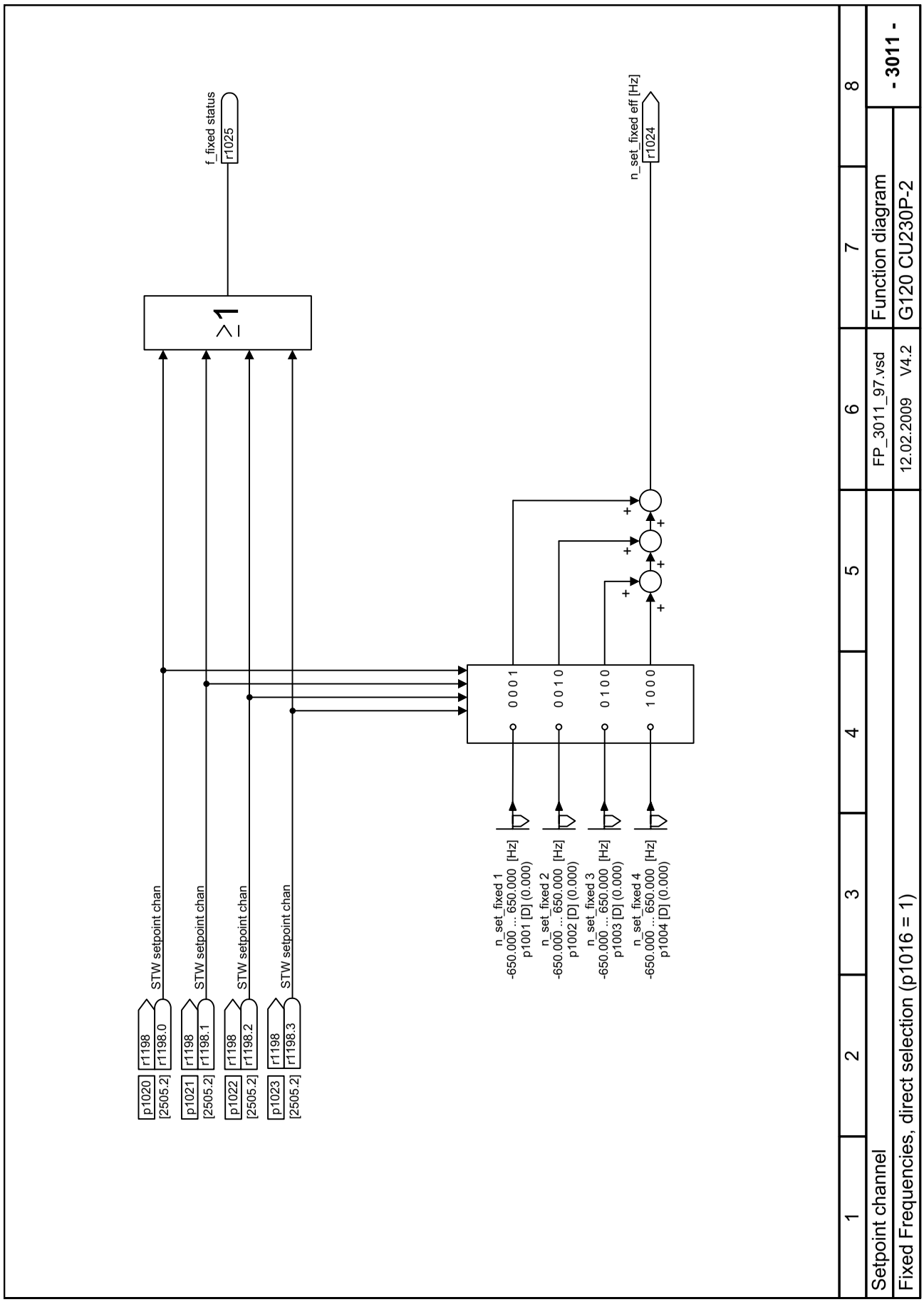

Fig. 2-59 3011 – Fixed Frequencies, direct selection

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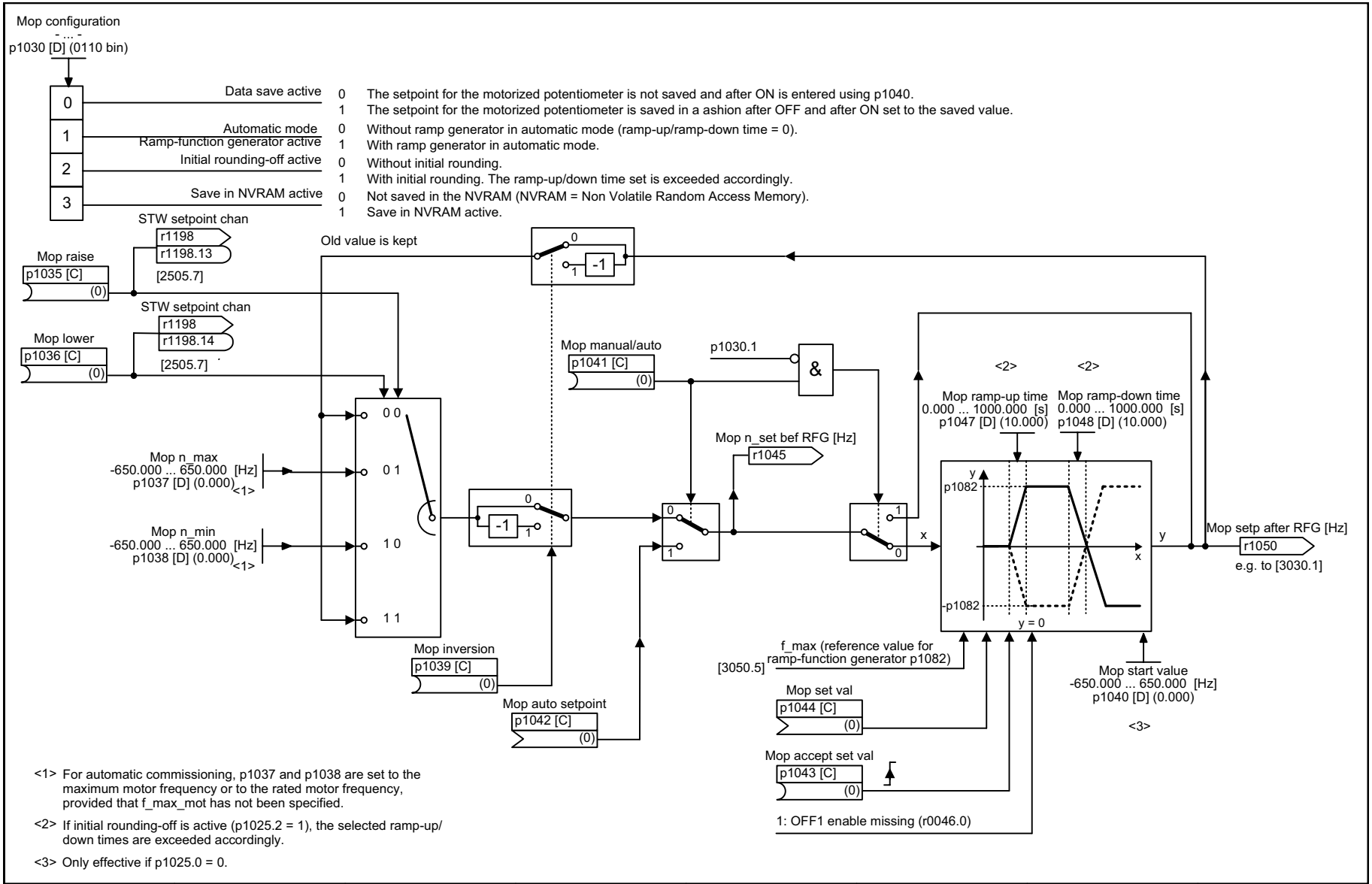

<1> For automatic commissioning, p1037 and p1038 are set to the maximum motor frequency or to the rated motor frequency, provided that f_max_mot has not been specified.

<2> If initial rounding-off is active (p1025.2 = 1), the selected ramp-up/down times are exceeded accordingly.

<3> Only effective if p1025.0 = 0.

Fig. 2-60 3020 – Motorized potentiometer

1	2	3	4	5	6	7	8
Setpoint channel					FP_3020_97.vsd	Function diagram	- 3020 -
Motorized potentiometer					12.02.2009 V4.2	G120 CU230P-2	

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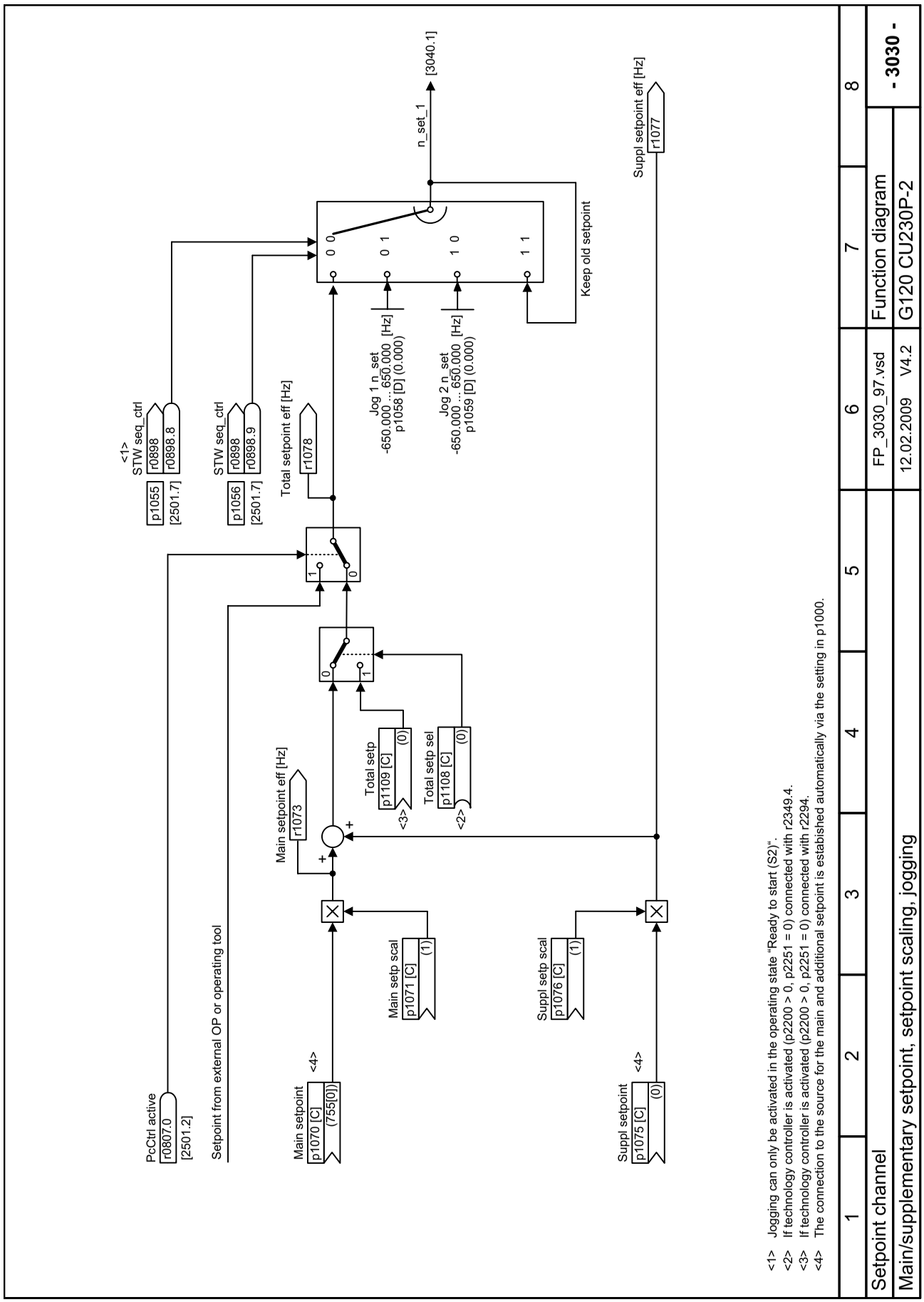

Fig. 2-61 3030 – Main/supplementary setpoint, setpoint scaling, jogging

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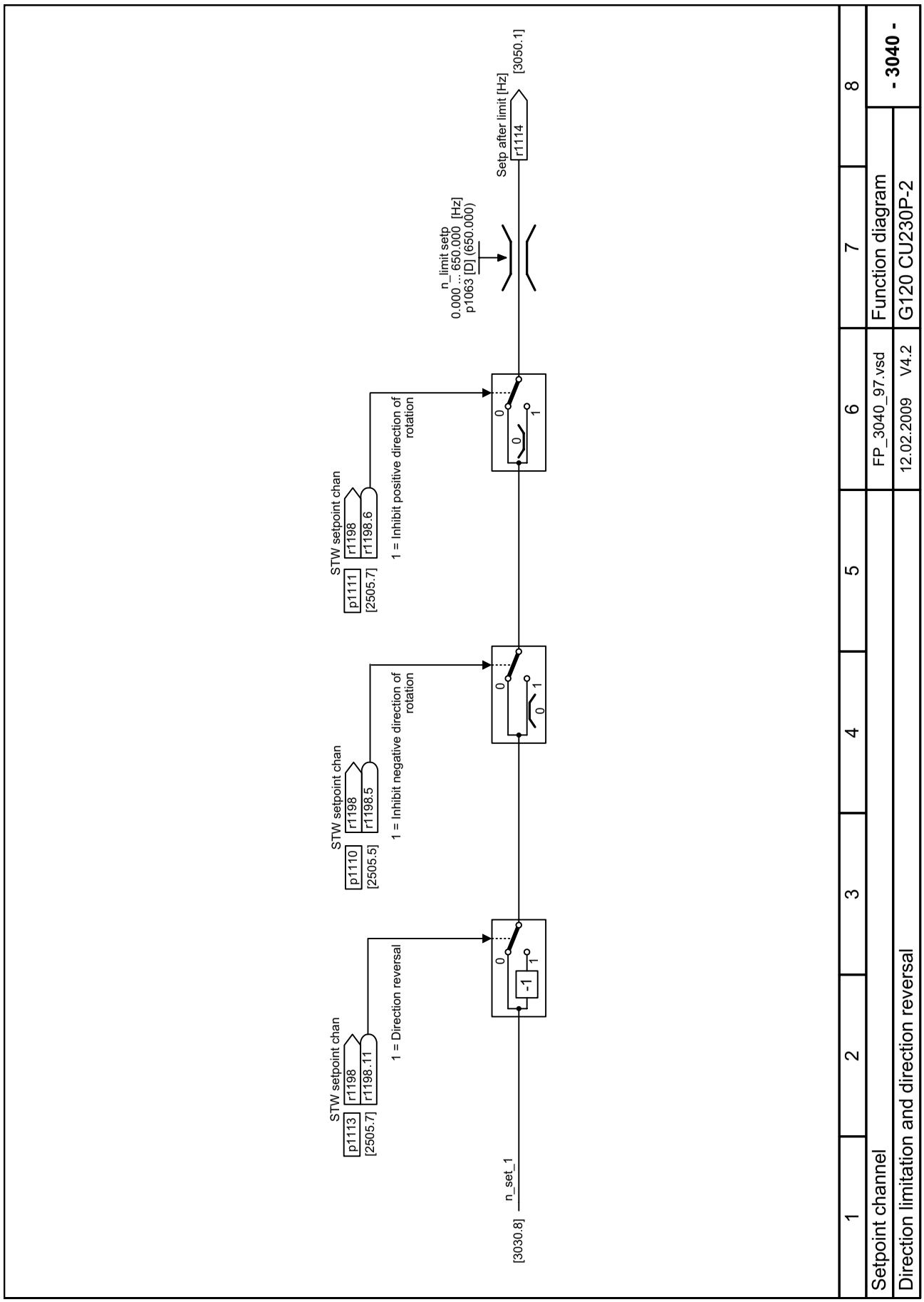

Fig. 2-62 3040 – Direction limitation and direction reversal

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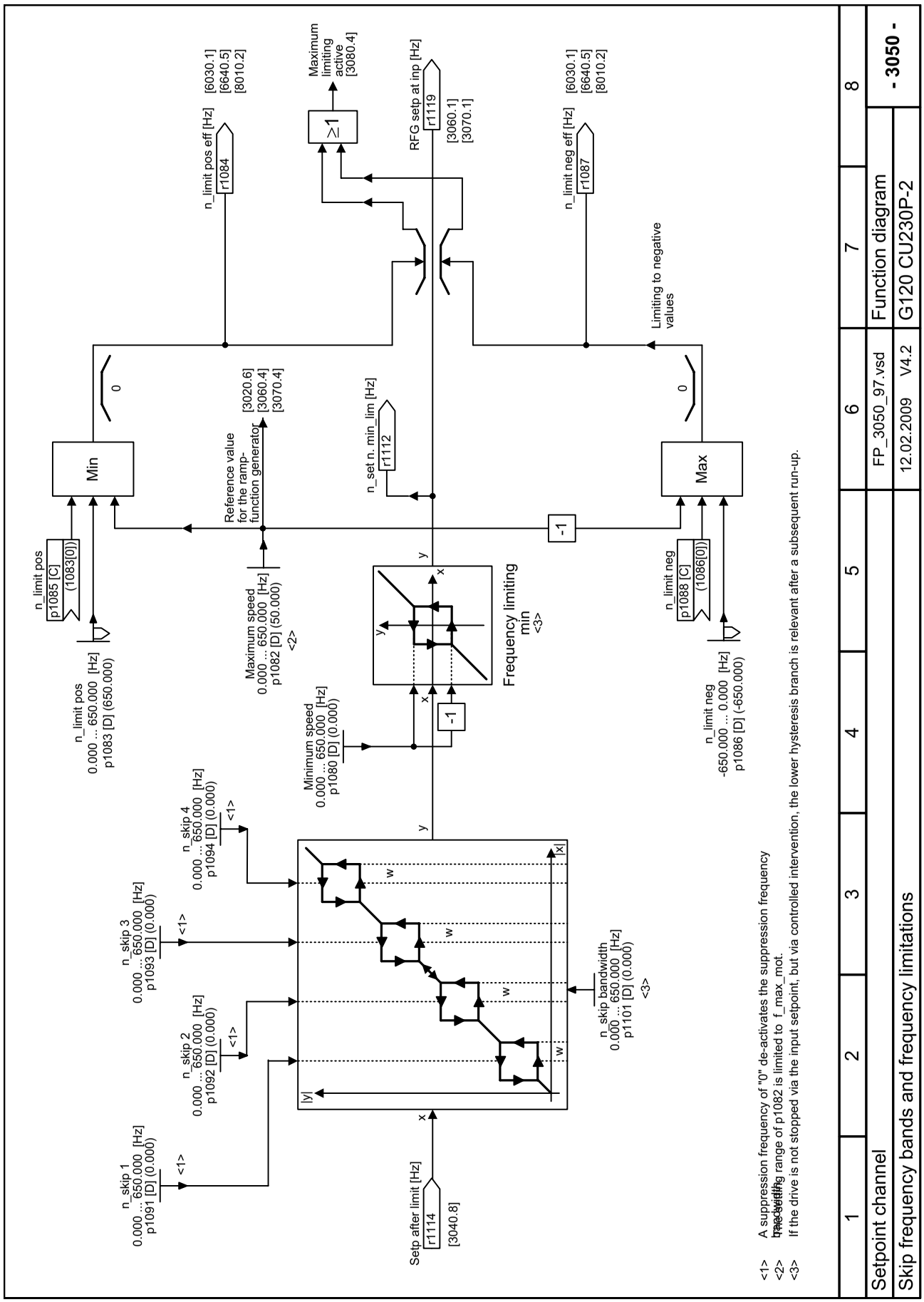

Fig. 2-63 3050 – Skip frequency bands and frequency limitations

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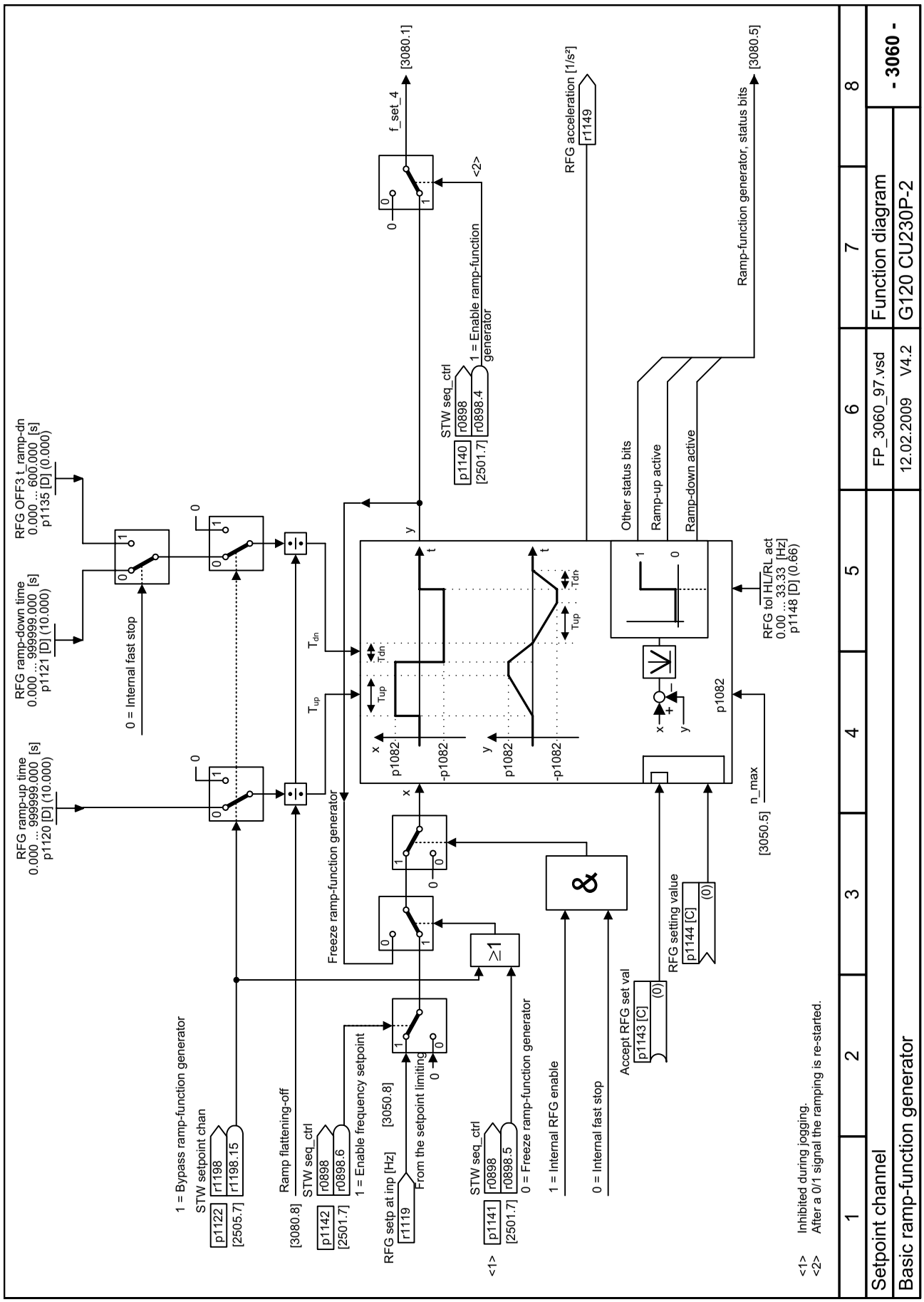

Fig. 2-64 3060 – Basic ramp-function generator

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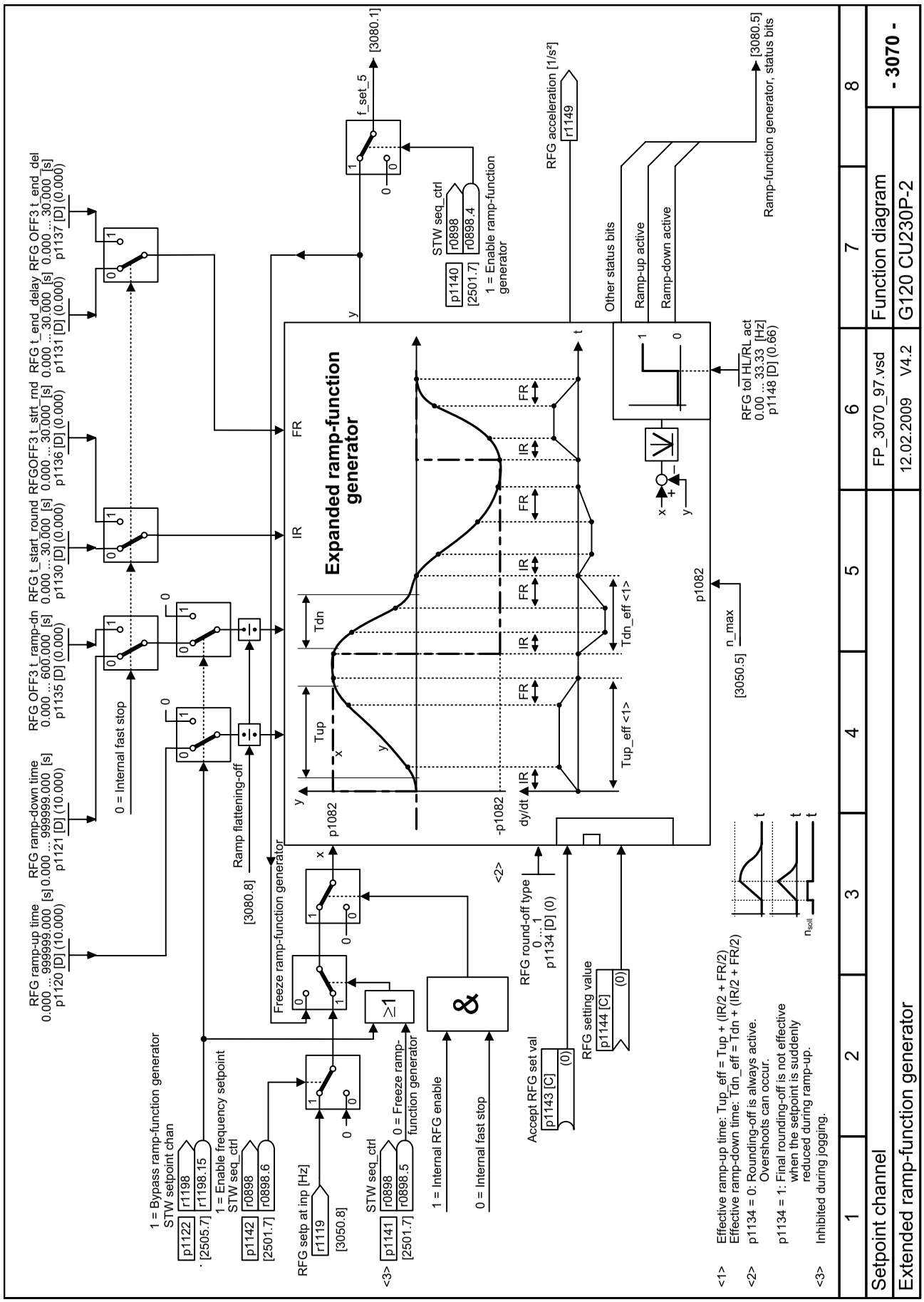

Fig. 2-65 3070 – Extended ramp-function generator

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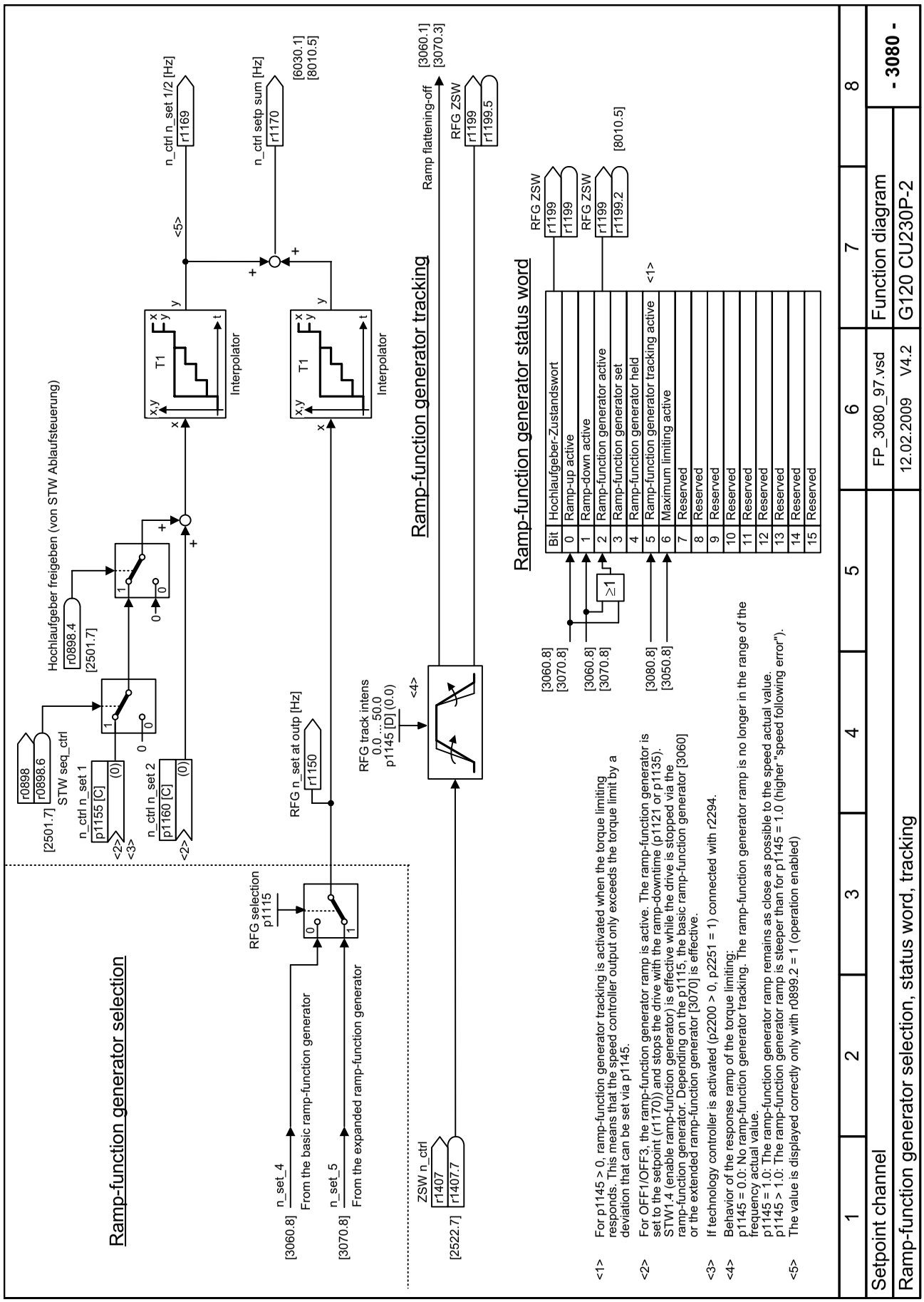

Fig. 2-66 3080 – Ramp-function generator selection, status word, tracking

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2.8 V/f control

Function diagrams

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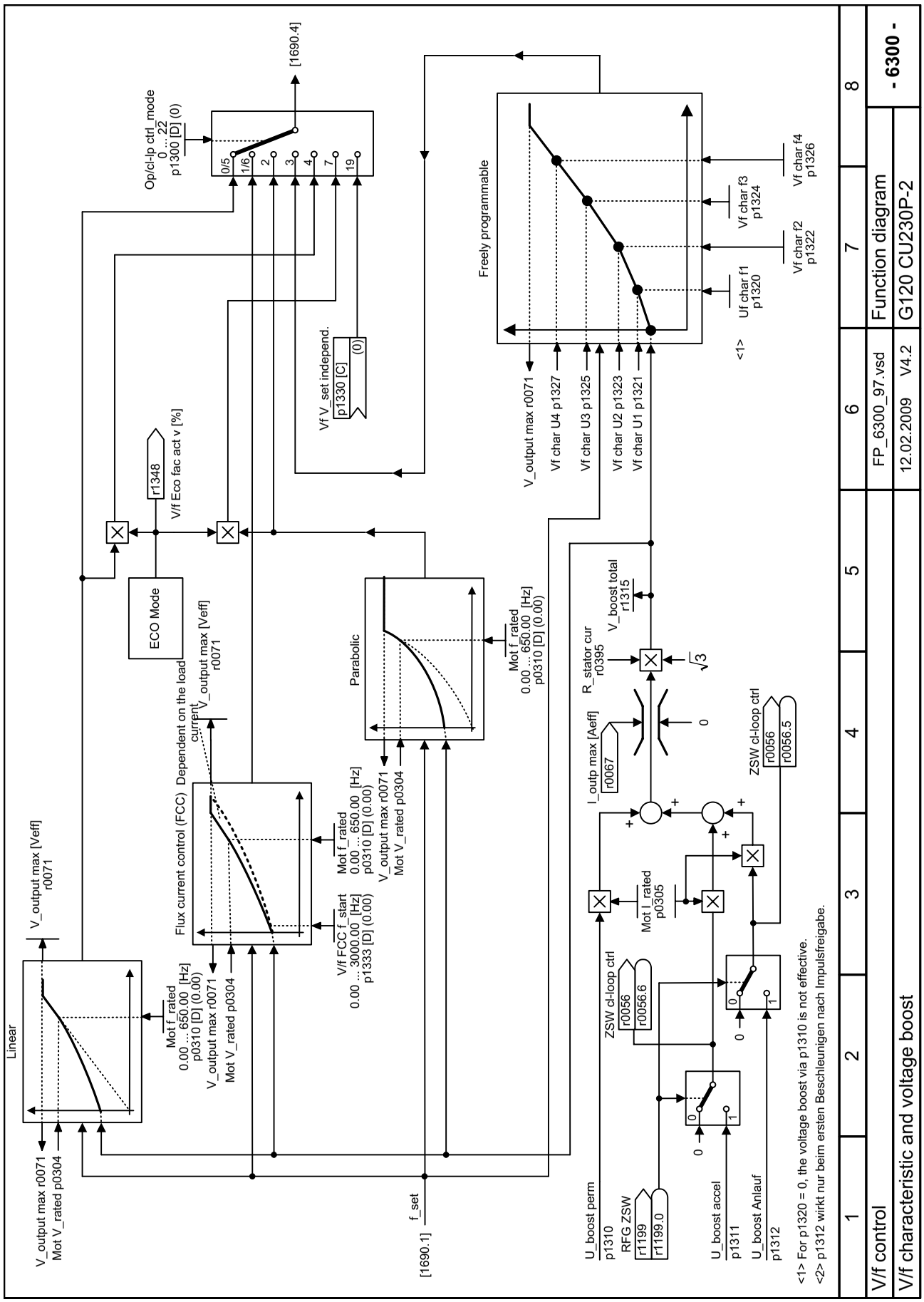

Fig. 2-67 6300 – V/f characteristic and voltage boost

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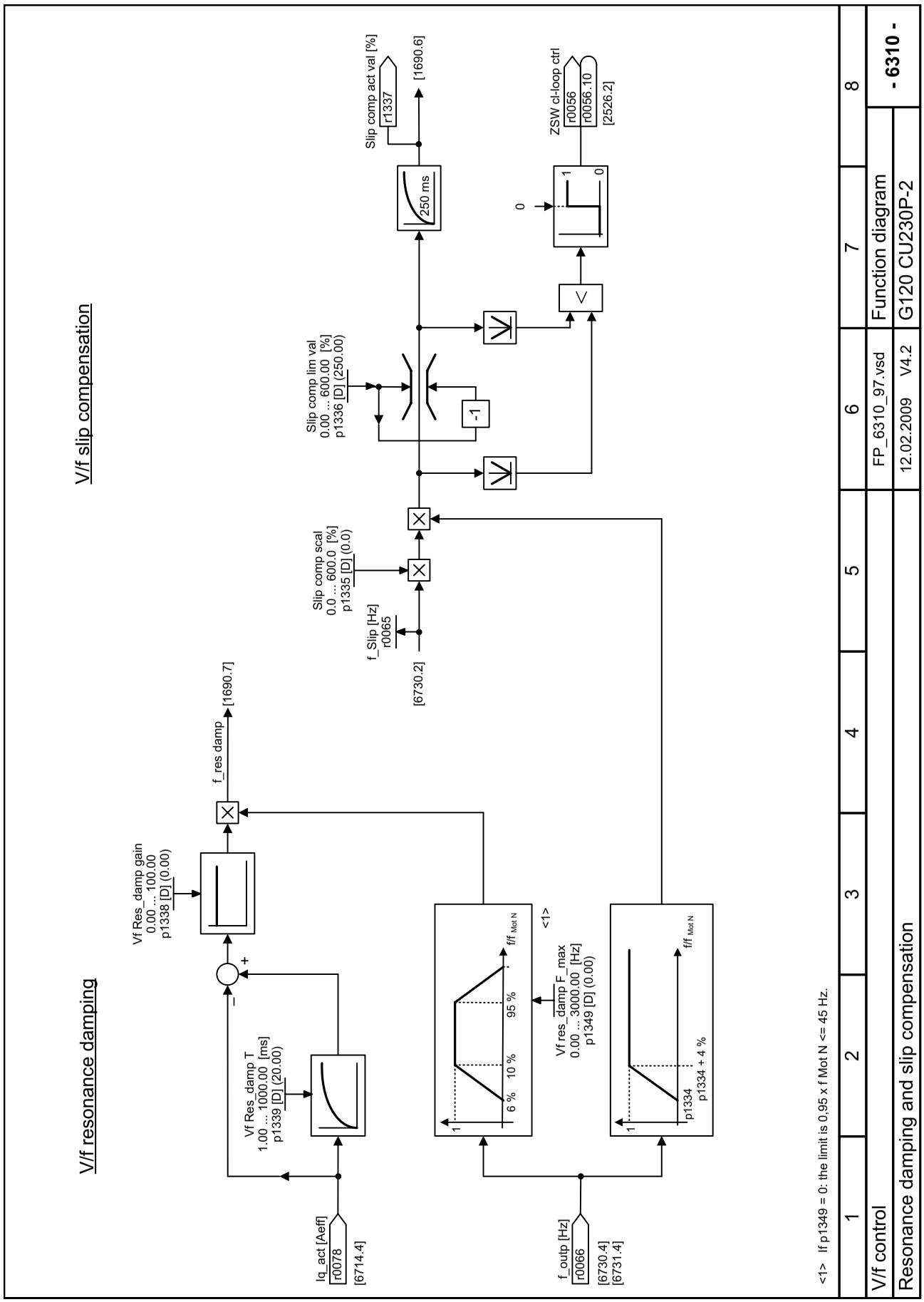

Fig. 2-68 6310 – Resonance damping and slip compensation

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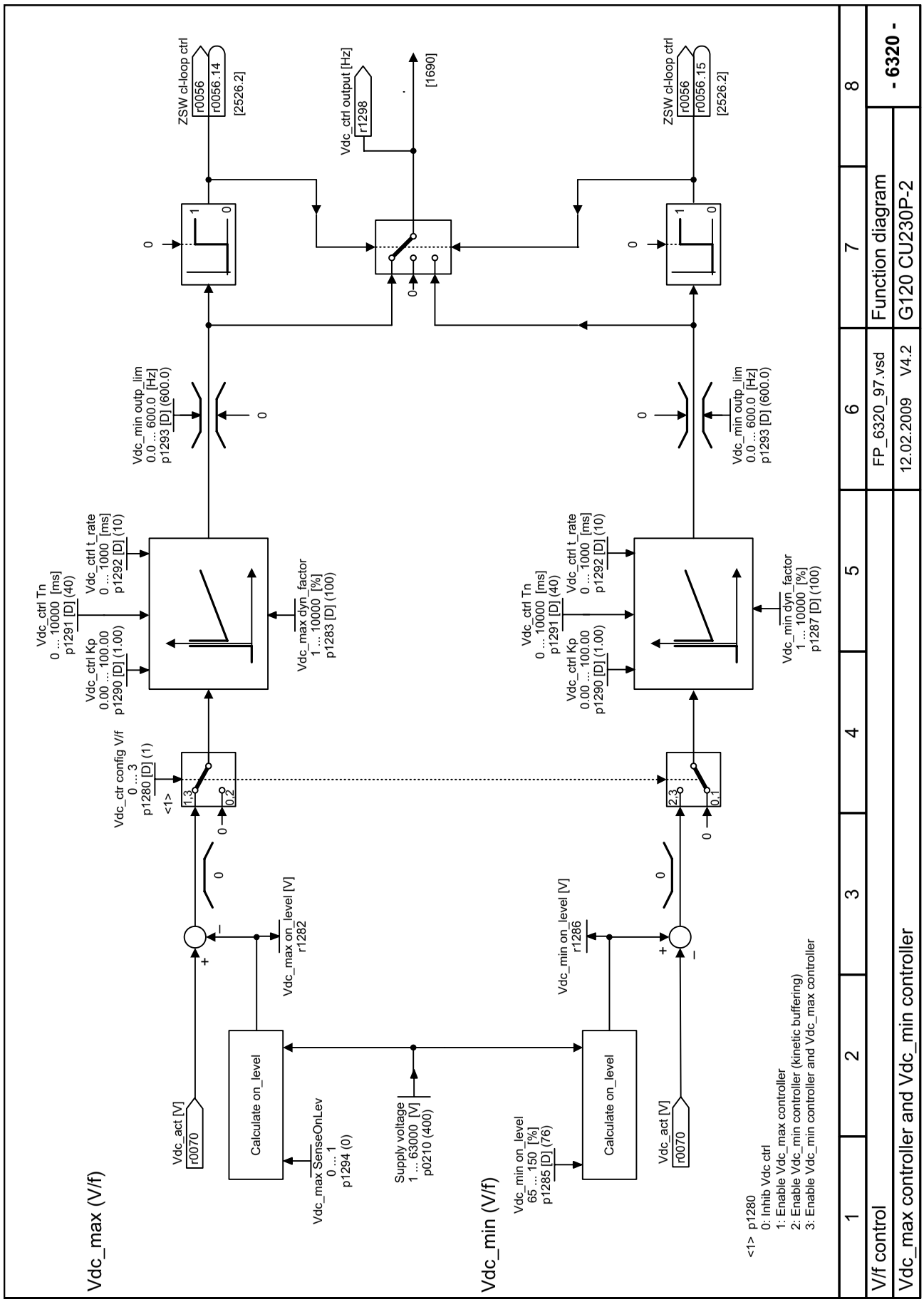

Fig. 2-69 6320 – Vdc_max controller and Vdc_min controller

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2.9 Vector control

Function diagrams

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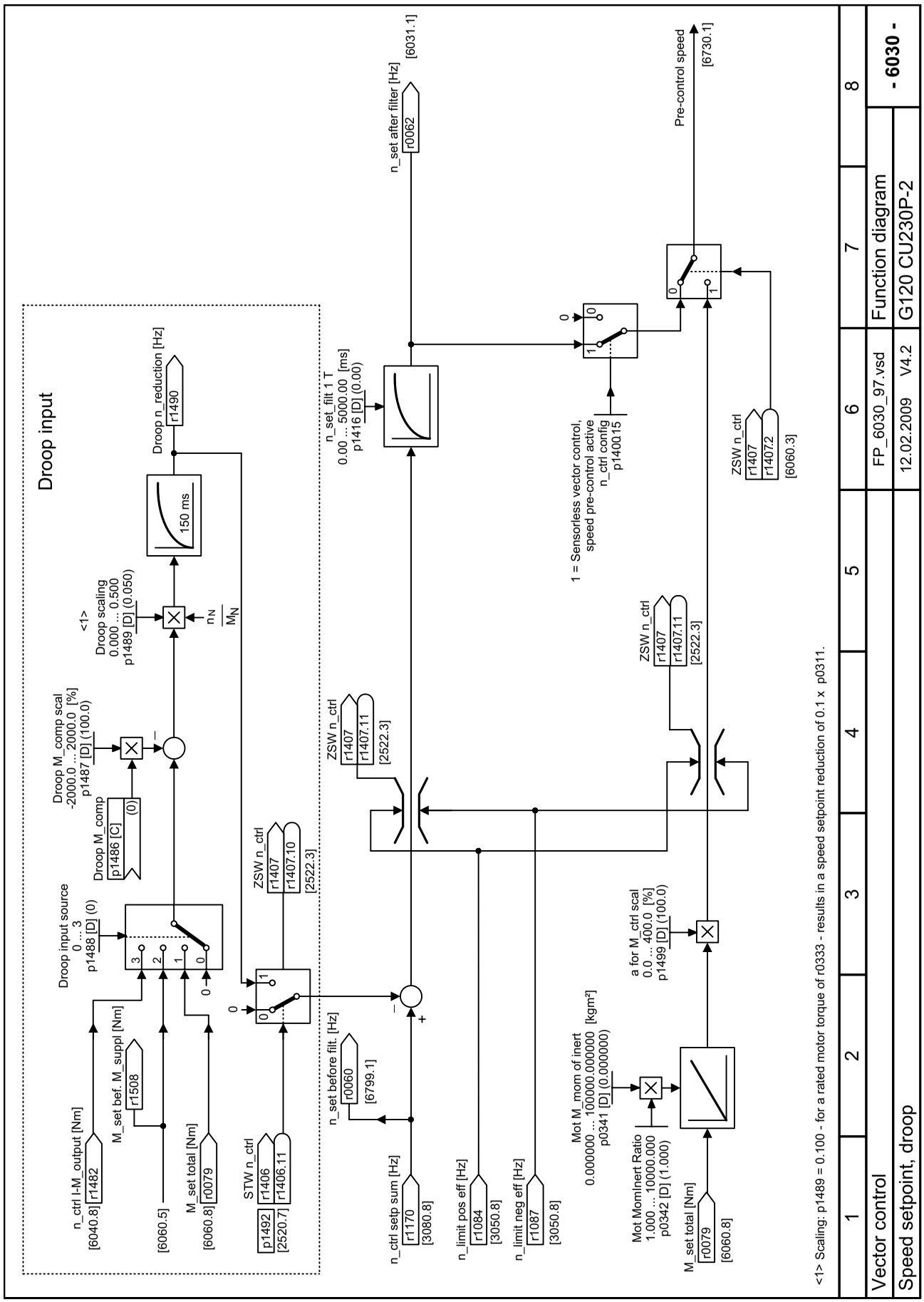

Fig. 2-70 6030 – Speed setpoint, droop

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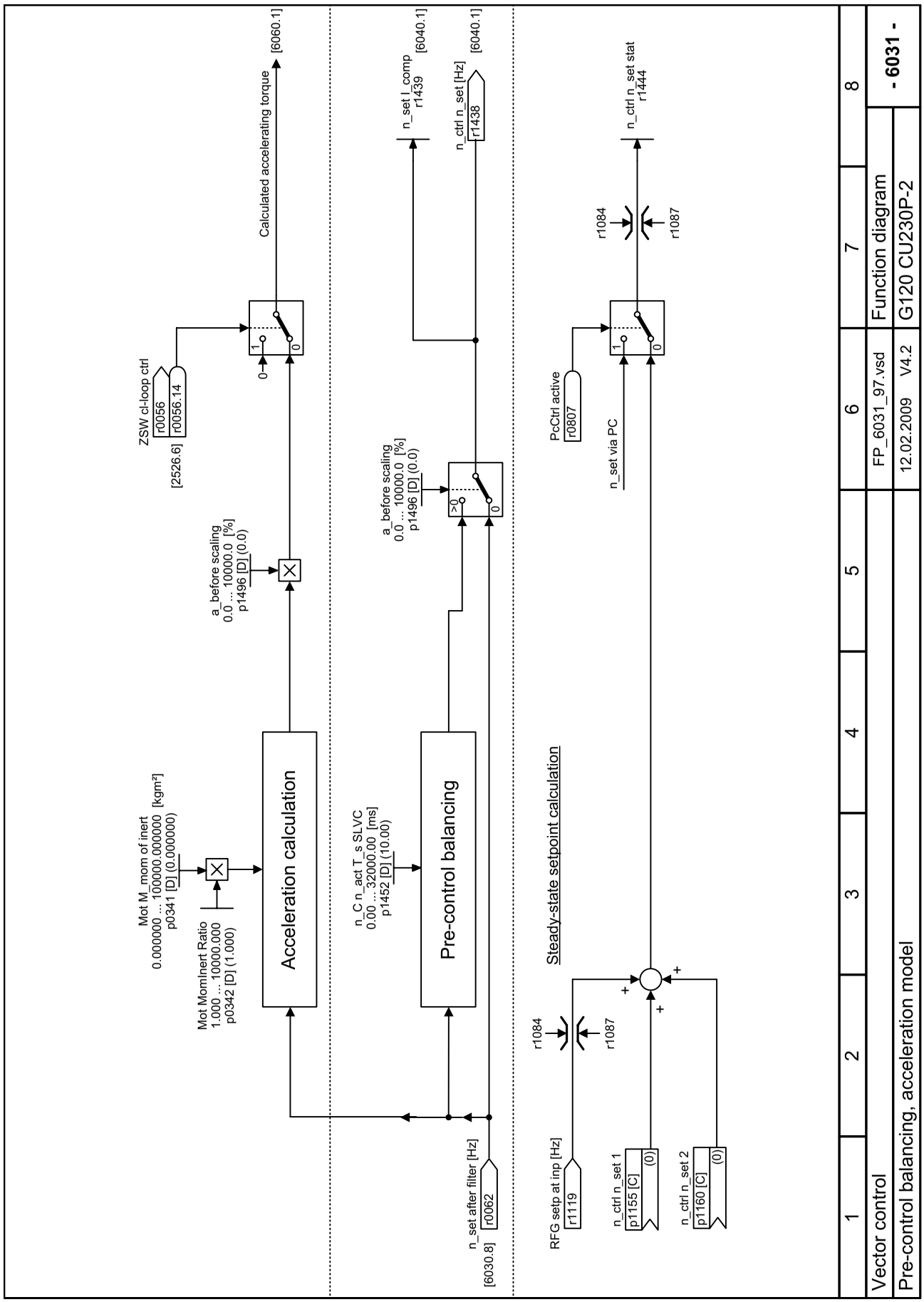

Fig. 2-71 6031 – Pre-control balancing, acceleration model

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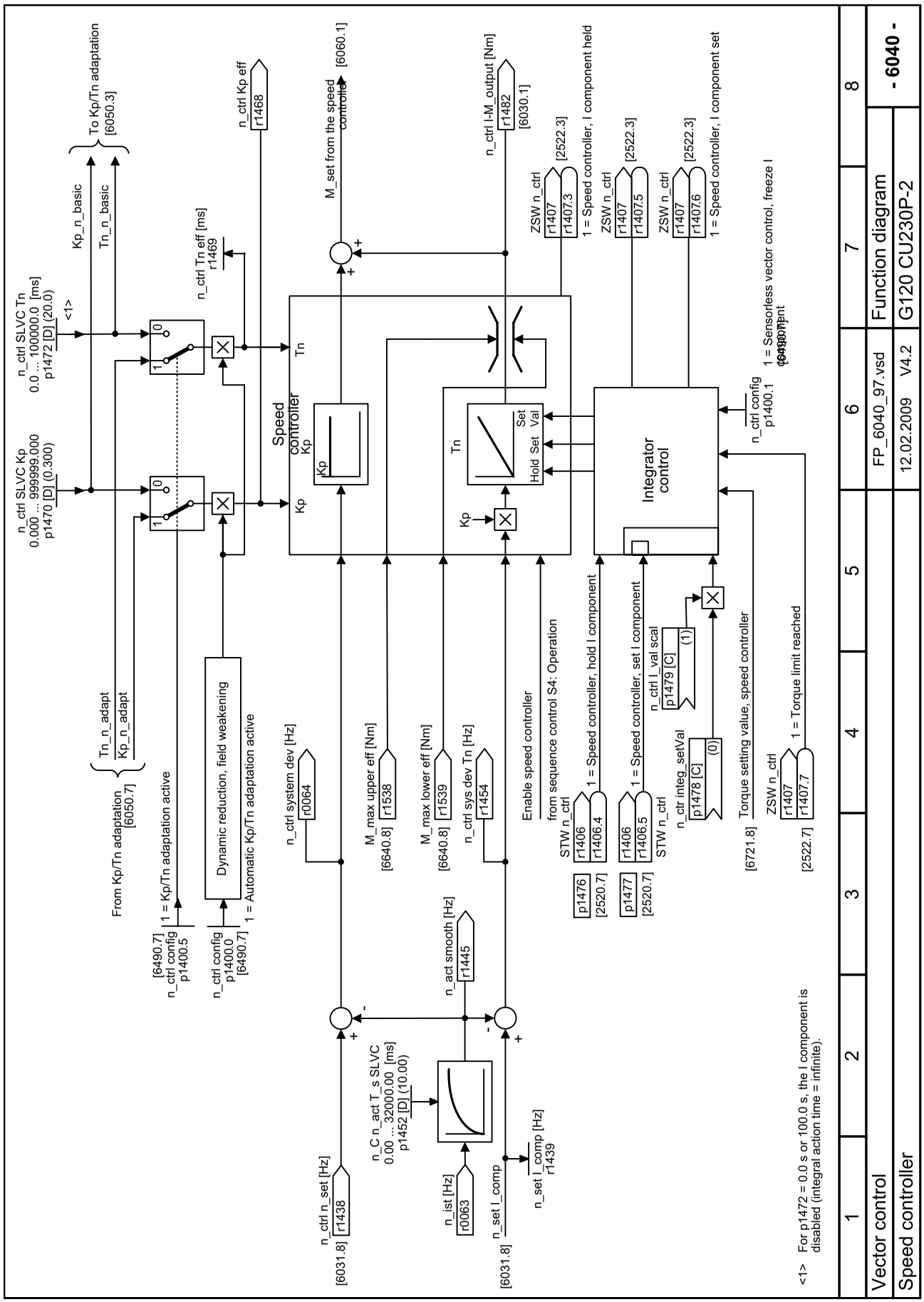

Fig. 2-72 6040 – Speed controller

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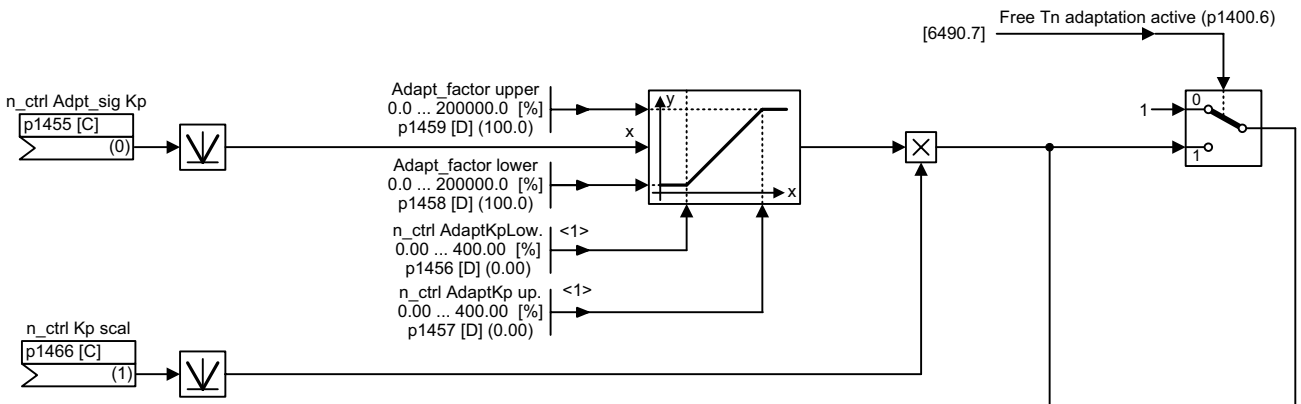
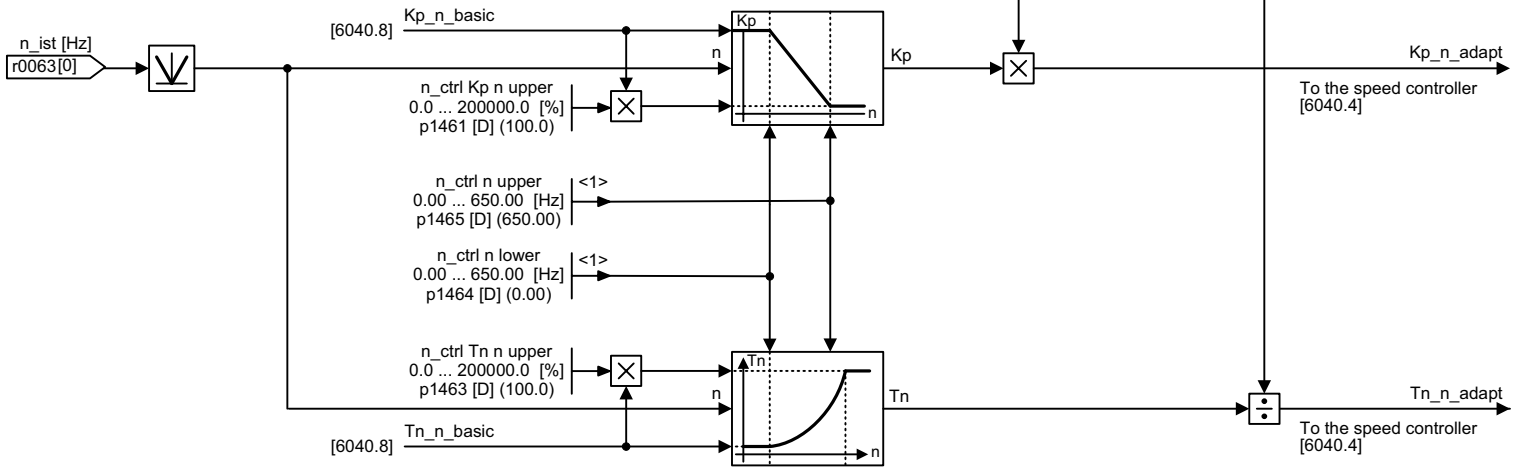
Fig. 2-73 6050 – Kp_n/Tn_n adaption

Free Kp_n adaptation



Speed-dependent Kp_n/Tn_n adaptation



<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
Vector control					FP_6050_97.vsd	Function diagram	- 6050 -
Kp_n/Tn_n adaption					12.02.2009 V4.2	G120 CU230P-2	

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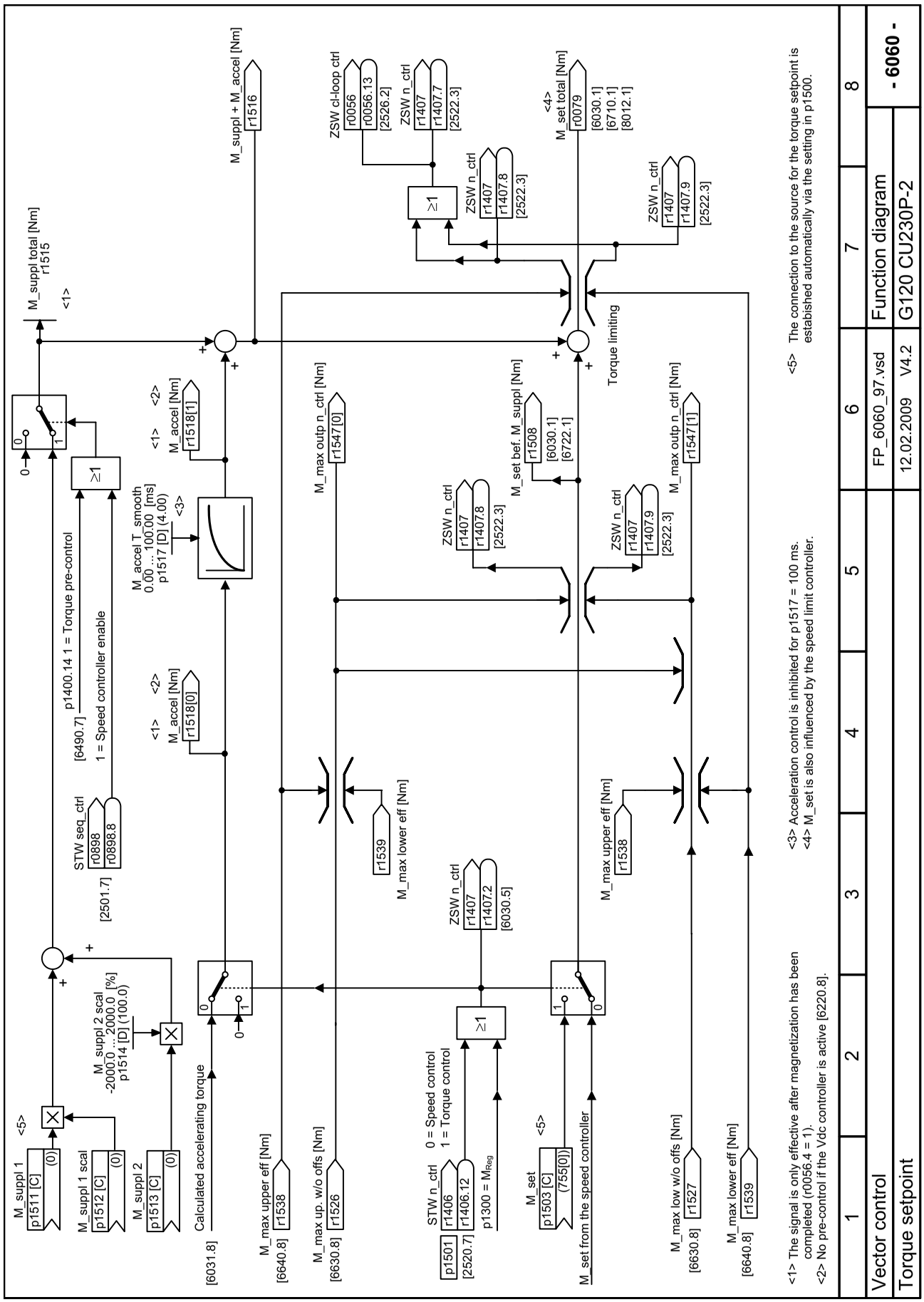

Fig. 2-74 6060 – Torque setpoint

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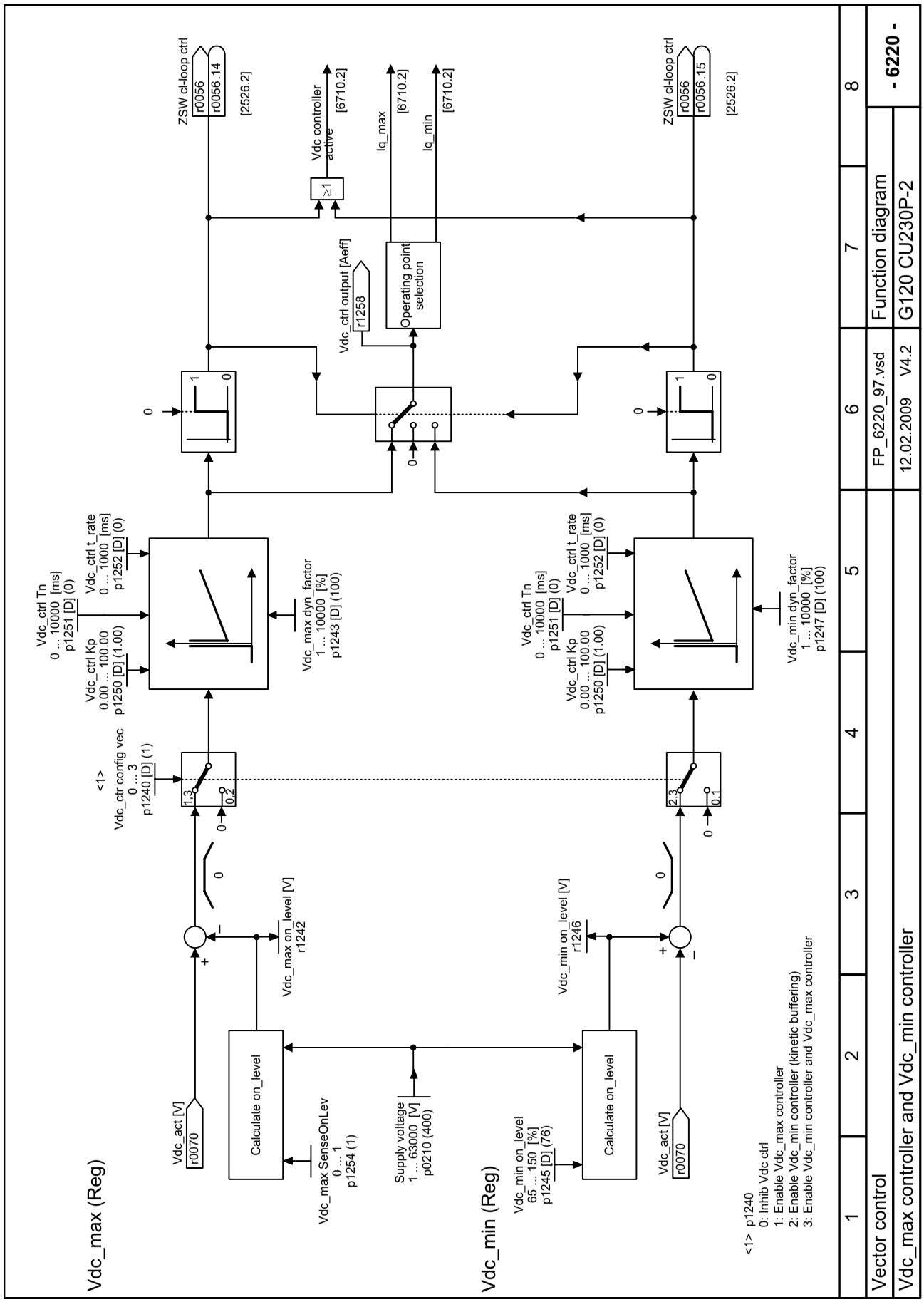

Fig. 2-75 6220 – Vdc_max controller and Vdc_min controller (Vector control)

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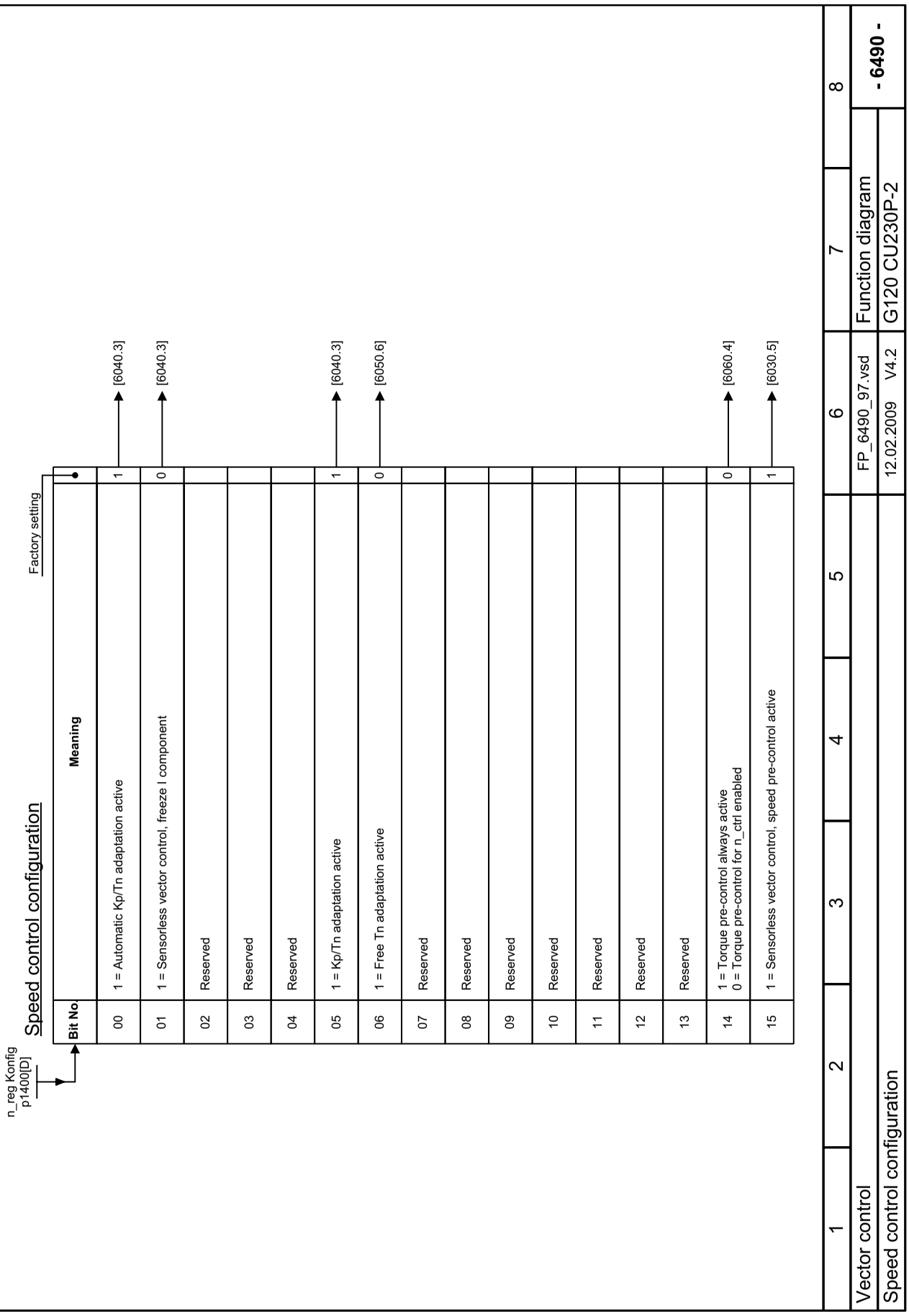

Fig. 2-76 6490 – Speed control configuration

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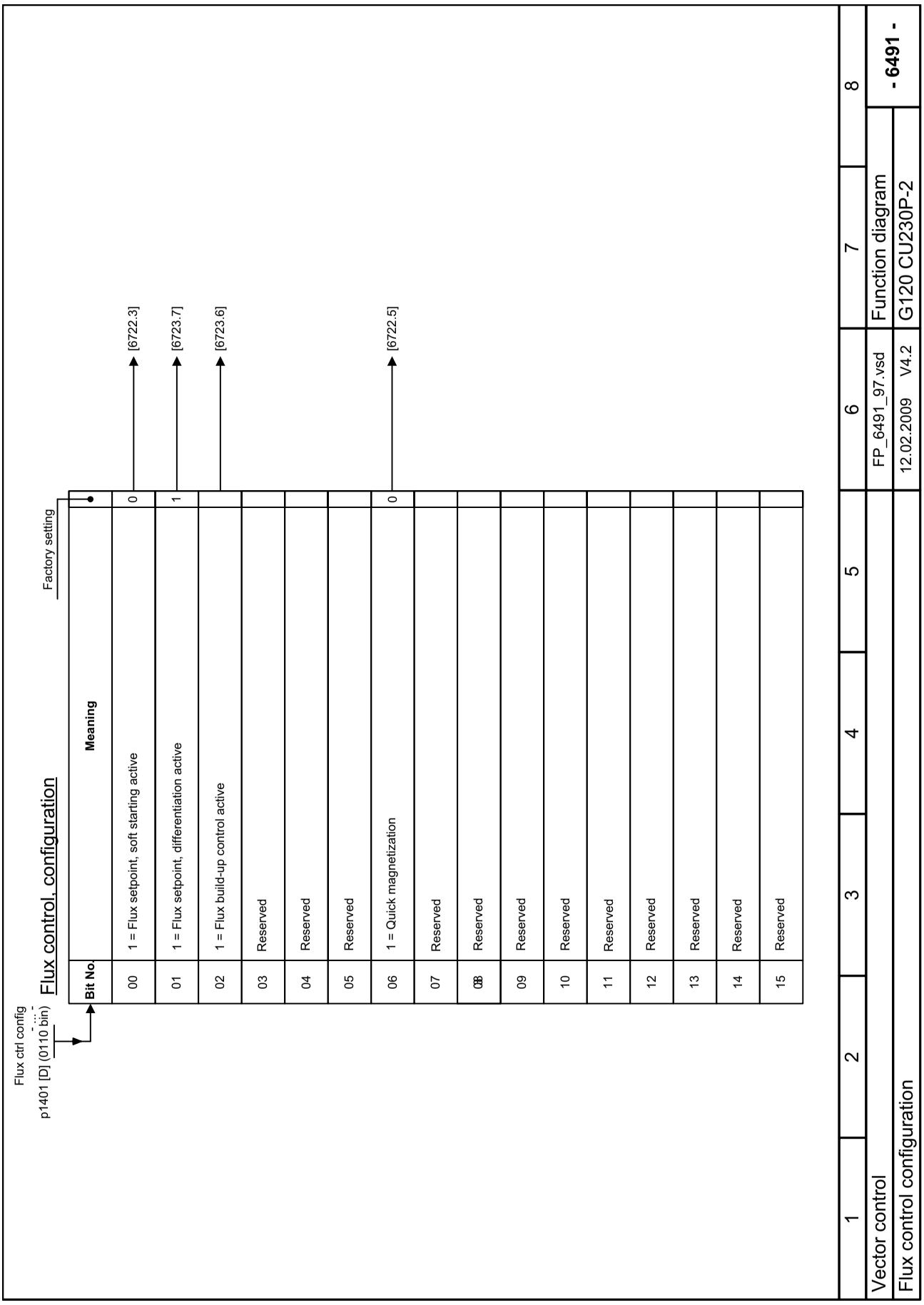

Fig. 2-77 6491 – Flux control configuration

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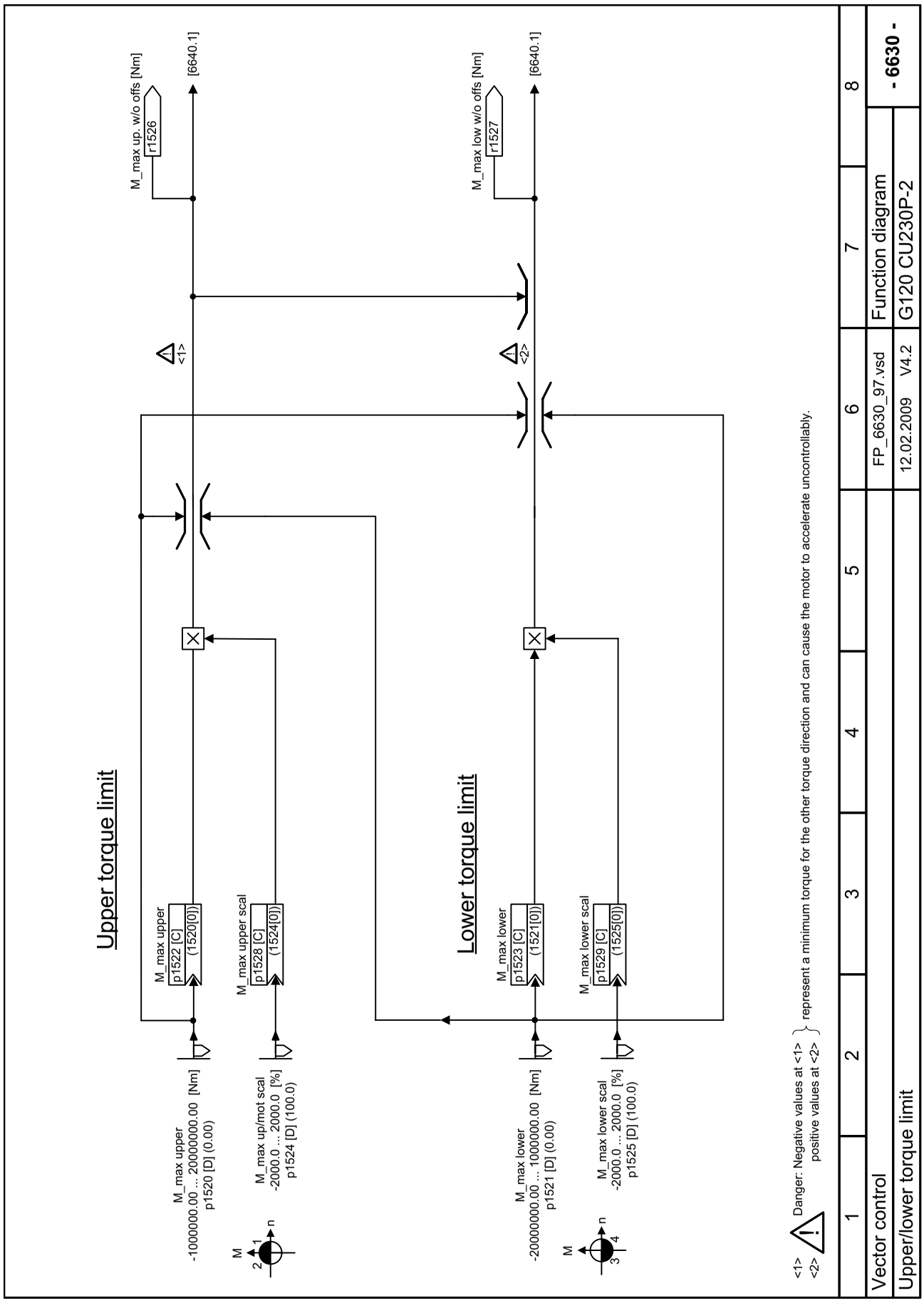

Fig. 2-78 6630 – Upper/lower torque limit

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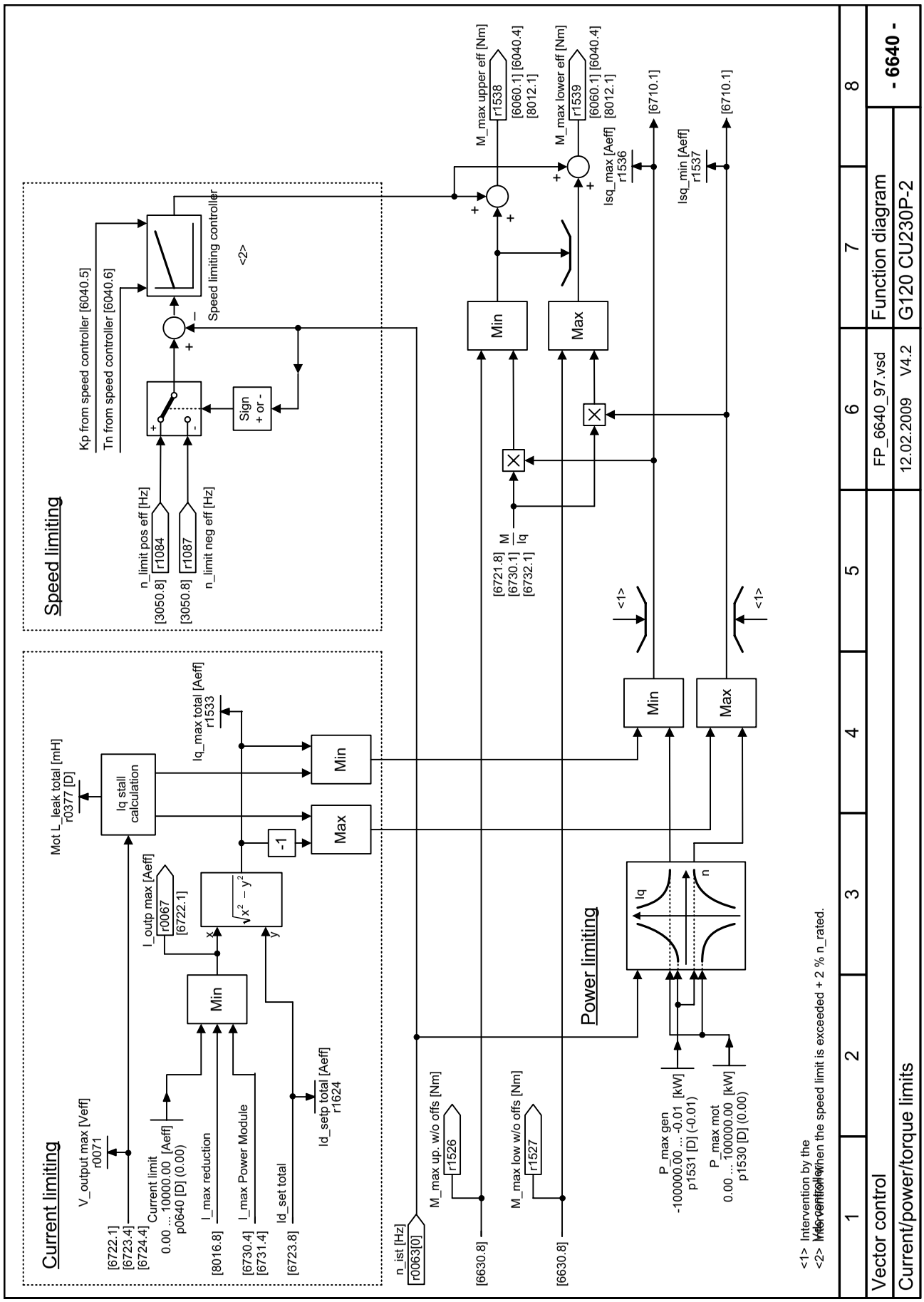

Fig. 2-79 6640 – Current/power/torque limits

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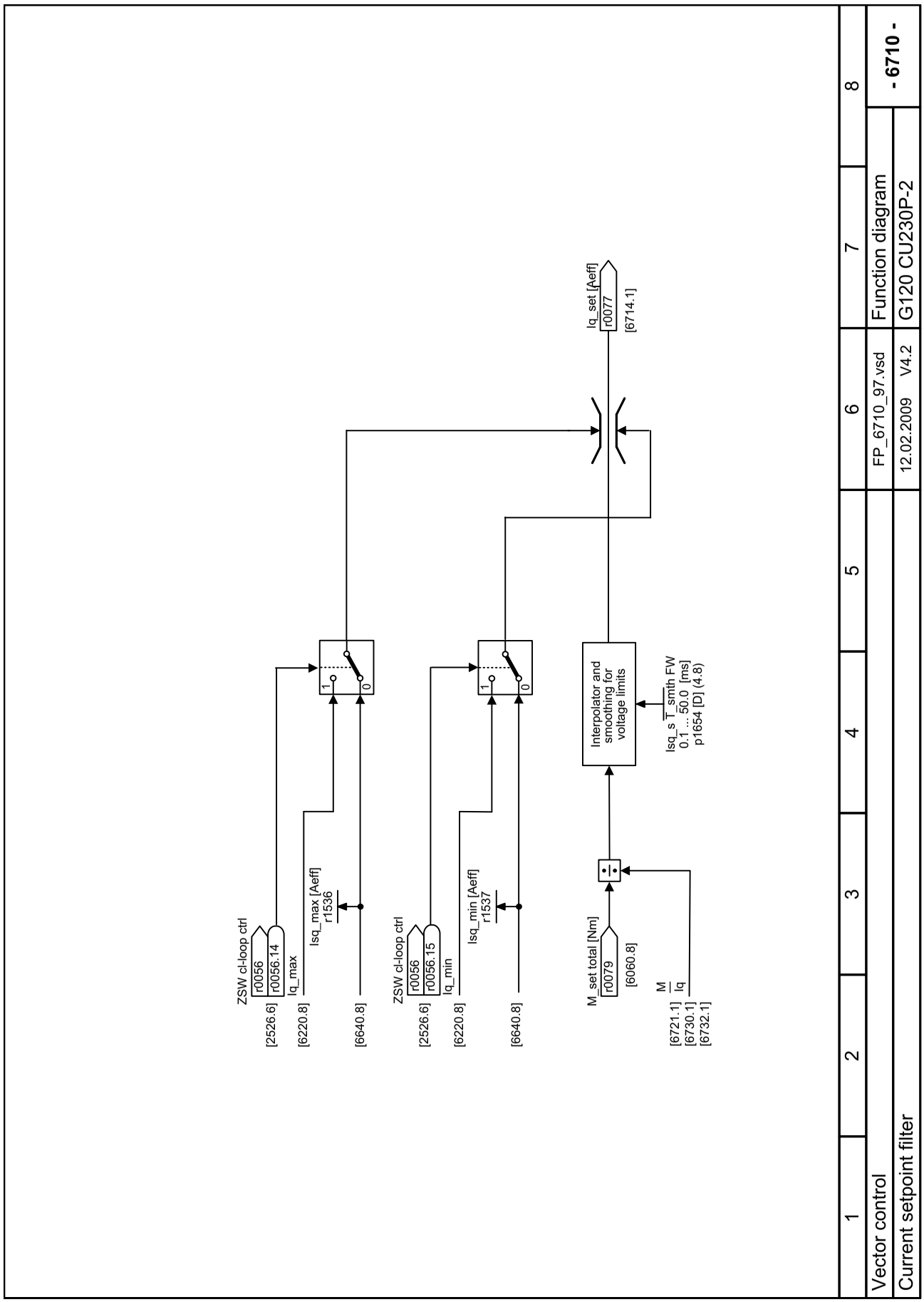

Fig. 2-80 6710 – Current setpoint filter

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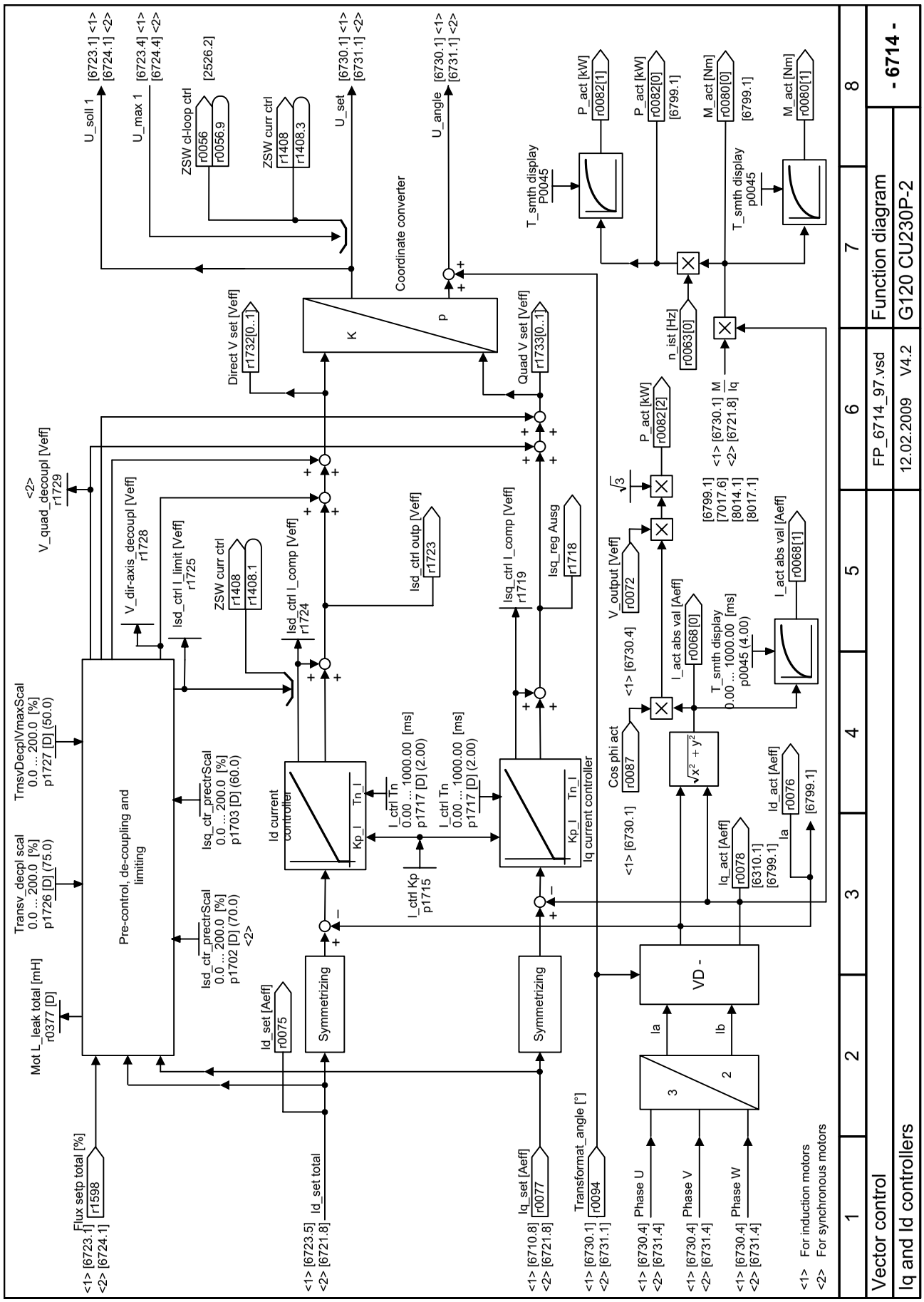

Fig. 2-81 6714 – Iq and Id controllers

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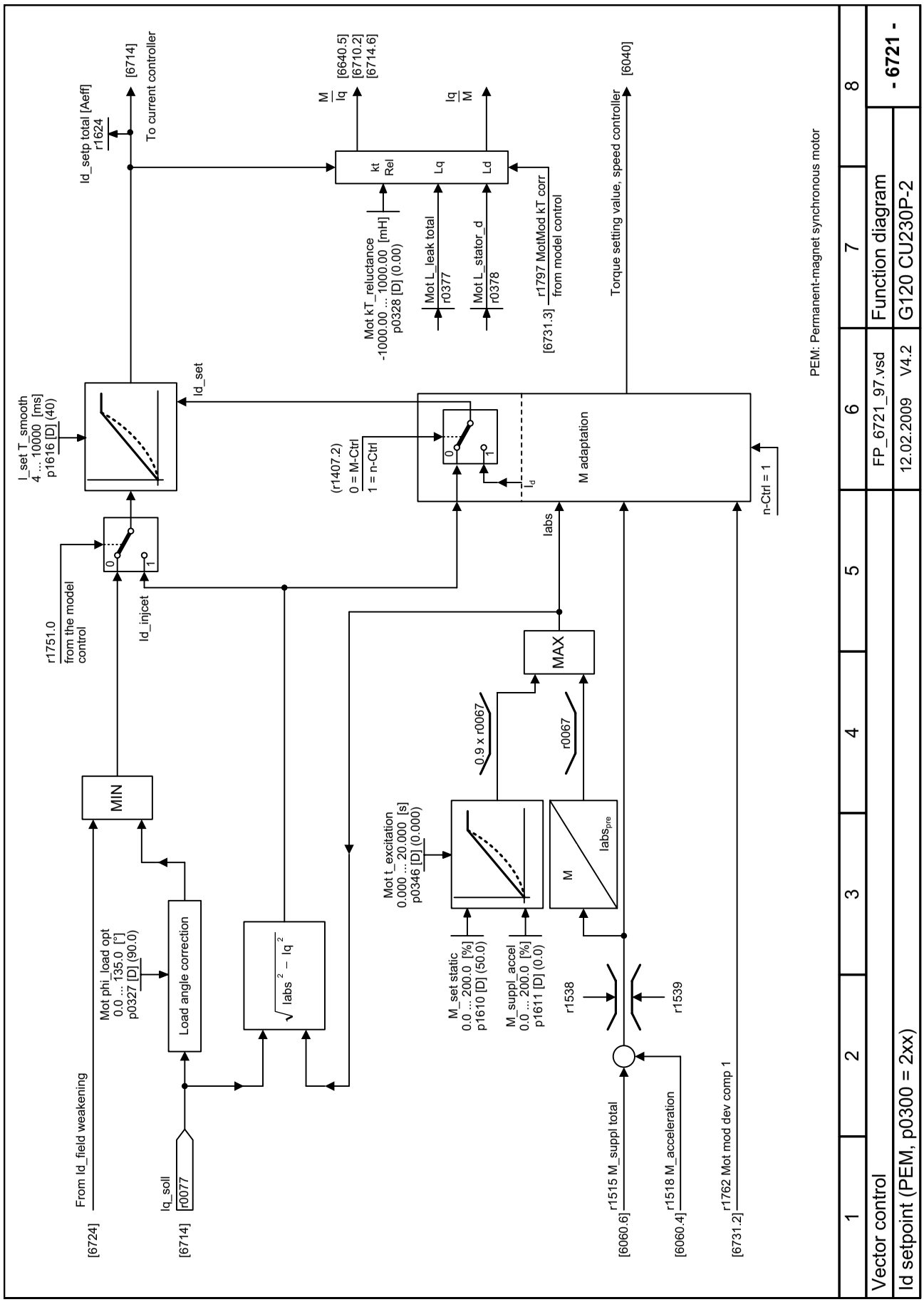

Fig. 2-82 6721 – Id setpoint (p0300 = 2xx)

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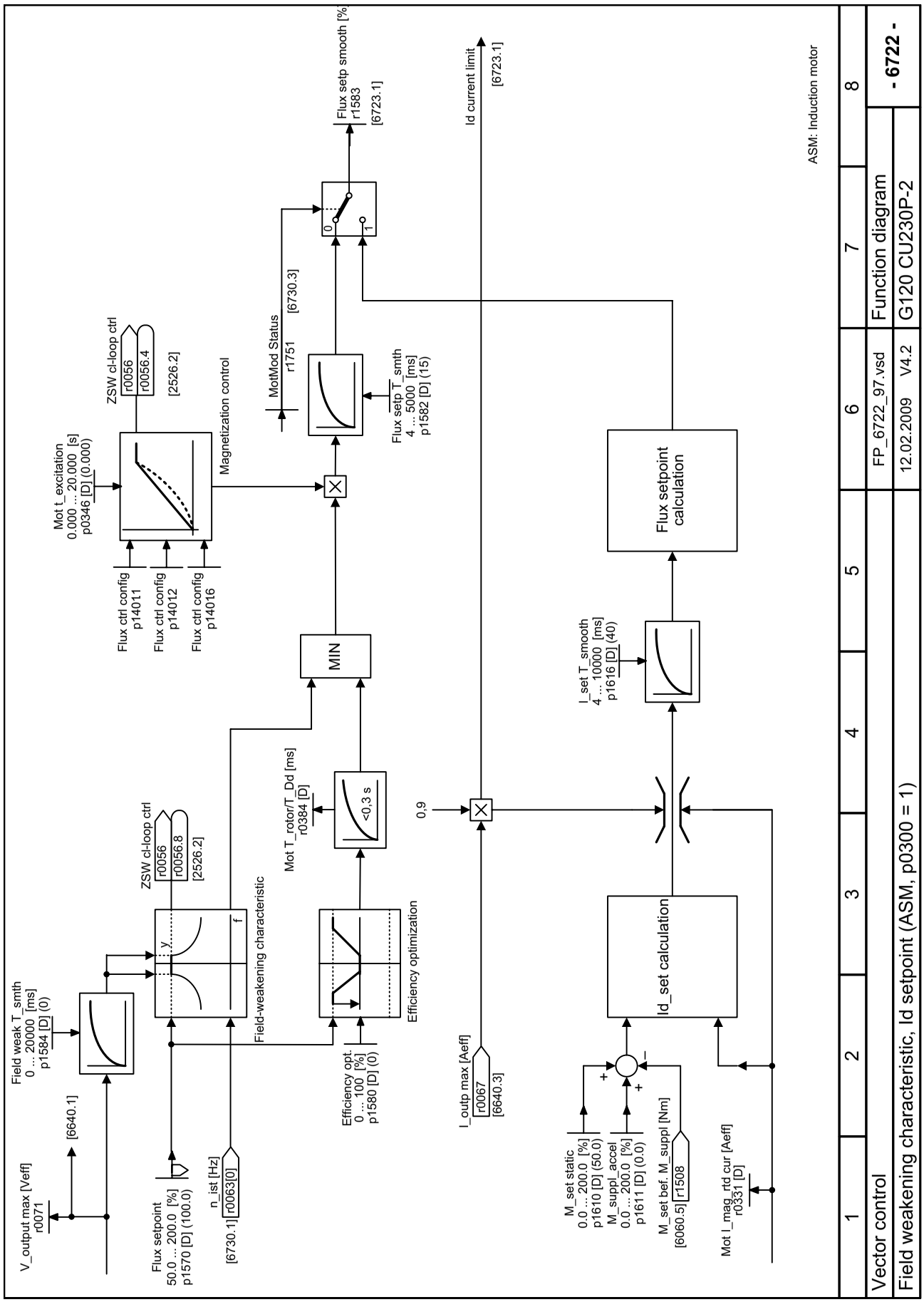

Fig. 2-83 6722 – Field weakening characteristic, Id setpoint (p0300 = 1)

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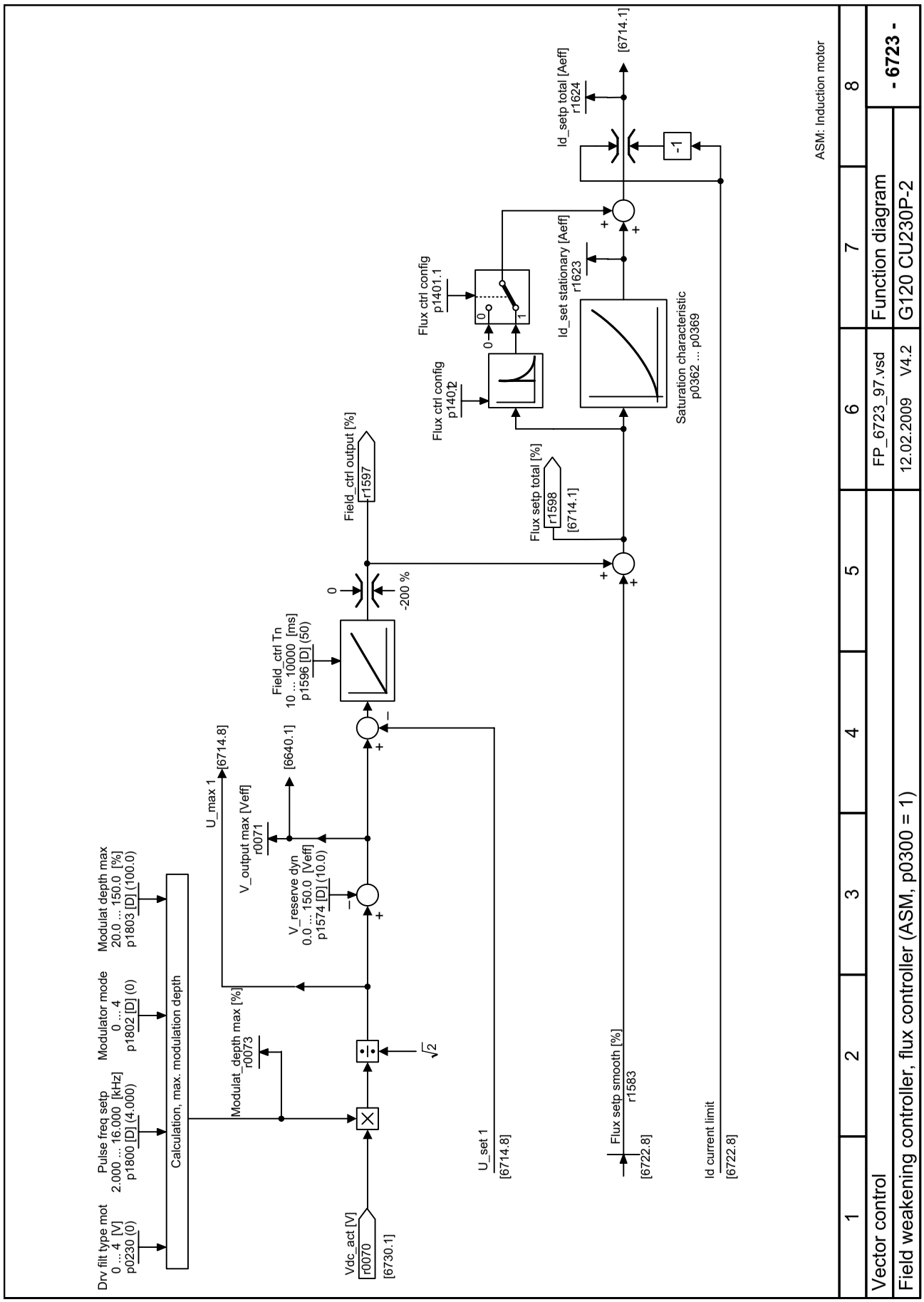

Fig. 2-84 6723 – Field weakening controller, flux controller (p0300 = 1)

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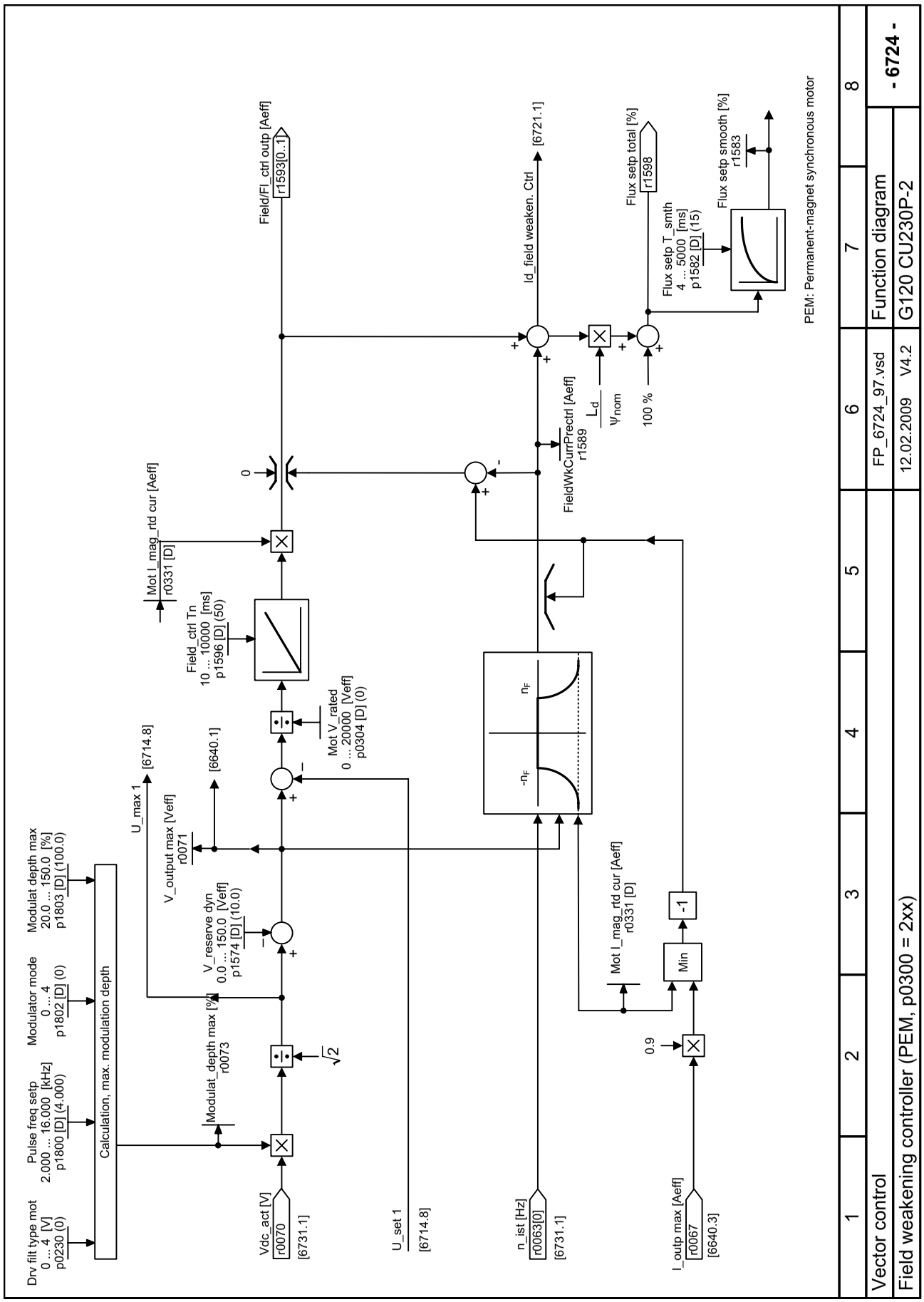

Fig. 2-85 6724 – Field weakening controller (p0300 = 2xx)

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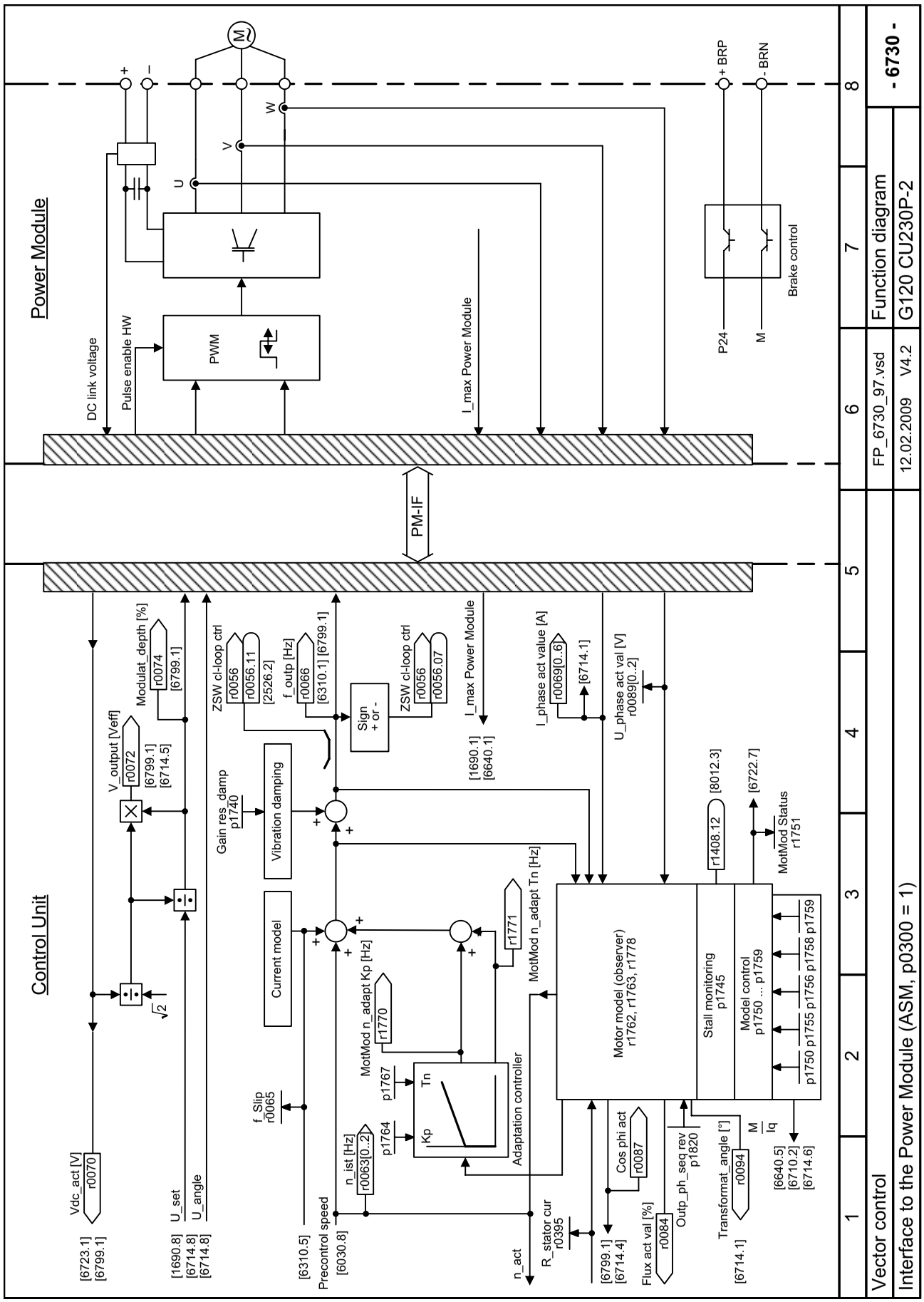

Fig. 2-86 6730 – Interface to the Power Module (p0300 = 1)

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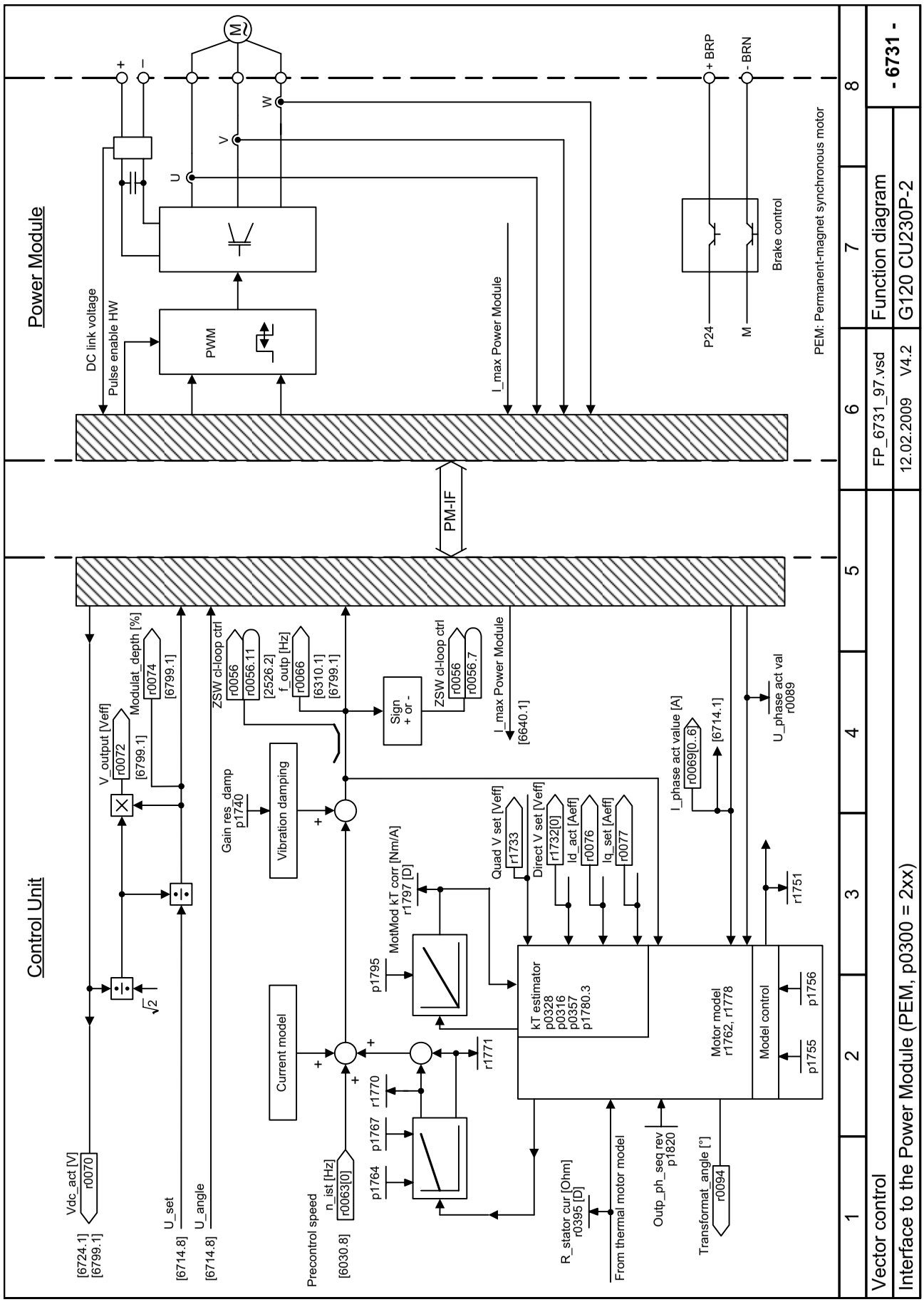

Fig. 2-87 6731 – Interface to the Power Module (p0300 = 2)

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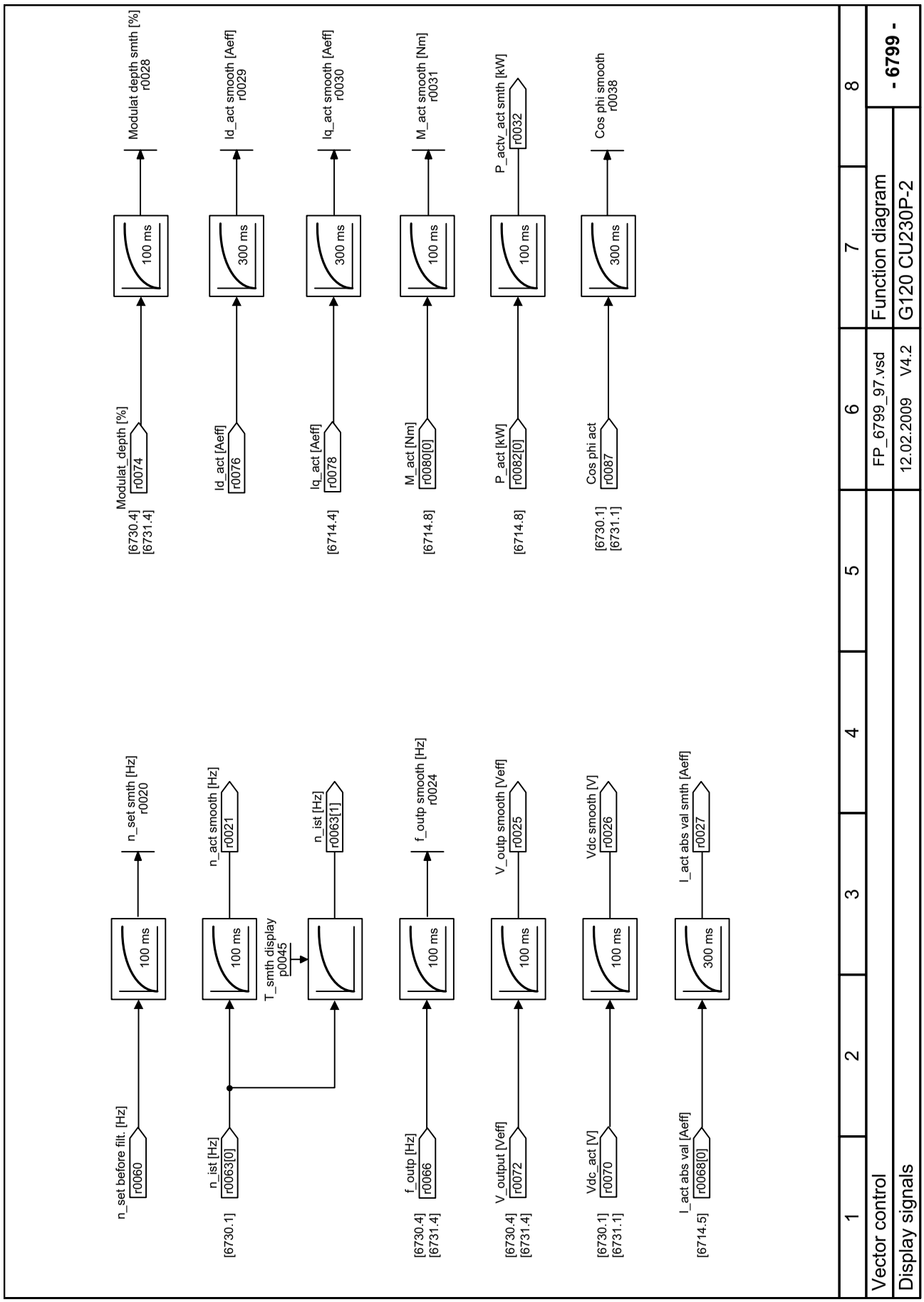

Fig. 2-88 6799 – Display signals

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2.10 Technology functions

Function diagrams

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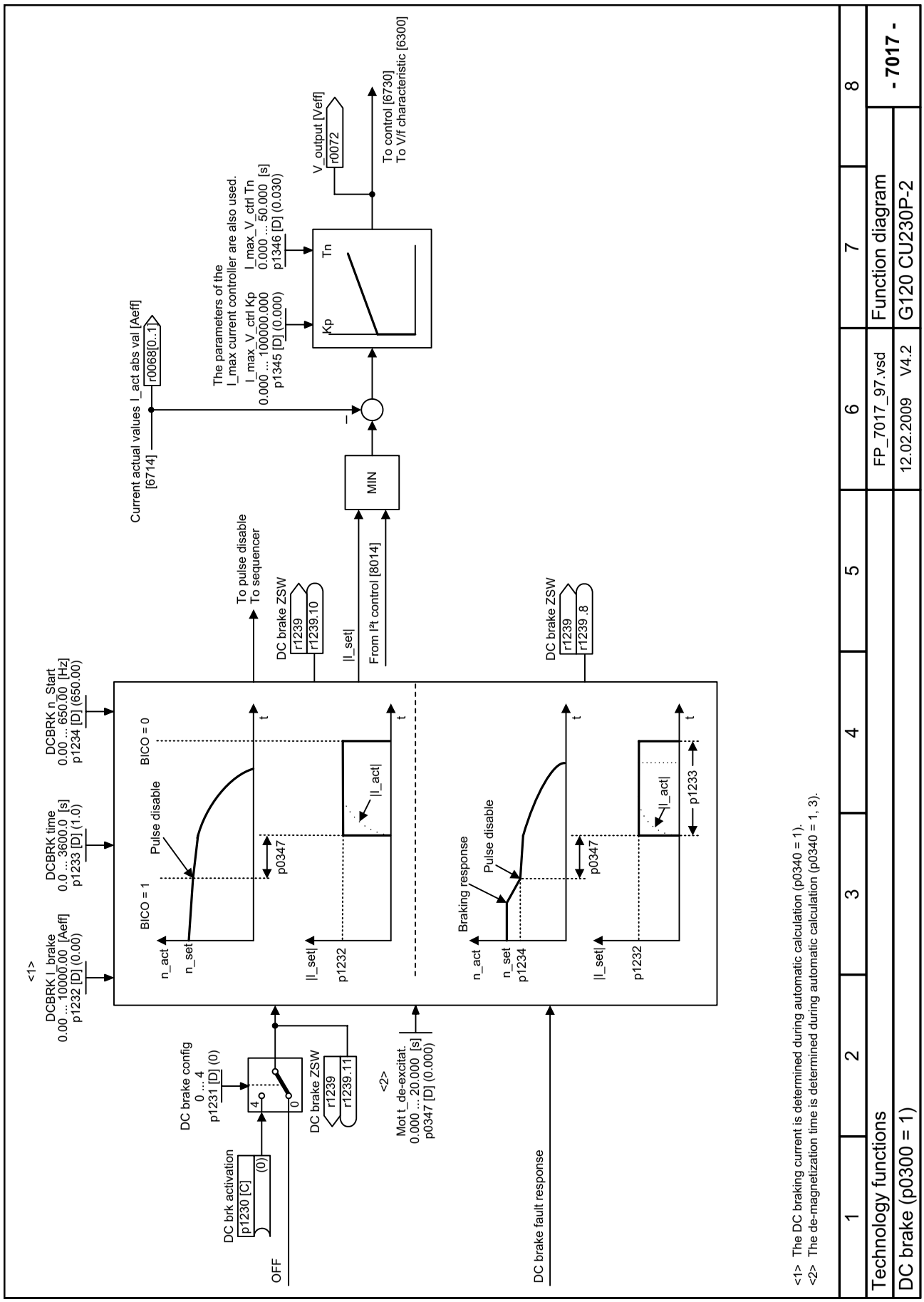

Fig. 2-89 7017 – DC brake

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2.11 Technology controller

Function diagrams

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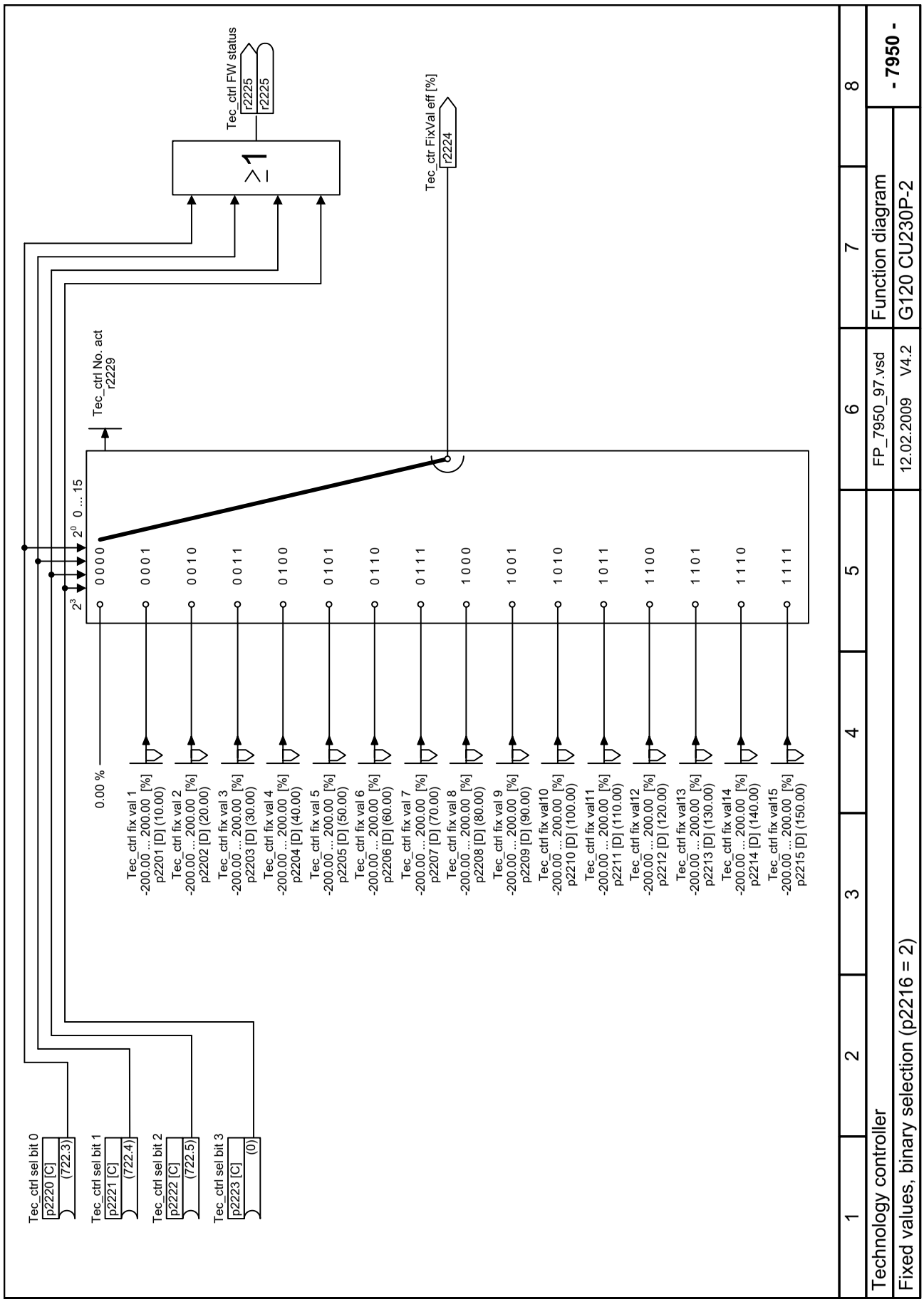

Fig. 2-90 7950 – Fixed values, binary selection (p2216 = 2)

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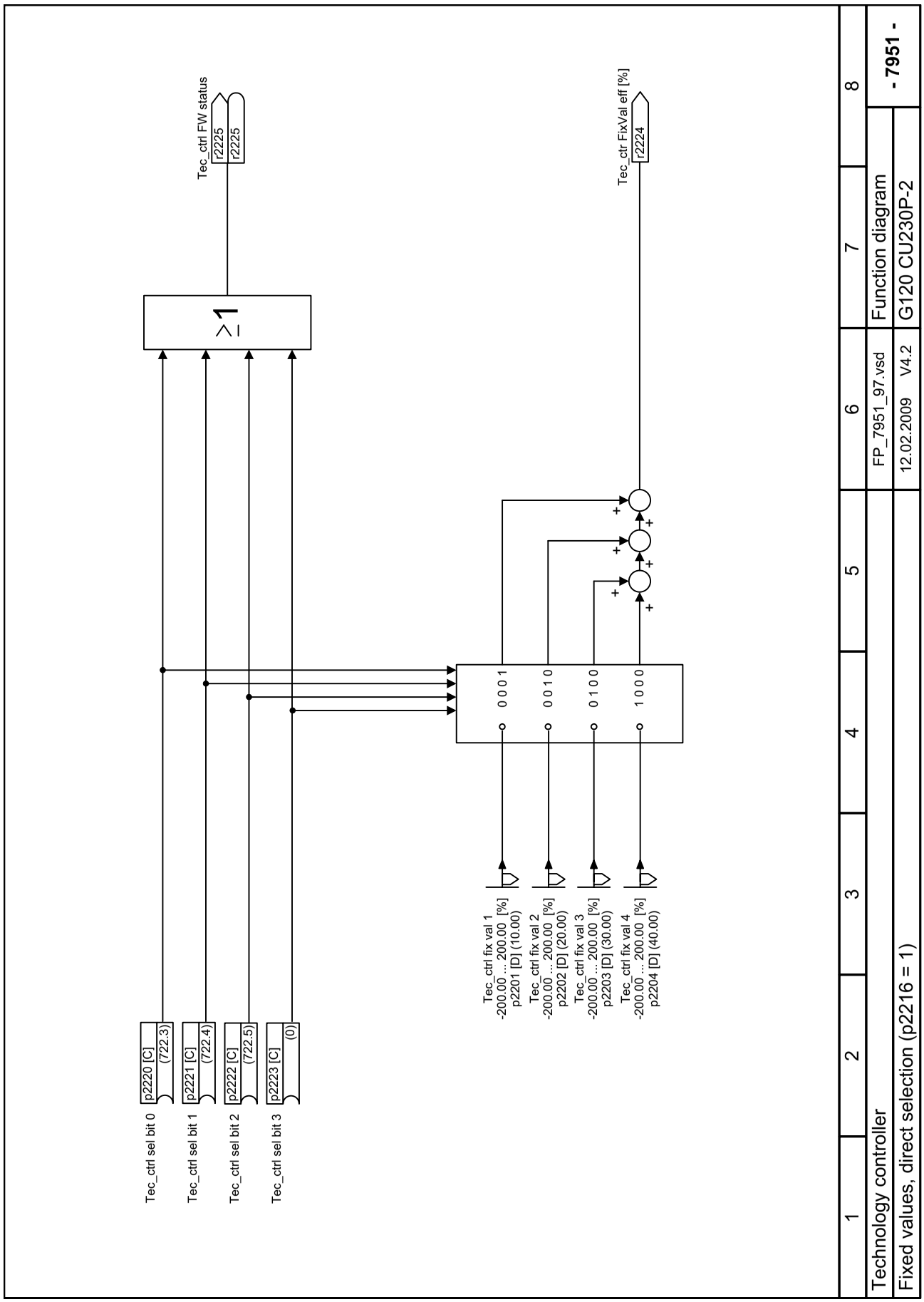

Fig. 2-91 7951 – Fixed values, direct selection (p2216 = 1)

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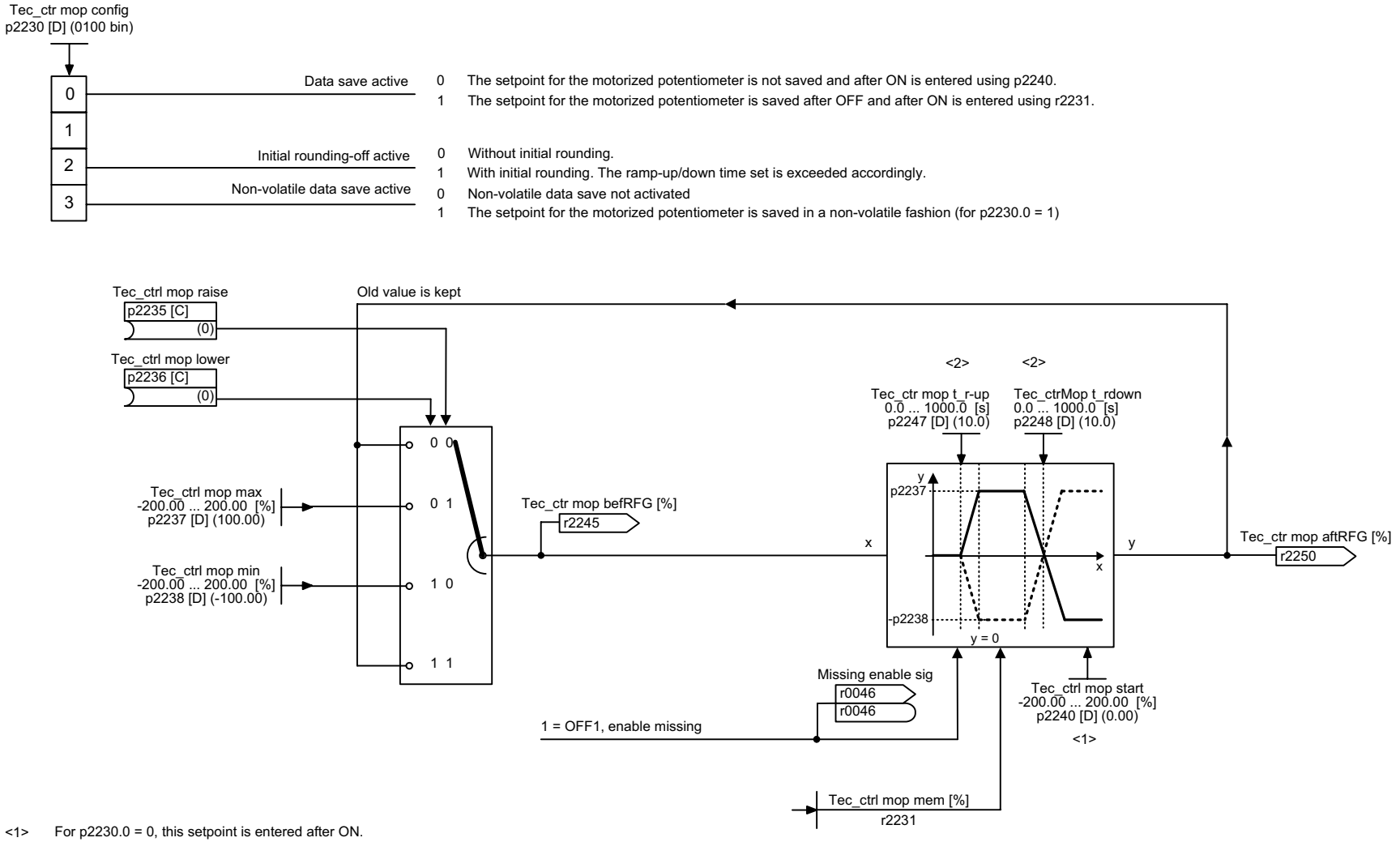

<1> For p2230.0 = 0, this setpoint is entered after ON.
<2> If initial rounding-off is active (p2230.2 = 1), the selected ramp-up/down times are exceeded accordingly.

1	2	3	4	5	6	7	8
Technology controller					FP_7954_97.vsd	Function diagram	- 7954 -
Motorized potentiometer					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-92 7954 – Motorized potentiometer

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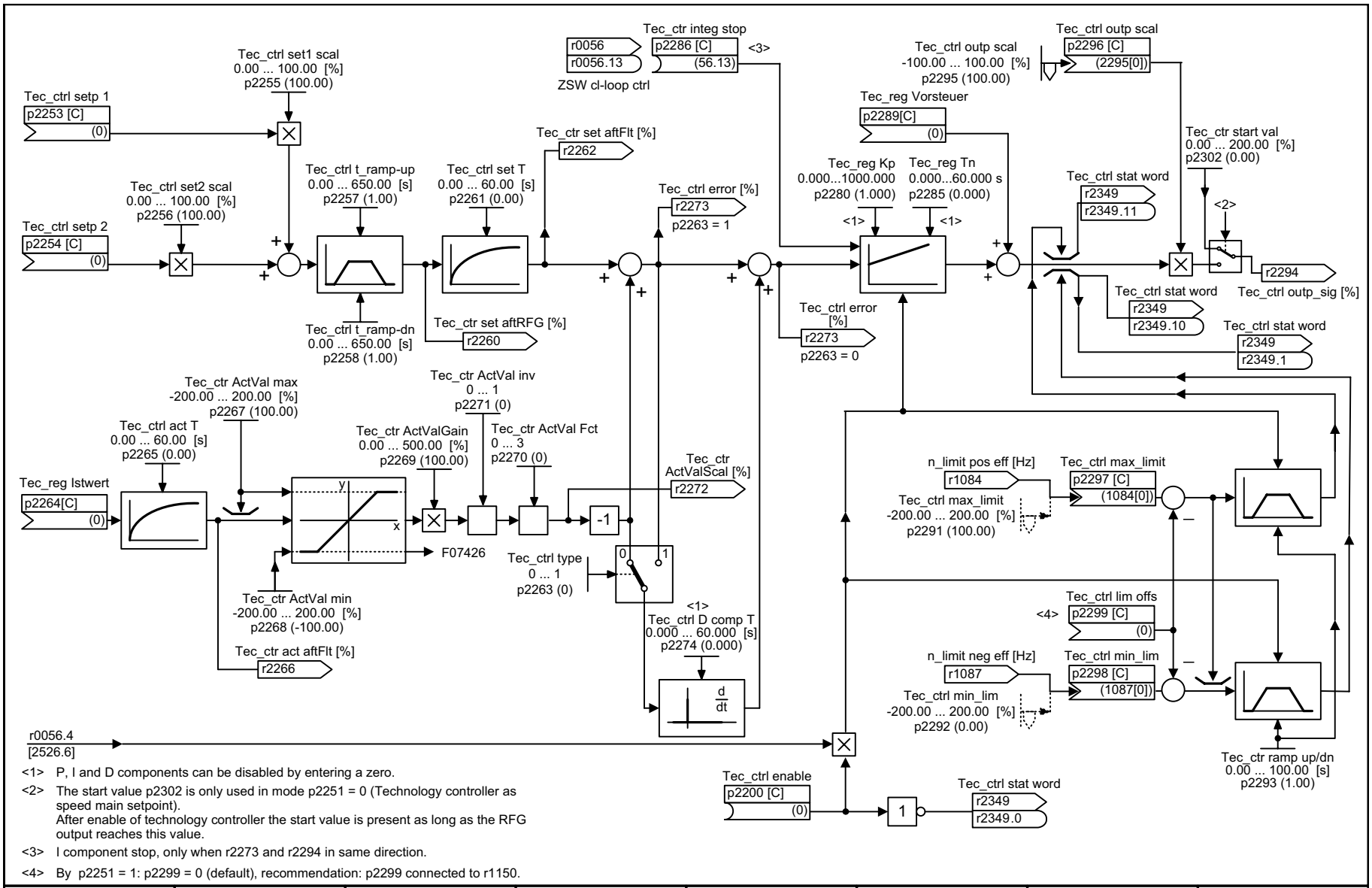

<1> P, I and D components can be disabled by entering a zero.

<2> The start value p2302 is only used in mode p2251 = 0 (Technology controller as speed main setpoint).
After enable of technology controller the start value is present as long as the RFG output reaches this value.

<3> I component stop, only when r2273 and r2294 in same direction.

<4> By p2251 = 1: p2299 = 0 (default), recommendation: p2299 connected to r1150.

1	2	3	4	5	6	7	8
Technology controller					FP_7958_97.vsd	Function diagram	- 7958 -
Closed-loop control					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-93 7958 – Closed-loop control

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2.12 Signals and monitoring functions

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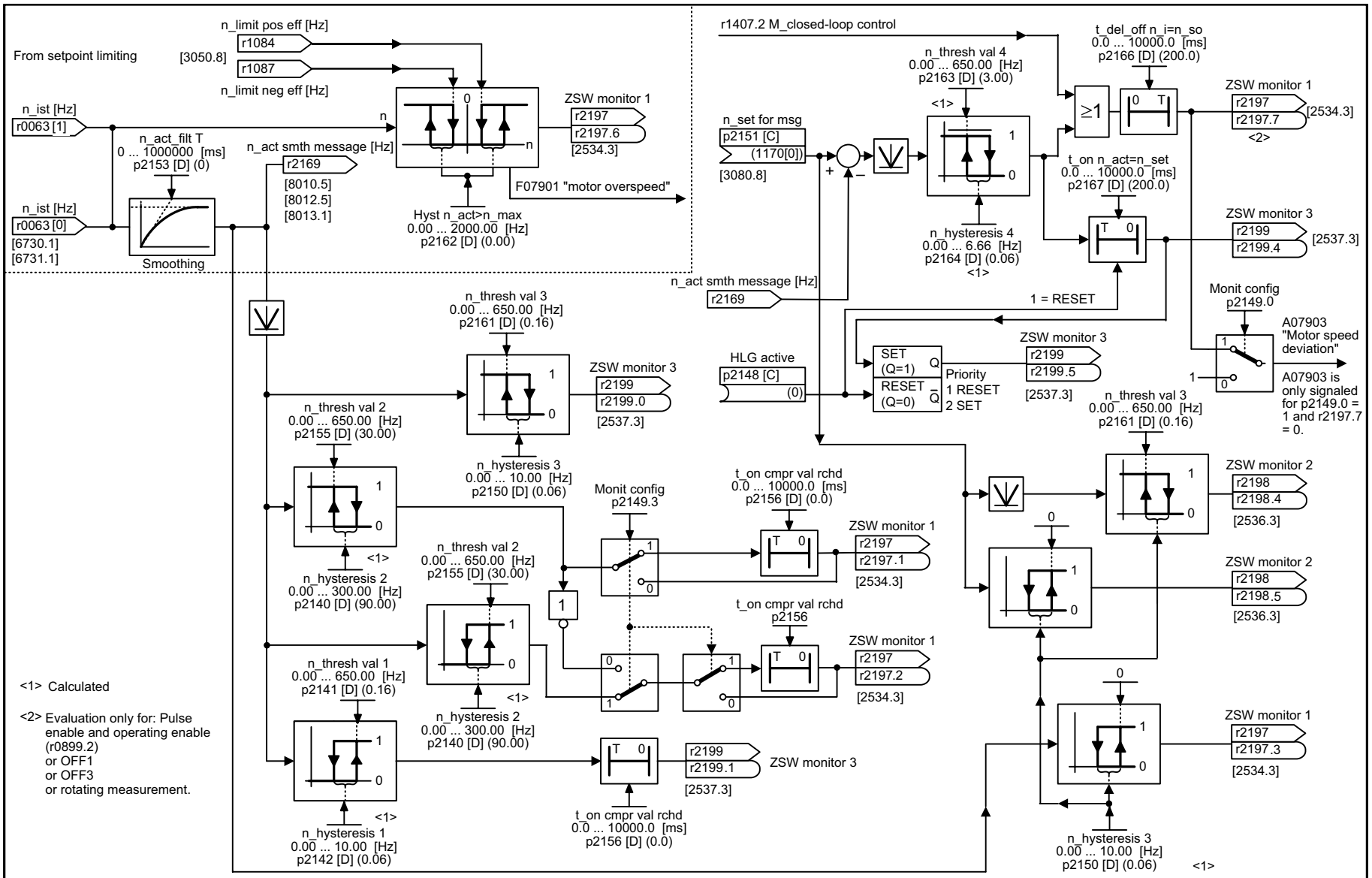

1	2	3	4	5	6	7	8
Signals and monitoring functions					FP_8010_97.vsd	Function diagram	- 8010 -
Speed signals					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-94 8010 – Speed signals

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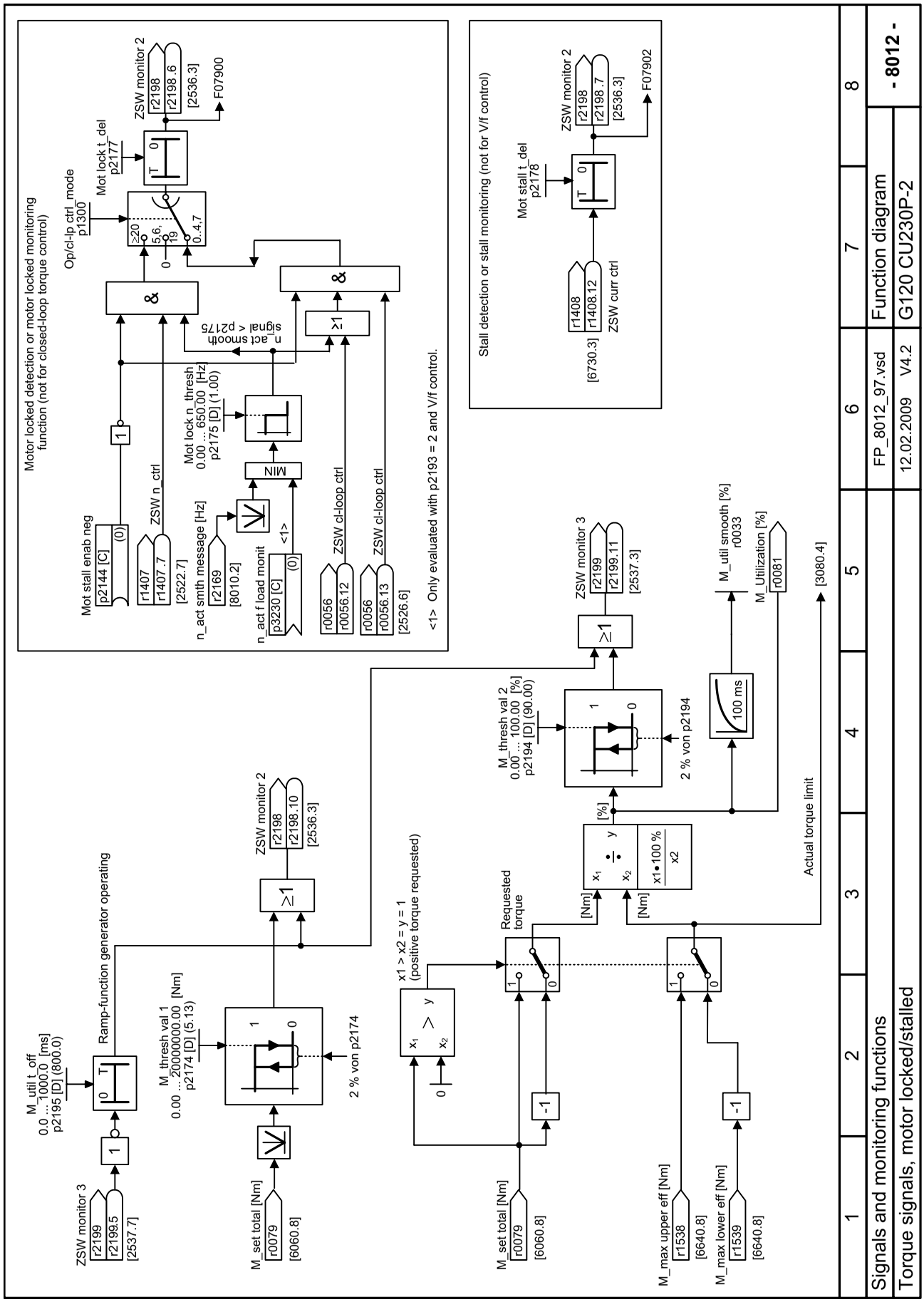

Fig. 2-95 8012 – Torque signals, motor locked/stalled

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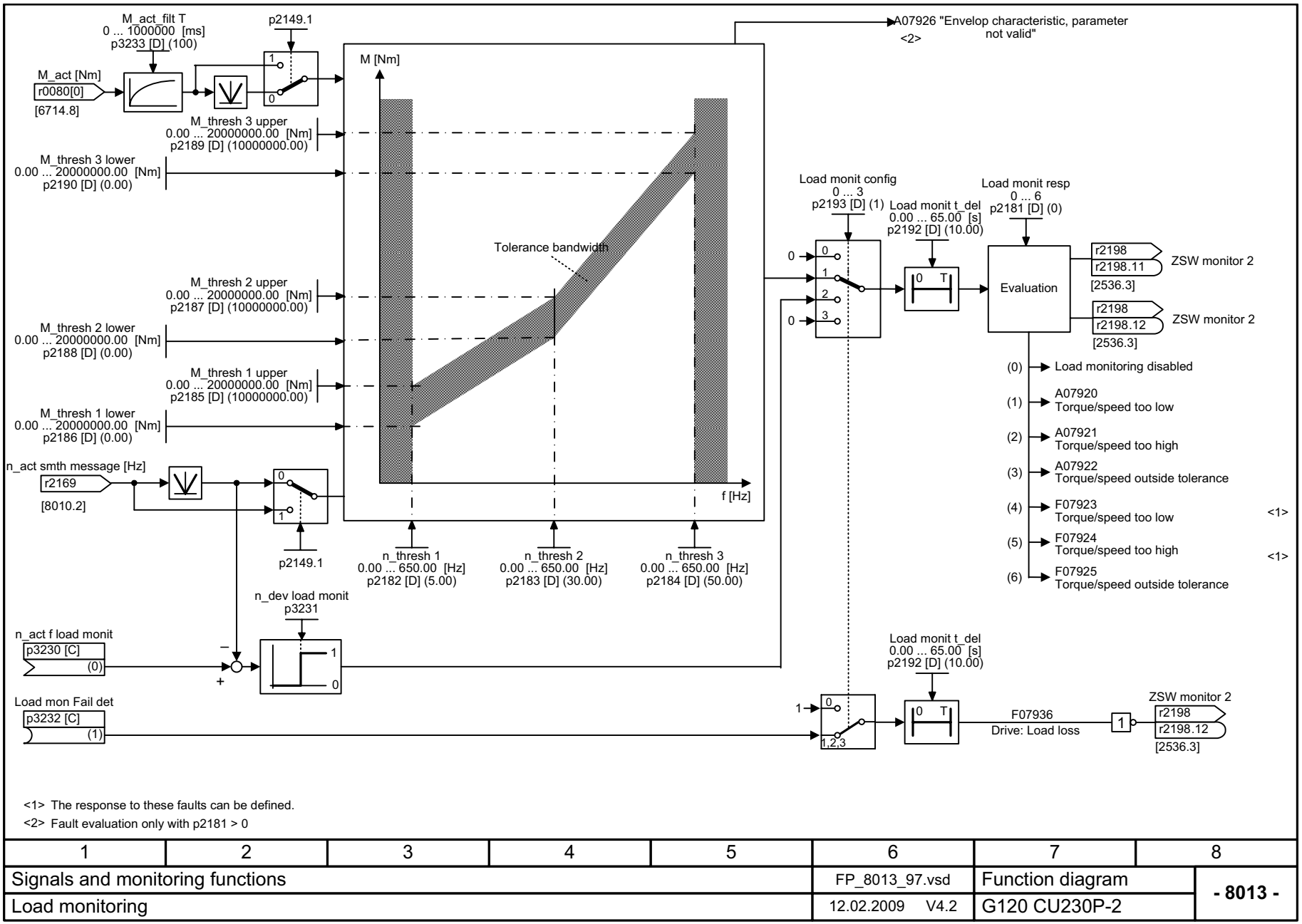

<1> The response to these faults can be defined.
<2> Fault evaluation only with p2181 > 0

1	2	3	4	5	6	7	8
Signals and monitoring functions					FP_8013_97.vsd	Function diagram	- 8013 -
Load monitoring					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-96 8013 – Load monitoring)

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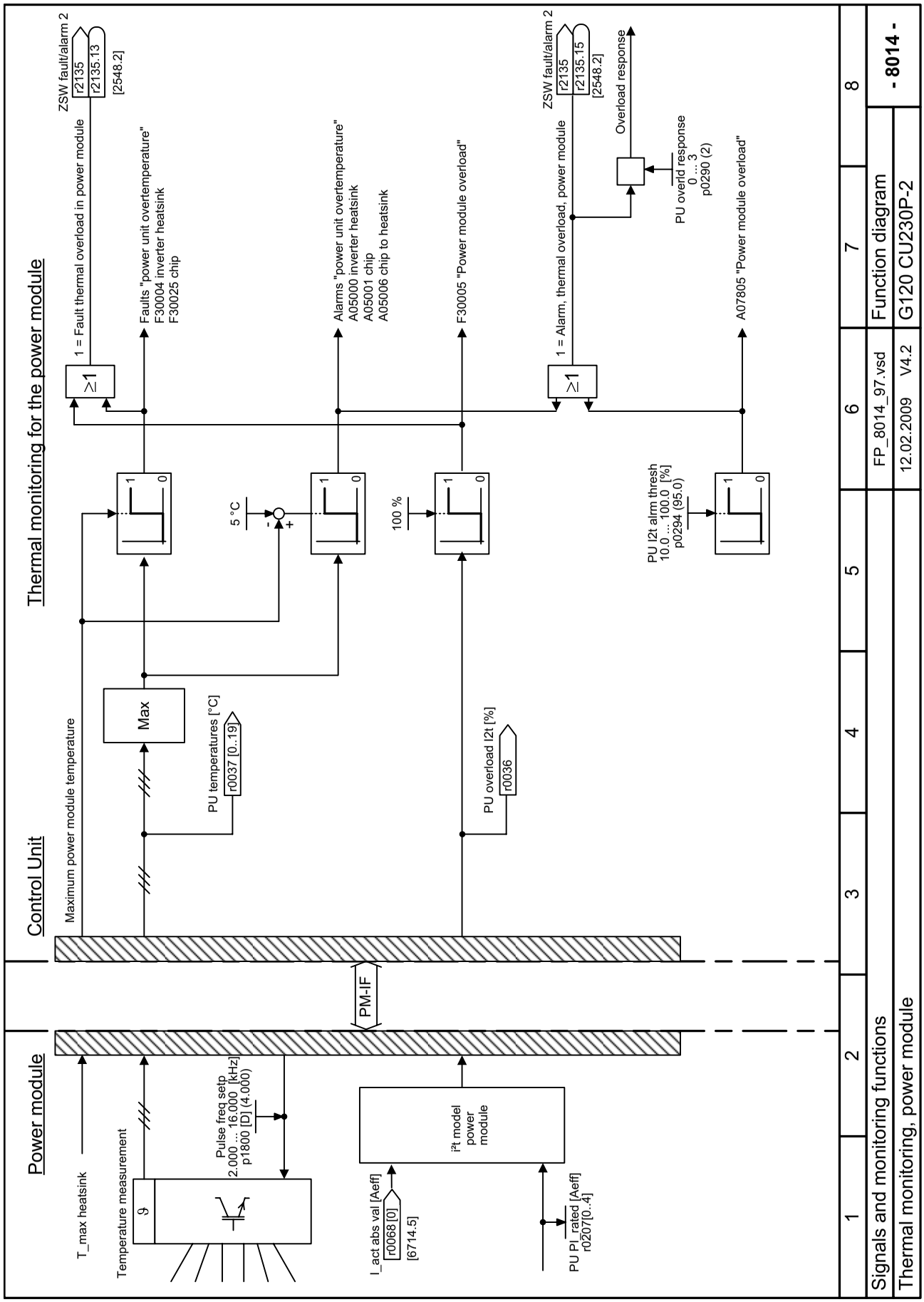

Fig. 2-97 8014 – Thermal monitoring, power module

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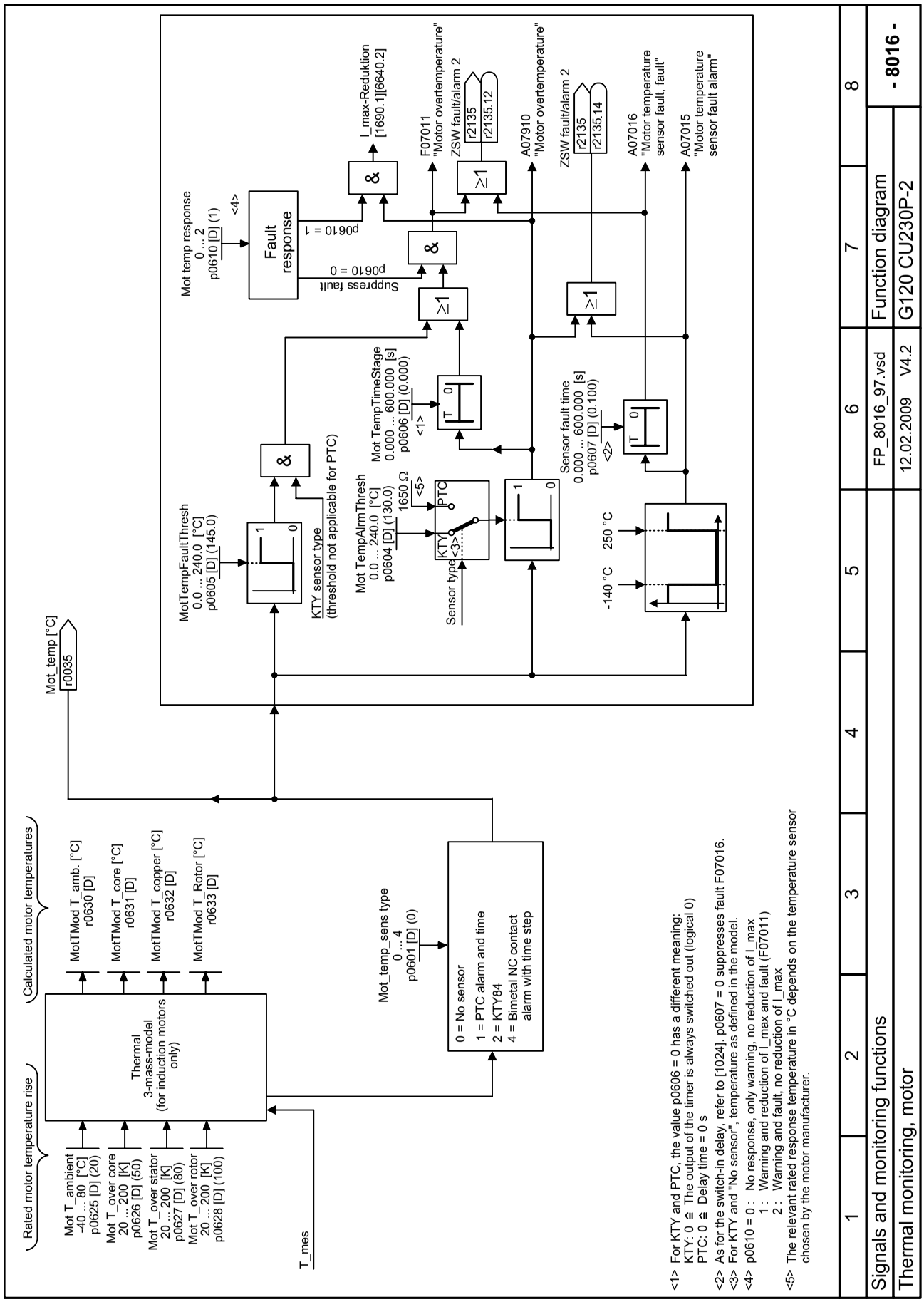

Fig. 2-98 8016 – Thermal monitoring, motor

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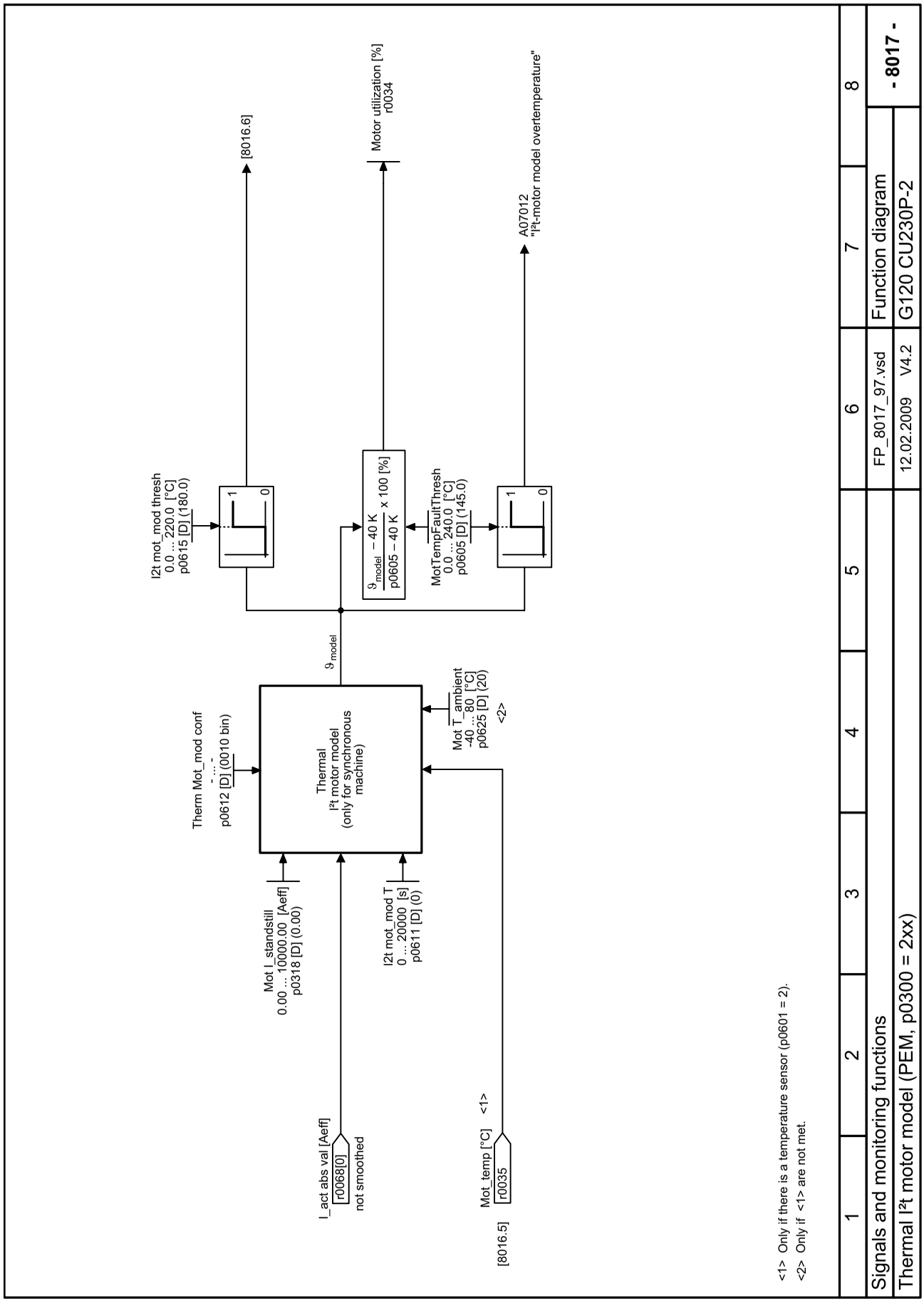

Fig. 2-99 8017 – Thermal I2t motor model (PEM, p0300 = 2xx)

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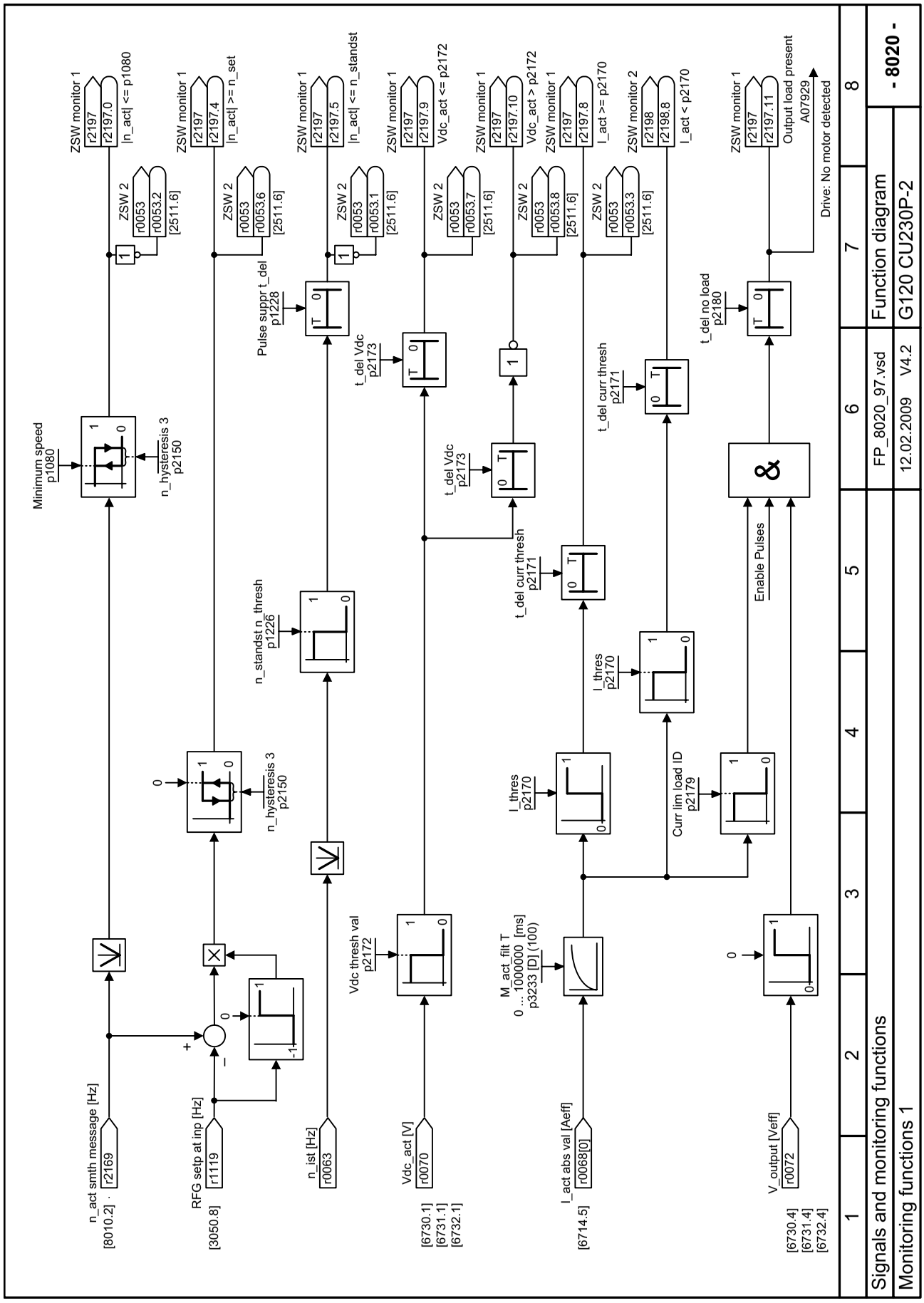

Fig. 2-100 8020 – Monitoring functions 1

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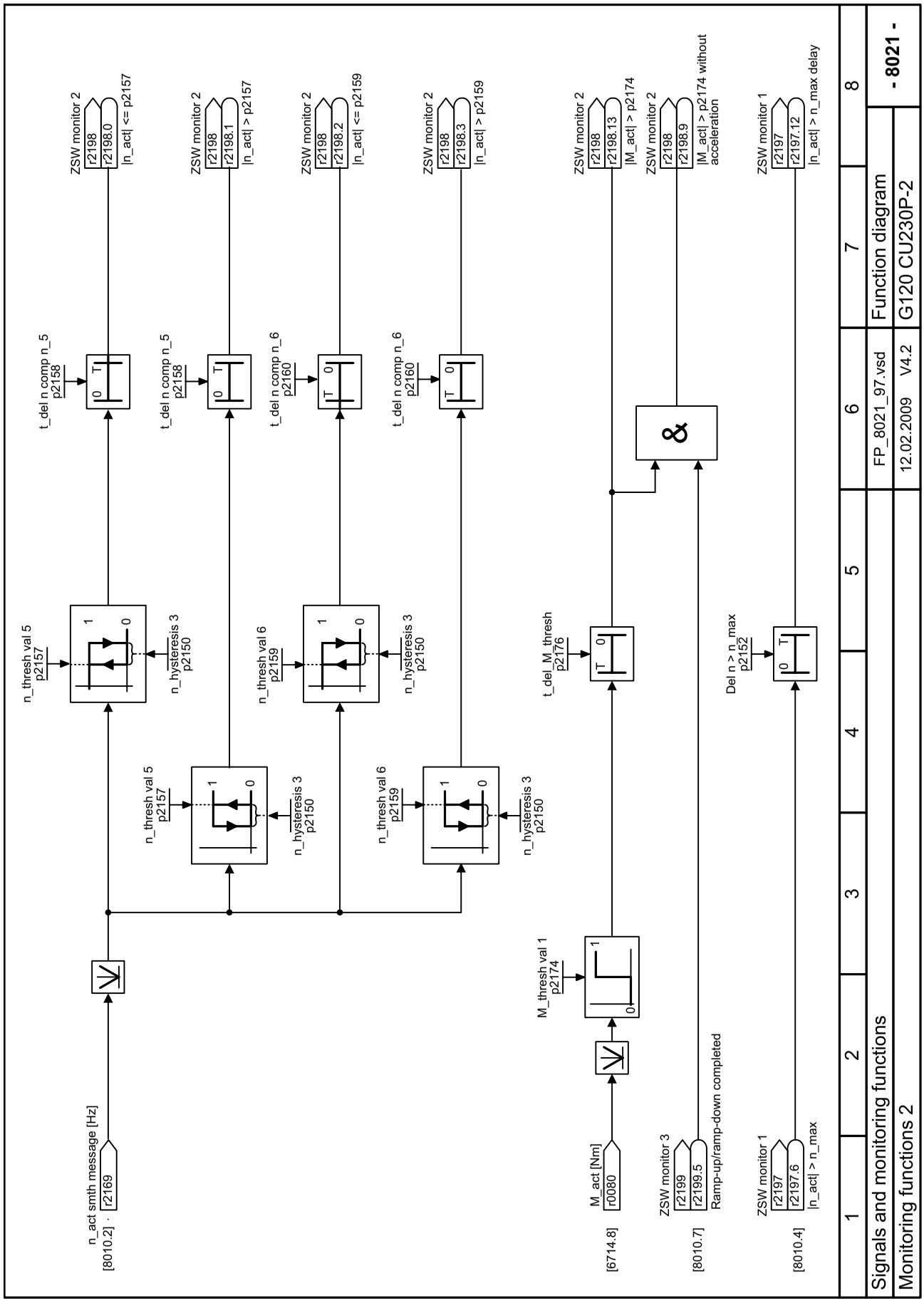

Fig. 2-101 8021 – Monitoring functions 2

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2.13 Faults and warnings

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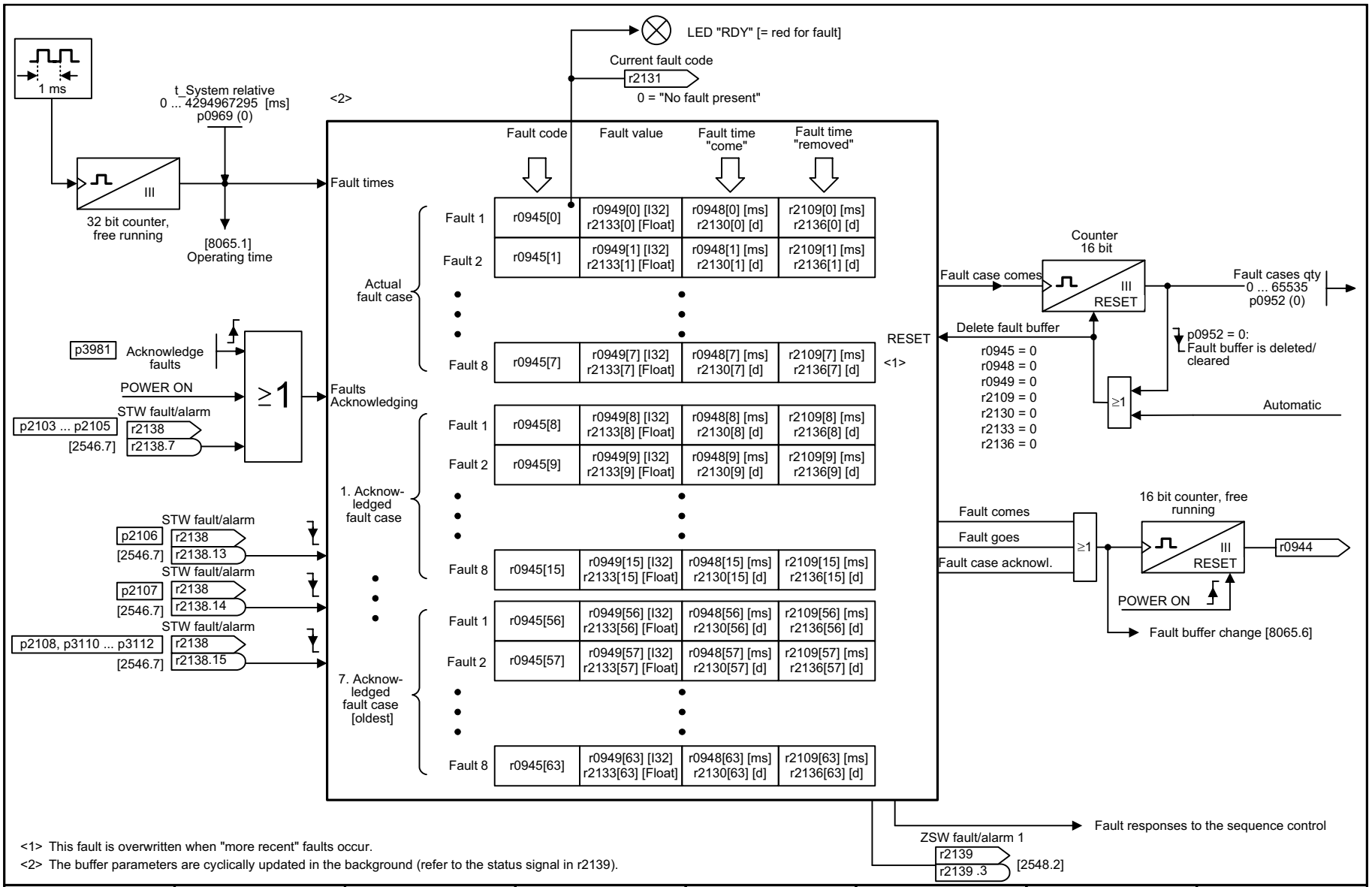

<1> This fault is overwritten when "more recent" faults occur.
<2> The buffer parameters are cyclically updated in the background (refer to the status signal in r2139).

1	2	3	4	5	6	7	8
Faults and warnings					FP_8060_97.vsd	Function diagram	- 8060 -
Fault buffer					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-102 8060 – Fault buffer

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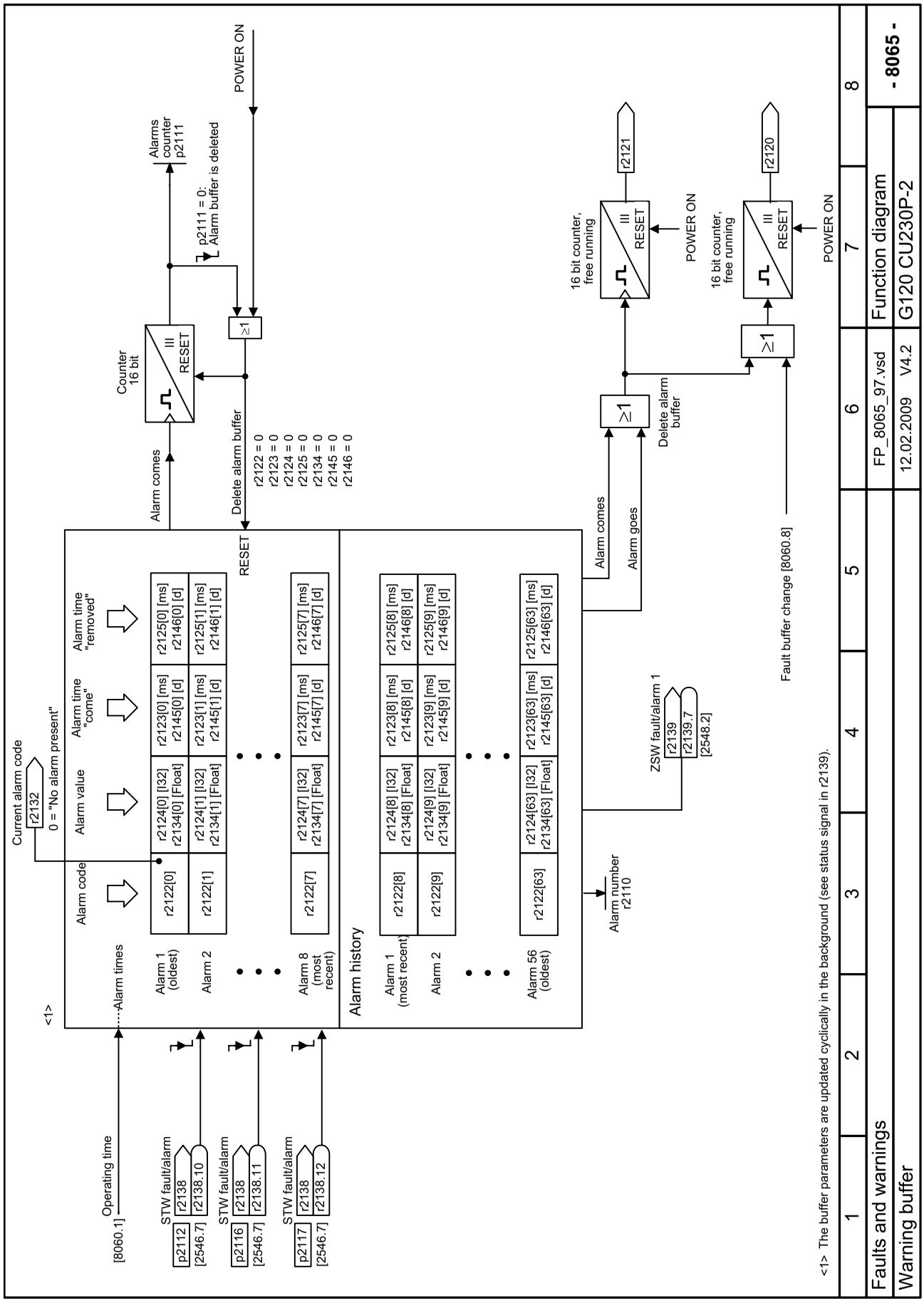

Fig. 2-103 8065 – Warning buffer

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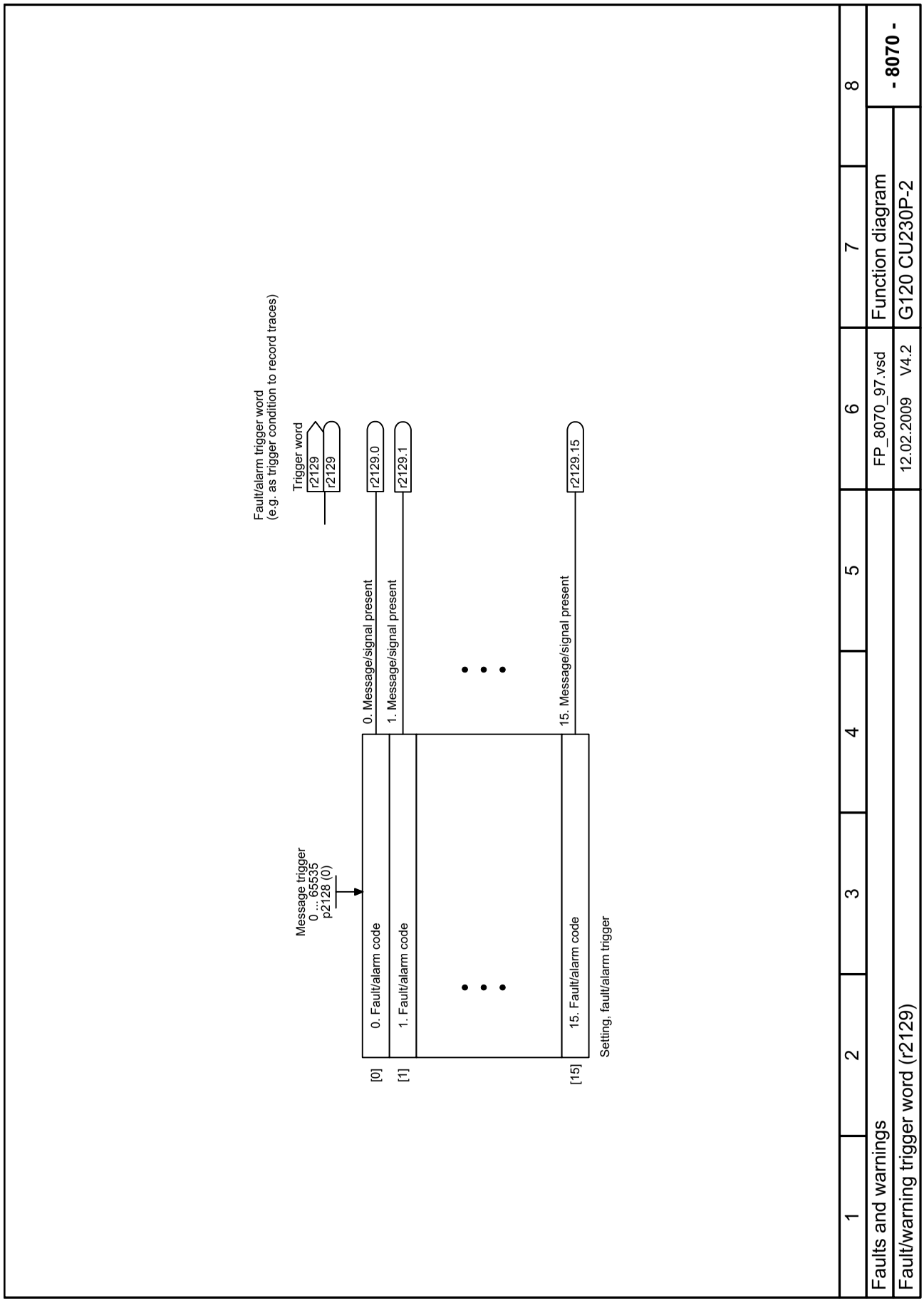

Fig. 2-104 8070 – Fault/warning trigger word (r2129)

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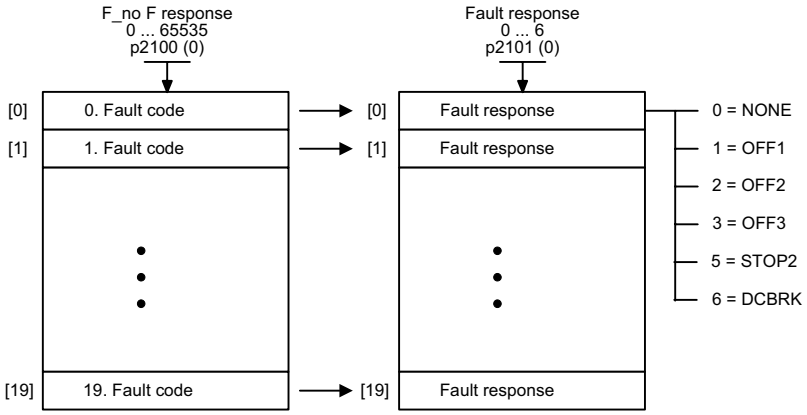
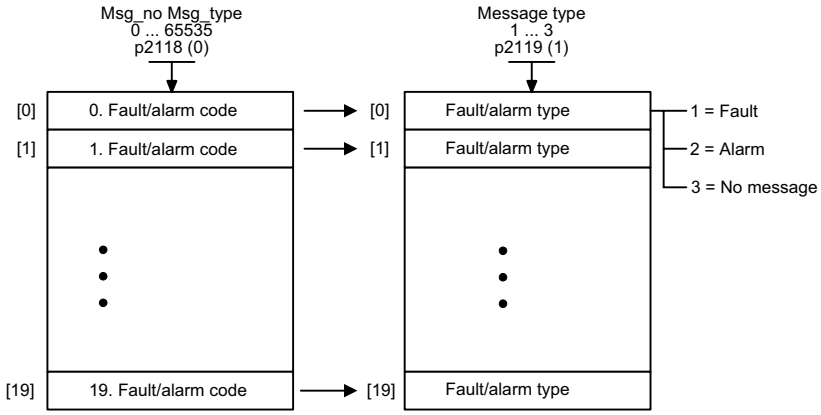
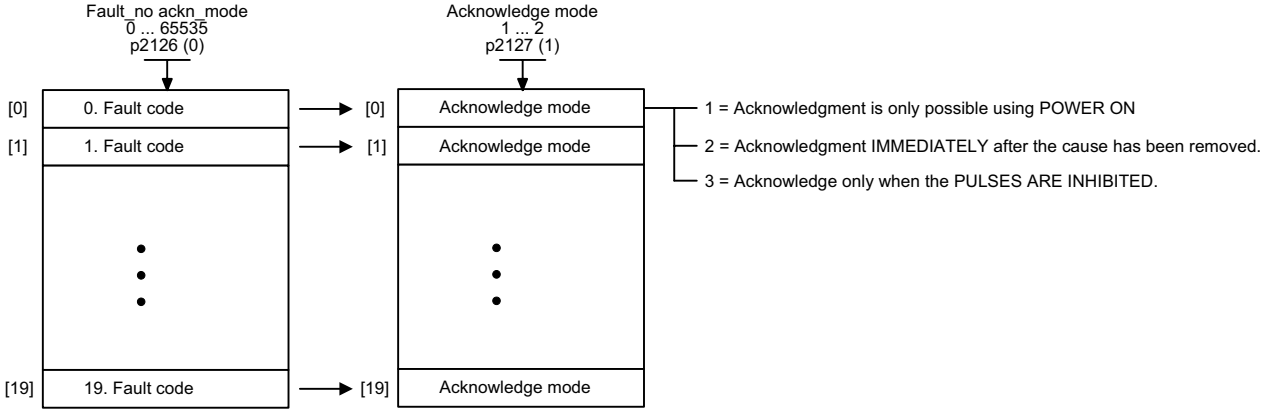
Changing the fault response for maximum 20 faults <1>



Changing the message type - fault <==> alarm for maximum 20 faults/alarms <1>



Changing the acknowledge mode for maximum 20 faults <1>



<1> The fault response, acknowledge mode and message type for all faults and alarms are set to meaningful default values in the factory setting.
Changes that may be required are only possible in specific value ranges specified by SIEMENS.
When the message type is changed, the supplementary information is tranferred from fault value r0949 to alarm value r2124 and vice versa.

1	2	3	4	5	6	7	8
Faults and warnings					FP_8075_97.vsd	Function diagram	- 8075 -
Fault/warning configuration					12.02.2009 V4.2	G120 CU230P-2	

Fig. 2-105 8075 – Fault/warning configuration

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2.14 Data sets

Function diagrams

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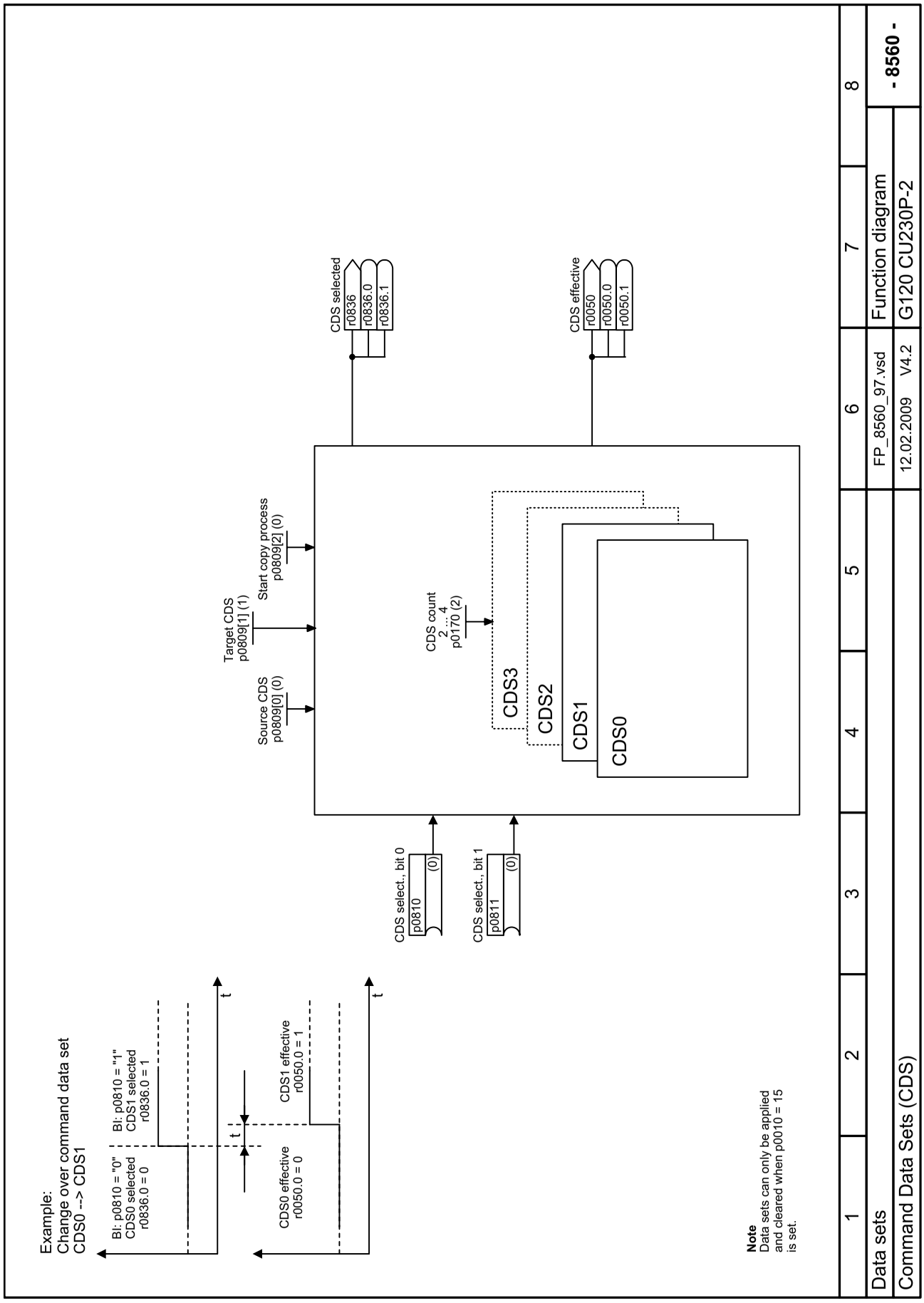

Fig. 2-106 8560 – Command Data Sets (CDS)

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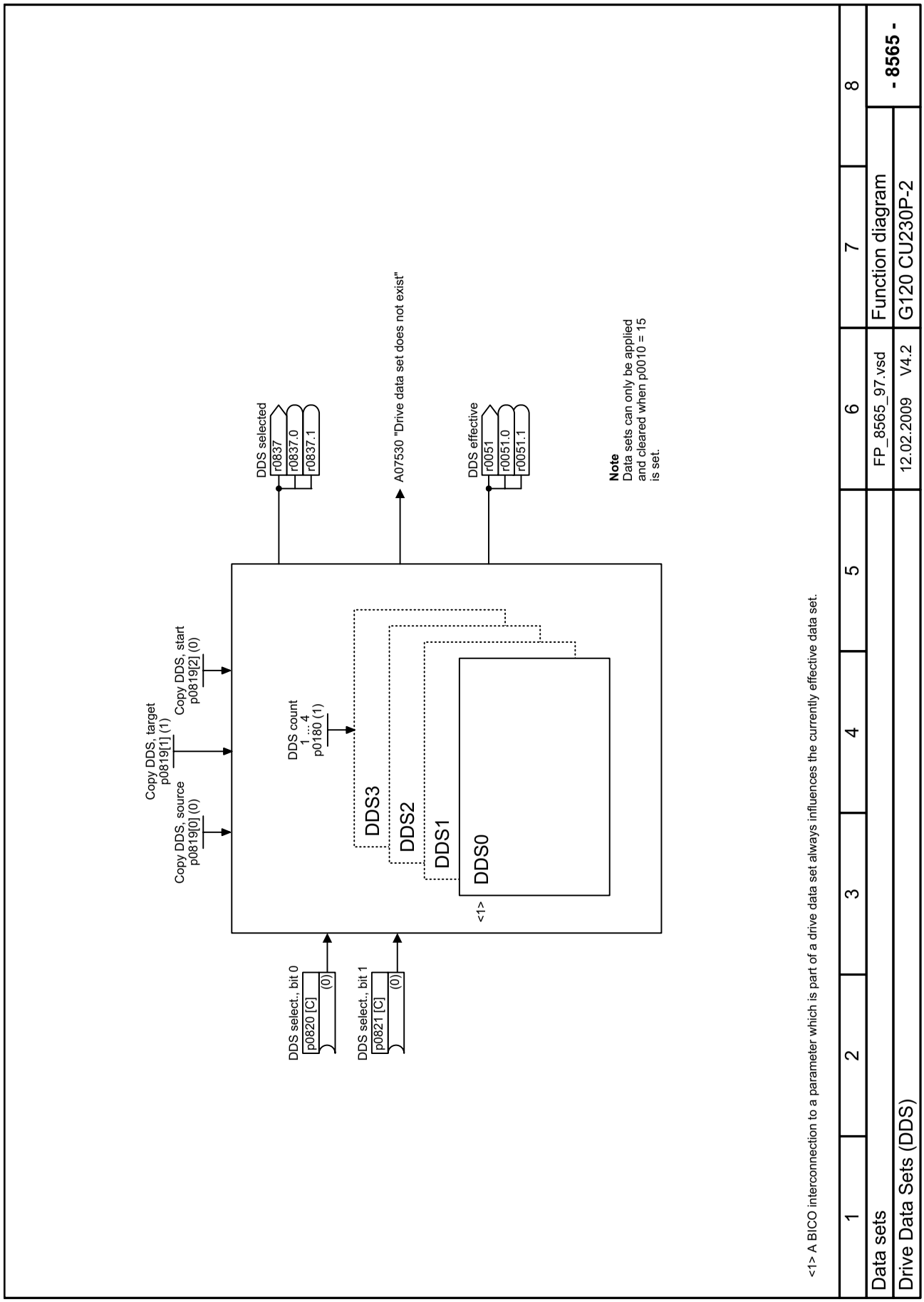

Fig. 2-107 8565 – Drive Data Sets (DDS)

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Faults and Alarms

3

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3.1 Faults and Alarms – Overview

3.1.1 General information

Indicating fault and alarm messages (faults and alarms)

A message comprises a letter followed by the relevant number.

The letter characterizes the message type and has the following meaning:

- A means "Alarm"
- F means "Fault"
- N means "No Report" or "Internal Report"

Brackets including the letters A, F, or N indicate that the message type can be changed, e.g. A01016 (F) means that the warning A01016 can be parameterized as a fault. The letter in brackets shows which message type can be adjusted via parameters p2118 and p2119.

Example:

p2118[5] = 1016 (warnung A01016 (F) “Firmware changed“)

p2119[5] = 1 (p2119 = 1 equal fault (F))

In this way the warnung "Firmware changed" will become a fault.

Faults are stored in parameter r0945/r0947 under their code number (e.g. F01003 = 1003). The associated fault value is found in parameter r0949. The value 0 is entered if a fault has no fault value. It is furthermore possible to read out the point in time that a fault occurred (r0948) and the number of faults (p0952).

Alarms are stored in parameter r2110/r2122 under their code number (e.g. A01503 = 1503) and can be read out from there. The associated alarm value is found in parameter r2124 and the point in time that a alarm occurred in r2123.

The time stamp for the faults and warnings is read out from parameters p8400 and p8401. This is valid for the parameters r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146.

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Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 3-1 Differences between faults and alarms

Type	Description
Faults	What happens when a fault occurs? • The appropriate fault reaction is triggered. • Status bit 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 bit ZSW1.7 is set. • The alarm is entered in the alarm buffer. How are alarms eliminated? • Alarms acknowledge themselves. If the cause of the alarm is no longer present, then they automatically reset themselves.

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3.1.2 Fault reactions

Specifies the default reaction in the event of a fault. The optional brackets indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101). The following fault reactions are defined:

Table 3-2 Fault reactions

List	PROFI-drive	Reaction	Description
NONE	-	None	No reaction when a fault occurs.
OFF1	ON/ OFF	Brake along the ramp-function generator deceleration ramp followed by pulse inhibit	**Speed control** • n_set = 0 is input immediately to brake the drive along the deceleration ramp (p1121). • Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint <= speed threshold (p1226) has expired. **Closed-loop torque control (p1300 = 22)** • The following applies to closed-loop torque control mode: Reaction as for OFF2. • When changing over to closed-loop control using p1501, the following applies: There is no dedicated braking response.
OFF2	COAST STOP	Internal/external pulse inhibite	**Speed control and closed-loop torque control** • Instantaneous pulse suppression, the drive "coasts" to a standstill • Switching on inhibited is activated.
OFF3	QUICK STOP	Brake along OFF3 deceleration ramp followed by pulse inhibit	**Speed control** • n_set=0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). • Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint <= speed threshold (p1226) has expired. • Switching on inhibited is activated. **Closed-loop torque control (p1300 = 22)** • 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 deceleration ramp (p1135). Although ramping down along the OFF3 deceleration ramp r0052 bit 5 = 1. • The drive remains in closed-loop speed control mode.
IASC/ DCBRAKE	-	-	• When a fault occurs with this fault reaction, DC braking is triggered. • The DC brake must have been put into operation (p1230 to p1239).

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3.1.3 Acknowledgement of faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been remedied. The optional brackets indicate whether the default acknowledgement can be changed and which acknowledgement can be adjusted via parameter (p2126, p2127).

Table 3-3 Acknowledgement of faults

Acknowledgement	Description
POWER ON	The fault is acknowledged by a POWER ON process (switch drive unit off and on again). **Note:** If this action has not eliminated the fault cause, the fault is displayed again immediately after power up.
IMMEDIATELY	Faults can be acknowledged 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 using PROFIBUS control signal: STW1.7 = 0 --> 1 (edge) **Note:** • These faults can also be acknowledged by a POWER ON operation. • If this action has not eliminated the fault cause, the fault is displayed again immediately after power up.

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3.2 List of Faults and Alarms

Product: SINAMICS G120, Version: 4200600, Language: eng,
Objects: CU230P-2 CAN, CU230P-2 DP, CU230P-2 HVAC

F01000 Internal software error

Reaction: OFF2
Acknowledge: POWER ON
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.
- replace the Control Unit.

F01001 Internal software error

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.

F01002 Internal software error

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

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

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)

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F01010 Drive type unknown

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An unknown drive type was found.

Remedy:
- Replace Power Module.
- carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F01015 Internal software error

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

Reaction: NONE

Acknowledge: NONE

Cause: On the memory card, at least one file in the directory /SIEMENS/SINAMICS/ has been illegally changed with respect to the delivery condition. No changes are permitted in this directory.
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.
See also: r9925 (Firmware file incorrect)

Remedy: For the memory card, restore the status originally supplied from the factory.
Note:
The file involved can be read out using parameter r9925.
See also: r9926 (Firmware check status)

A01017 Component lists changed

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):
The problem is indicated in the first digit of the alarm value:
1. File does not exist.
2. Firmware version of the file does not match the software version.
3. The file checksum is incorrect.
The second digit of the alarm value indicates in which directory the file is located:
0: Directory /SIEMENS/SINAMICS/DATA/
1. Directory /ADDON/SINAMICS/DATA/
The third digit of the alarm value indicates the file:
0: File MOTARM.ACX
1: File MOTSRM.ACX
2: File MOTSLM.ACX
3: File ENCDATA.ACX
4: File FILTDATA.ACX
5: File BRKDATA.ACX

Remedy: For the memory card file involved, restore the status originally supplied from the factory.

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F01018 Booting has been interrupted several times

Reaction: NONE

Acknowledge: POWER ON

Cause: Module booting was interrupted several times.
Possible reasons for booting being interrupted:
- POWER OFF of the module.
- CPU crash.
- USER data invalid.
After this fault is output, then the module is booted with the factory settings.

Remedy: Power down the module and power it up again.
Note:
After switching on, the module reboots from the USER data (if available).
If the fault situation is repeated, then this fault is again output after several interrupted boots.

A01019 Writing to the removable data medium unsuccessful

Reaction: NONE

Acknowledge: NONE

Cause: The write access to the removable data medium was unsuccessful.

Remedy: Remove the removable data medium and check; then back up the data again.

A01028 Configuration error

Reaction: NONE

Acknowledge: NONE

Cause: The parameterization that was downloaded was generated with a different module type (Order No., MLFB).

Remedy:

F01030 Sign-of-life failure for master control

Reaction: OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)

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

Reaction: OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)

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.

A01035 (F) ACX: Boot from the back-up parameter back-up files

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. Instead, a back-up data set or a back-up parameter back-up file is downloaded.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: If you have saved the project using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.

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F01036 (A) ACX: Parameter back-up file missing

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: When downloading the device parameterization, a parameter back-up file associated with a drive object cannot be found. Neither a PSxxxyyy.ACX, a PSxxxyyy.NEW nor a PSxxxyyy.BAK parameter back-up file exists in the non-volatile memory for this drive object.
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 p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
If you have not saved the project data, then first commissioning of the system has to be carried out again.

F01037 (A) ACX: Re-naming the parameter back-up file unsuccessful

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Re-naming after saving a parameter back-up file in the non-volatile memory was unsuccessful.
One of the parameter back-up files to be re-named had the "read only" attribute. The parameter back-up files are saved in the directory \USER\SINAMICS\DATA.
It is possible that the non-volatile memory is defective.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file names PSxxxyyy.* or CAxxxyyy.* or CCxxxyyy.*
yyy = 000 --> consistency back-up file
yyy = 099 --> PROFIBUS parameter back-up file PSxxx099.*
Byte 2: xxx in the file name PSxxxyyy.*
xxx = 000 --> data save started with p0971 = 1
xxx = 010 --> data save started with p0971 = 10
xxx = 011 --> data save started with p0971 = 11
xxx = 012 --> data save started with p0971 = 12
Byte 4, 3:
Only for internal Siemens troubleshooting.

Remedy: - check whether one of the files to be overwritten has the attribute "read only" and change this file attribute to "writable". Check all of the files (PSxxxyyy.*, CCxxxyyy.*, CAxxxyyy.*) that belong to drive yyy designated in the fault value.
- replace the memory card or Control Unit.

F01038 (A) ACX: Loading the parameter back-up file unsuccessful

Reaction: NONE (OFF1, OFF2, OFF3)

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 4, 3, 2:
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 p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
- replace the memory card or Control Unit.

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F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful

Reaction: NONE (OFF1, OFF2, OFF3)

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 = 099 --> PROFIBUS parameter back-up file
b = xxx in the file names PSxxxyyy.***
b = 000 --> data save started with p0971 = 1
b = 010 --> data save started with p0971 = 10
b = 011 --> data save started with p0971 = 11
b = 012 --> data save started with p0971 = 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. 40 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.

F01040 Save parameter settings and carry out a POWER ON

Reaction: OFF2

Acknowledge: POWER ON

Cause: A parameter has been changed that requires the parameters to be backed up and the Control Unit to be switched OFF and ON again.

Remedy: - Save parameters (p0971).
- Switch Control Unit OFF/ON (POWER ON).

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F01042 Parameter error during project download

Reaction: OFF2 (NONE, OFF1, OFF3)

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 status.
20: Illegal value.
21: Response too long.
22: Parameter address illegal.
23: Format illegal.
24: Number of values not consistent.
Additional values:
Only for internal Siemens troubleshooting.

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

Reaction: OFF2 (OFF1, OFF3)

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.
8: Maximum number of drive objects that can be generated exceeded.
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" (p0947and p0949).
15: Drive status cannot be changed to drive download.
16: Device status cannot be changed to "ready for operation".
18: A new download is only possible if the factory settings are restored for the drive unit.
20: The configuration is inconsistent.

Remedy: - use the current version of the commissioning software.
- modify the offline project and download again (e.g. compare the motor and Power Module in the offline project and on 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.

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F01044 CU: Descriptive data error

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 Configuring data invalid

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.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: Restore the factory setting using (p0970 = 1) and re-load the project to the drive unit. Operation without any restrictions is then possible.
After downloading the project, save the parameters in STARTER using "Copy RAM to ROM" or with p0971 = 1. This overwrites the incorrect parameter files in the non-volatile memory.

A01049 It is not possible to write to file

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 p0971 to 1).

A01064 (F) CU: Internal error (CRC)

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.

A01066 Buffer memory: 70% fill level reached or exceeded

Reaction: NONE
Acknowledge: NONE
Cause: The non-volatile buffer memory for parameter changes is filled to at least 70%.
This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.
Remedy: If required, deactivate the buffer memory (p0014 = 0) and clear.
If required, clear the buffer memory (p0014 = 2).
In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:
- p0971 = 1
- power down/power up the Control Unit
See also: p0014 (Buffer memory mode)

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A01067 Buffer memory: 100 % fill level reached

Reaction: NONE

Acknowledge: NONE

Cause: The non-volatile buffer memory for parameter changes is filled to 100%.
All additional parameter changes will no longer be taken into account in the non-volatile buffer memory. However, parameter changes can still be made in the volatile memory (RAM).
This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.

Remedy: If required, deactivate the buffer memory (p0014 = 0) and clear.
If required, clear the buffer memory (p0014 = 2).
In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:
- p0971 = 1
- power down/power up the Control Unit
See also: p0014 (Buffer memory mode)

A01098 RTC: Date and time setting required

Reaction: NONE

Acknowledge: NONE

Cause: The power supply for the Control Unit was interrupted for an extended period. The date and time displayed on the real-time clock are no longer accurate.
Note:
This alarm is only output when p8405 = 1 (factory setting).
See also: p8405 (Activate/deactivate RTC alarm A01098)

Remedy: Set the date and time on the real-time clock.
Note:
RTC: Real-time clock
See also: p8400 (RTC time), p8401 (RTC date)

F01105 (A) CU: Insufficient memory

Reaction: OFF1

Acknowledge: POWER ON

Cause: Too many data sets are configured on this Control Unit.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: - reduce the number of data sets.

F01107 Save to memory card unsuccessful

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A data save to the memory card was not able to be successfully carried out.
- Memory card is defective.
- Insufficient space on memory card.
Fault value (r0949, interpret decimal):
1: The file on the RAM was not able to be opened.
2: The file on the RAM was not able to be read.
3: A new directory could not be created on the memory card.
4: A new file could not be created on the memory card.
5: A new file could not be written on the memory card.

Remedy: - try to save again.
- replace the memory card or Control Unit.

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F01112 **CU: Power unit not permissible**

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. PM340).

Remedy: Replace the power unit that is not permissible by a component that is permissible.

F01120 (A) **Terminal initialization has failed**

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.

F01122 (A) **Frequency at the measuring probe input too high**

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 1 (term. 6)
2: DI 3 (term. 8)

Remedy: Reduce the frequency of the pulses at the measuring probe input.

F01205 **CU: Time slice overflow**

Reaction: OFF2

Acknowledge: POWER ON

Cause: Insufficient computation time.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: Contact the Hotline.

F01250 **CU: CU-EEPROM incorrect read-only data**

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**

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:
- clear the fault memory (p0952 = 0).
- replace the Control Unit.

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F01505 (A) **BICO: Interconnection cannot be established**

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.

F01506 (A) **BICO: No standard telegram**

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).

F01510 **BICO: Signal source is not float type**

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 between different normalizations**

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The requested 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 (contains the reference value for current) / p2001 (contains the reference value for voltage) is calculated between the BICO output and BICO input.
Fault value (r0949, interpret decimal):
Parameter number of the BICO input (signal sink).

Remedy: No correction needed.

F01512 **BICO: No normalization available**

Reaction: OFF2

Acknowledge: POWER ON

Cause: An attempt was made to determine a conversion factor for a normalization 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 normalization or check the transfer value.

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A01514 (F) BICO: Error when writing during a reconnect

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 a double word BICO input 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: None necessary.

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: While changing the number of CDS or when copying from CDS, the master control was active.

Remedy: None necessary.

A01590 (F) Drive: Motor maintenance interval expired

Reaction: NONE

Acknowledge: NONE

Cause: The selected service/maintenance interval for this motor was reached.
Alarm value (r2124, interpret decimal):
Motor data set number.

Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).

F01662 Error in internal communications

Reaction: OFF2

Acknowledge: POWER ON

Cause: A module-internal communication error has occurred.
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.

A01900 (F) PROFIBUS: Configuration telegram error

Reaction: NONE

Acknowledge: NONE

Cause: A PROFIBUS master attempts to establish a connection using an incorrect configuring telegram.
Alarm value (r2124, interpret decimal):
50: Syntax error.
52: Too many data words for input or output. Max. 8 words are permitted.
53: Uneven number of bytes for input or output.

Remedy: Check the bus configuring on the master and slave sides.

A01901 (F) PROFIBUS: Parameterizing telegram error

Reaction: NONE

Acknowledge: NONE

Cause: A PROFIBUS master attempts to establish a connection using an incorrect parameterizing telegram.
Alarm value (r2124, interpret decimal):
1: Incorrect parameterizing bits.
10: Illegal length of an optional parameterizing block.
11: Illegal ID of an optional parameterizing block.

Remedy: Check the bus configuration:
- bus addresses
- slave configuring

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F01910 (N, A) Fieldbus interface setpoint timeout

Reaction: OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)

Acknowledge: IMMEDIATELY

Cause: The reception of setpoints from the fieldbus interface has been interrupted, because
- the bus connection is interrupted, or
- the communication partner was switched-off.
CU230-2P DP:
- or the PROFIBUS master was set into the STOP state.
See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)

Remedy: Ensure that the bus connection has been established and switch-on the communications partner.
CU230-2P HVAC:
- If required, adapt p2040.
CU230-2P DP:
- Set the PROFIBUS master into the RUN state.
- Slave redundancy: For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)

A01920 (F) PROFIBUS: Interruption cyclic connection

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.

A02150 OA: Application cannot be loaded

Reaction: NONE

Acknowledge: NONE

Cause: The system was not able to load an OA application.
Alarm value (r2124, 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.
Note:
OA: Open Architecture

F02151 (A) OA: Internal software error

Reaction: OFF2 (NONE, OFF1, OFF3)

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

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F02152 (A) OA: Insufficient memory

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

F03505 (N, A) CU: Analog input wire breakage

Reaction: OFF1 (NONE, OFF2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The input current of the analog input has undershot the threshold value parameterized in p0761[0...3].
This fault only occurs when p0756[0...1] = 1 (2 ... 10 V with monitoring) or p0756[0...2] = 3 (4 ... 20 mA with monitoring) is set.
p0756[0]: Analog input 0
p0756[1]: Analog input 1
p0756[2]: Analog input 2
Fault value (r0949, interpret decimal):
The component number (p0151) of the component involved is specified at the units, tens and hundreds digit.
The thousands digit specifies the relevant analog input: 0: analog input 0 (AI 0), 1: analog input 1 (AI 1), 2: analog input 2 (AI 2)

Remedy: Check the connection to the signal source for interruptions.
Check the magnitude of the injected current - it is possible that the infed signal is too low.
The input current measured by the analog input can be read in r0752[x].

A03520 (F, N) CU: Temperature sensor fault

Reaction: NONE

Acknowledge: NONE

Cause: When evaluating the temperature sensor, an error occurred.
This message is only output when p0756[2...3] = 6 (temperature sensor Ni1000) or p0756[2...3] = 7 (temperature sensor PT1000) is set.
Alarm value (r2124, interpret decimal):
xyyz dec
z = 1: Wire breakage or sensor not connected.
z = 2: Measured resistance too low.
x = 2: Analog input 2 (AI2)
x = 3: Analog input 3 (AI3)

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
- switch analog input type (p0756) to "no sensor connected" = 8.

A05000 (N) Power unit: Overtemperature heat sink AC inverter

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?

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A05001 (N) Power unit: Chip overtemperature

Reaction: NONE

Acknowledge: NONE

Cause: Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached. The response is set using p0290.
If the chip 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 (Power unit temperatures), p0290 (Power unit overload response)

A05006 (N) Power unit: Overtemperature thermal model

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 (Power unit temperatures)

Remedy: None 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)

F06310 (A) Supply voltage (p0210) incorrectly parameterized

Reaction: NONE (OFF1, OFF2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The measured DC voltage lies outside the tolerance range after pre-charging has been completed: 1.16 * p0210 < r0070 < 1.6 * p0210.
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)

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F07011 Drive: Motor overtemperature

Reaction: OFF2 (NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: KTY:
The motor temperature has exceeded the fault threshold (p0605) or the timer (p0606) after the alarm threshold was exceeded (p0604) has expired. 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.
- motor ambient temperature too high.
- wire breakage or sensor not connected.
Fault value (r0949, interpret decimal):
When the I2t motor model is activated (p0612 bit 0 = yes, p0611 > 0), fault value= 200 refers to the fact that the fault has been triggered by the I2t motor model.
See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer), p0610 (Motor overtemperature response)

Remedy: - reduce the motor load.
- check the ambient temperature.
- check the wiring and sensor connector.
See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer)

A07012 (N) Drive: I2t motor model overtemperature

Reaction: NONE

Acknowledge: NONE

Cause: The thermal I2t motor model (for synchronous motors) identified that the temperature alarm threshold was exceeded.
See also: r0034 (Motor utilization), p0605 (Motor overtemperature fault threshold), p0611 (I2t motor model thermal time constant)

Remedy: - check the motor load and if required, reduce.
- check the motor ambient temperature.
- check the thermal time constant p0611.
- check the overtemperature fault threshold p0605 (= alarm threshold for the I2t motor model, see p0612)

A07015 Drive: Motor temperature sensor alarm

Reaction: NONE

Acknowledge: NONE

Cause: An error was detected when evaluating the temperature sensor set in 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, 0.2 s after alarm A07015.
Possible causes:
- wire breakage or sensor not connected (KTY: R > 2120 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).

Remedy: - make sure that the sensor is connected correctly.
- check the parameterization (p0601).
See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

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F07016 Drive: Motor temperature sensor fault

Reaction: OFF1 (NONE, OFF2, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: An error was detected when evaluating the temperature sensor set in p0601.
Possible causes:
- wire breakage or sensor not connected (KTY: R > 2120 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, 0.2 s after alarm A07015.
See also: p0607 (Temperature sensor fault timer)

Remedy: - make sure that the sensor is connected correctly.
- check the parameterization (p0601).
- induction motors: De-activate temperature sensor fault (p0607 = 0).
See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

F07080 Drive: Incorrect control parameter

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, 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, p0640, p1082

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F07082 Macro: Execution not possible

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:
-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: p0700, p1000, p1500

F07083 Macro: ACX file not found

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: p0700, p1000, p1500

Remedy: - check whether the file is saved in the appropriate directory on the memory card.

F07084 Macro: Condition for WaitUntil not fulfilled

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.

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A07200 Drive: Master control ON/OFF1 command present

Reaction: NONE

Acknowledge: NONE

Cause: The ON/OFF1 command is not 0, either via binector input p0840 (actual CDS) or in control word p3982 bit 0.

Remedy: The signal at binector input p0840 (actual CDS) as well as p3982 bit 0 must be 0.

F07210 Master control PC/AOP inhibited

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The transfer of master control is disabled via binector input p3985.

Remedy: Change the signal via binector input p3985.

F07220 (N, A) Drive: Master control by PLC missing

Reaction: OFF1 (NONE, OFF2, OFF3, STOP2)

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.

F07320 Drive: Automatic restart interrupted

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 waiting time for resetting the fault counter p1213[1] so that fewer faults are registered in the time interval.

A07321 Drive: Automatic restart active

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).

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A07325	Drive: Hibernation active - drive reactivated automatically
Reaction:	NONE
Acknowledge:	NONE
Cause:	The hibernation function is active (p2398). The drive automatically powers itself up again as soon as the restart conditions are present. See also: p2398 (Hibernation operating mode), r2399 (Hibernation status word)
Remedy:	None necessary. The alarm disappears when the motor is restarted automatically or switched off manually.

F07330	Flying restart: Measured search current too low
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	FlyRestart: Not supported
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: Perm.-magnet synch. motors (PEM): operation with V/f char. and encoderless vector control.
Remedy:	- de-activate the "flying restart" function (p1200 = 0).

A07400 (N)	Drive: DC link voltage maximum controller active
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: p1240 (Vdc controller or Vdc monitoring configuration (vector control)), p1280 (Vdc controller or Vdc monitoring configuration (V/f))
Remedy:	If the controller is not to intervene: - increase the ramp-down times. - shut down the Vdc_max controller (p1280 = 0). If the ramp-down times are not to be changed: - use a chopper or regenerative feedback unit.

A07401 (N)	Drive: DC link voltage maximum controller de-activated
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. - check whether the load duty cycle and load limits are within the permissible limits.

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A07402 (N) Drive: DC link voltage minimum controller active

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 (vector control)), p1280 (Vdc controller or Vdc monitoring configuration (V/f))

Remedy: The alarm disappears when power supply returns.

F07405 (N, A) Drive: Kinetic buffering minimum speed not reached

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with V/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)

F07406 (N, A) Drive: Kinetic buffering maximum time exceeded

Reaction: OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP2)

Acknowledge: IMMEDIATELY

Cause: The maximum buffer time (p1255 and p1295 for vector drives with V/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)

A07409 Drive: V/f control, current limiting controller active

Reaction: NONE

Acknowledge: NONE

Cause: The current limiting controller of the V/f control was activated because the current limit was exceeded.

Remedy: The alarm is automatically withdrawn when increasing the current limit (p0640), reducing the load or using a slower up ramp for the setpoint (reference) speed.

F07410 Drive: Current controller output limited

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 configuration (star-delta).
- check the DC link voltage (r0070).
- check the power unit.
- activate the "flying restart" function (p1200).

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F07411 Drive: Flux controller output limited

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: When quick magnetizing is configured (p1401 Bit6 = 1) the specified flux setpoint is not reached although 90 % of the maximum current is specified.
- incorrect motor data.
- motor data and motor configuration (star/delta) do not match.
- the current limit has been set too low for the motor.
- induction motor (encoderless, open-loop controlled) in I2t limiting.
- power unit is too small.

Remedy:
- correct the motor data.
- check the motor configuration.
- correct the current limits (p0640).
- reduce the induction motor load.
- if necessary, use larger power unit.
- check motor supply cable.
- check power unit.

A07416 Drive: Flux controller configuration

Reaction: NONE

Acknowledge: NONE

Cause: The configuration of the flux control (p1401) is contradictory.
Error IDs:
1 = Quick magnetizing (p1401 bit 6) for soft starting (p1401 bit 0)
3 = Quick magnetizing (p1401 bit 6) for Rs identification after restart (p0621 = 2)

Remedy: Re error ID 1:
- De-energize soft starting: p1401 Bit 0 = 0
- De-energize quick magnetizing: p1401 Bit 6 = 0

Re error ID 3:
- Re-parameterize Rs identification: p0621 = 0, 1
- De-energize quick magnetizing: p1401 Bit 6 = 0

F07426 (A) Technology controller actual value limited

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The actual signal of the technology controller has reached its limit.
- Fault value = 1: upper limit reached
- Fault value = 2: lower limit reached

Remedy:
- Adapt the limits in P2267, P2268 to the signal level.
- Scaling of the actual signal.

See also: p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)

F07435 (N) Drive: Setting the ramp-function generator for encoderless vector control

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: During operation with encoderless vector control (r1407.1) the ramp-function generator was stopped (p1141). An internal setting command of the ramp-function generator output caused the set setpoint speed to be frozen.

Remedy:
- de-activate the holding command for the ramp-function generator (p1141).
- 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).

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A07530 Drive: Drive Data Set DDS not present

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 (Number of Drive Data Sets (DDS)), p0820 (Drive Data Set selection DDS bit 0), p0821 (Drive Data Set selection DDS bit 1), r0837 (Drive Data Set DDS selected)

Remedy: - select the existing drive data set.
- set up additional drive data sets.

F07800 Drive: No power unit data available

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The power unit parameters cannot be read or no parameters are stored in the power unit.
Connection between CU and power unit was interrupted or is defective.
See also: r0200 (Power unit code number actual)

Remedy: - Check the connection between the CU module and power unit.
- check or replace the CU module.

F07801 Drive: Motor overcurrent

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.
- V/f operation: Up ramp was set too short or the load is too high.
- V/f operation: Short-circuit in the motor cable or ground fault.
- V/f operation: Motor current does not match current of power unit.
- Switch to rotating motor without flying restart function (p1200).

Note:
Limit current = 2 * Minimum(p0640, 4 * p0305) >= 2 * p0305

Remedy: - check the current limits (p0640).
- vector control: Check the current controller (p1715, p1717).
- V/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: Power unit not ready

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: After an internal switch-on command, the power unit does not signal ready.
- monitoring time is too short.
- DC link voltage is not present.
- power unit 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 power unit.
- check the line supply voltage setting (p0210).

See also: p0857 (Power unit monitoring time)

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A07805 (N) Drive: Power unit overload I2t

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 motor and power unit rated currents.

F07806 Drive: Regenerative power limit exceeded (F3E)

Reaction: OFF2 (IASC/DCBRAKE)

Acknowledge: IMMEDIATELY

Cause: For blocksize power units, types PM250 and PM260, the regenerative rated power r0206[2] was exceeded for more than 10 s.
See also: r0206 (Rated power unit power), p1531 (Power limit regenerating)

Remedy: - increase the down ramp.
- reduce the driving load.
- use a power unit with a higher regenerative feedback capability.
- for vector control, the regenerative power limit in p1531 can be reduced so that the fault is no longer triggered.

F07810 Drive: Power unit EEPROM without rated data

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.

A07850 (F) External alarm 1

Reaction: NONE

Acknowledge: NONE

Cause: The BICO signal for "external alarm 1" was triggered.
The condition for this external alarm is fulfilled.
See also: p2112 (External alarm 1)

Remedy: Eliminate the causes of this alarm.

A07851 (F) External alarm 2

Reaction: NONE

Acknowledge: NONE

Cause: The BICO signal for "external alarm 2" was triggered.
The condition for this external alarm is fulfilled.
See also: p2116 (External alarm 2)

Remedy: Eliminate the causes of this alarm.

A07852 (F) External alarm 3

Reaction: NONE

Acknowledge: NONE

Cause: The BICO signal for "external alarm 3" was triggered.
The condition for this external alarm is fulfilled.
See also: p2117 (External alarm 3)

Remedy: Eliminate the causes of this alarm.

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F07860 (A) External fault 1

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The BICO signal "external fault 1" was triggered.
See also: p2106 (External fault 1)

Remedy: Eliminate the causes of this fault.

F07861 (A) External fault 2

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The BICO signal "external fault 2" was triggered.
See also: p2107 (External fault 2)

Remedy: Eliminate the causes of this fault.

F07862 (A) External fault 3

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The BICO signal "external fault 3" was triggered.
See also: p2108 (External fault 3), p3111 (External fault 3, enable), p3112 (External fault 3 enable negated)

Remedy: Eliminate the causes of this fault.

F07900 (N, A) Drive: Motor blocked

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 set in p2175.
This signal can also be triggered if the speed is oscillating and the speed controller output repeatedly goes to its limit. It may also be the case that thermal monitoring of the power unit reduces the current limit (see p0290), thereby causing the motor to decelerate.
See also: p2175 (Motor locked speed threshold), p2177 (Motor locked delay time)

Remedy: - check that the motor can freely rotate.
- check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539.
- check the parameter, message "Motor locked" and if required, correct (p2175, p2177).

F07901 Drive: Motor overspeed

Reaction: OFF2 (IASC/DCBRAKE)

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.

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F07902 (N, A) Drive: Motor stalled

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: For a vector drive the system has identified that the motor has stall for a time longer than is set in p2178.
Fault value (r0949, interpret decimal):
1: Reserved.
2: Stall detection using r1408.12 (p1745).
See also: p2178 (Motor stalled delay time)

Remedy: Steps should always be taken to ensure that both motor data identification and the rotating measurement were carried out (see also p1900, r3925).
- Check whether the drive stalls solely due to the load in controlled mode or when the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.
- 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.
- Check the current limits (p0640, r0067, r0289). If the current limits are too low, then the drive cannot be magnetized.
- Check whether the motor cables are disconnected.
If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.

A07903 Drive: Motor speed deviation

Reaction: NONE

Acknowledge: NONE

Cause: The absolute value of the speed difference from the setpoint (p2151) 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 V/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.

A07910 (N) Drive: Motor overtemperature

Reaction: NONE

Acknowledge: NONE

Cause: KTY or no sensor:
The measured motor temperature or the temperature of the thermal model has exceeded the alarm threshold (p0604). 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):
1: No output current reduction.
2: Output current reduction active.
See also: p0604 (Motor overtemperature alarm threshold), p0610 (Motor overtemperature response)

Remedy: - check the motor load.
- check the motor ambient temperature.
- check KTY84.
- check temperatures of the thermal model (p0626 ... p0628).

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A07920 Drive: Torque/speed too low

Reaction: NONE

Acknowledge: NONE

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic (too low).
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (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

Reaction: NONE

Acknowledge: NONE

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic (too high).
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (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

Reaction: NONE

Acknowledge: NONE

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic.
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169).

Remedy: Check the connection between the motor and load.
Adapt the parameterization corresponding to the load.

F07923 Drive: Torque/speed too low

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic (too low).
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too low).

Remedy: Check the connection between the motor and load.
Adapt the parameterization corresponding to the load.

F07924 Drive: Torque/speed too high

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic (too high).
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169) (too high).

Remedy: Check the connection between the motor and load.
Adapt the parameterization corresponding to the load.

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F07925 Drive: Torque/speed out of tolerance

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For p2193 = 1:
The torque deviates from the torque/speed envelope characteristic.
For p2193 = 2:
The speed signal from the external encoder (refer to p3230) deviates from the speed (r2169).

Remedy: Check the connection between the motor and load.
Adapt the parameterization corresponding to the load.

A07926 Drive: Envelope curve, parameter invalid

Reaction: NONE

Acknowledge: NONE

Cause: Invalid parameter values were entered for the envelope characteristic of the load monitoring.
The following rules apply for the speed thresholds:
p2182 < p2183 < p2184
The following rules apply for the torque thresholds:
p2185 > p2186
p2187 > p2188
p2189 > p2190
Alarm value (r2124, interpret decimal):
Number of the parameter with the invalid value.

Remedy: Set the parameters for the load monitoring according to the applicable rules or de-activate load monitoring (p2181 = 0; p2193 = 0).

A07927 DC brake active

Reaction: NONE

Acknowledge: NONE

Cause: The motor is braked with a DC current, the DC current brake is active.
1)
An alarm with response DC brake is active. The motor is braked with the DC braking current p1232 for the duration in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled.
2)
The DC braking function was activated on binector input p1230 with the set DC brake p1230 = 4. Braking current p1232 is injected until this binector input becomes inactive.

Remedy: None necessary.

A07929 (F) Drive: No motor detected

Reaction: NONE

Acknowledge: NONE

Cause: The absolute current value is so small after enabling the inverter pulses that no motor is detected.
See also: p2179 (Current limit for the output load identification)

Remedy: - check the motor feeder cables.
- reduce the threshold value (p2179) (e.g. for synchronous motors).
- check the voltage boost of the V/f control (p1310).
- carry out a standstill measurement to set the stator resistance (p0350).

F07936 Drive: load failure

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Load monitoring: load failure detected.

Remedy: Check the sensor.
Switch out the monitoring (p2193).
See also: p2193 (Load monitoring configuration), p3232 (Load monitoring failure detection)

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F07950 (A) Motor parameter incorrect

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):
The parameter number involved.
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.
See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323

F07967 Drive: Pole position identification internal fault

Reaction: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY

Cause: A fault has occurred during the pole position identification routine.
Only for internal Siemens troubleshooting.

Remedy: Carry out a POWER ON.

F07968 Drive: Lq-Ld measurement incorrect

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: Re fault value = 10:
Check whether the motor is correctly connected.
Replace the power unit involved.
De-activate traversing (p1909).
Re fault value = 12:
Check whether motor data have been correctly entered.
De-activate traversing (p1909).
Re fault value = 16:
De-activate traversing (p1909).
Re fault value = 17:
Repeat traversing.

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F07969 Drive: Incorrect pole position identification

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.
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: Re fault value = 1:
Check whether the motor is correctly connected.
Check whether motor data have been correctly entered.
Replace the power unit involved.
Re fault value = 2:
Bring the motor into a no-load condition.
Re 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 power unit involved.
Re fault value = 11:
Increase the value for p0329.
Check whether the motor is correctly connected.
Replace the power unit involved.
Re fault value = 12:
When selecting p1980 = 4: Reduce the value for p0325.
When selecting p1980 = 1: Reduce the value for p0329.
Check whether motor data have been correctly entered.
Re fault value = 13:
Reduce the value for p0329.
Check whether motor data have been correctly entered.
Re fault value = 14:
Increase the value for p0329.
Re fault value = 15:
Increase the value for p0325.
Motor not sufficiently anisotropic, change the technique (p1980 = 1 or 10).
Re fault value = 16:
Change the technique (p1980).
Re fault value = 17:
Repeat traversing.
Re fault value = 18:
Increase the value for p0329.
Saturation not sufficient, change the technique (p1980 = 10).
Re fault value = 20:
Before carrying out a pole position identification routine ensure that the motor shaft is absolutely stationary (zero speed).

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A07980 Drive: Rotating measurement activated

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.
See also: p1960 (Rotating measurement selection)

Remedy: None 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

Reaction: NONE

Acknowledge: NONE

Cause: The rotating measurement cannot be started due to missing enable signals.

Remedy: - acknowledge faults that are present.
- establish missing enable signals.
See also: r0002 (Drive operating display), r0046 (Missing enable sig)

F07983 Drive: Rotating measurement saturation characteristic

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: Re 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 %).
Re fault value = 5:
- the speed setpoint (p1961) is too high. Reduce the speed.
Re fault value = 6:
- adapt the speed setpoint (p1961) or minimum limiting (p1080).
Re fault value = 7:
- adapt the speed setpoint (p1961) or suppression (skip) bandwidths (p1091 ... p1094, p1101).
Re 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)

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F07984 Drive: Speed controller optimization, moment of inertia

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: Re 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).

Re 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 p342, re-calculate the speed controller p0340 = 4 and repeat the measurement.

Re fault value = 9:
- check the moment of inertia (p0341, p0342). After the change, re-calculate (p0340 = 3 or 4)

Re 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)

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F07985 Drive: Speed controller optimization (oscillation test)

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: Re 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:
- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).

Re fault value = 3:
- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1094, p1101).

Re fault value = 4:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).

Re fault value = 5:
- increase the torque limits (e.g. p1520, p1521).

Re 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

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: Re fault value = 1:
Enable the direction (p1110 or p1111).

F07988 Drive: Rotating measurement, no configuration selected

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)

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F07990 Drive: Incorrect motor data identification

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.
4: Identified stator reactance lies outside the expected range 50 ... 500 % of Zn.
5: Identified magnetizing inductance lies outside the expected range 50 ... 500 % of Zn.
6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.
7: Identified total leakage reactance lies outside the expected range 4 ... 50 % of Zn.
8: Identified stator leakage reactance lies outside the expected range 2 ... 50 % of Zn.
9: Identified rotor leakage reactance lies outside the expected range 2 ... 50 % of Zn.
10: Motor has been incorrectly connected.
11: Motor shaft rotates.
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: With the selected current controller sampling rate, the pulse frequency cannot be implemented.
Note:
Percentage values are referred to the rated motor impedance:
Zn = Vmot.nom / sqrt(3) / Imot,nom
101: Voltage amplitude even at 30% maximum current amplitude is too low to measure the inductance.
102, 104: Voltage limiting while measuring the inductance.
103: Maximum frequency exceeded during the rotating inductance measurement.
Adapt the parameterization corresponding to the load.
113: The power, torque or current limit is zero.
120: Error when evaluating the magnetizing inductance.
125: Cable resistance greater than the total resistance.
126: Series inductance greater than the total leakage inductance.
127: Identified leakage inductance negative.
128: Identified stator resistance negative.
129: Identified rotor resistance negative.
130: Drive data set changeover during the motor data identification routine.
140: The setpoint channel inhibits both directions of rotation.
160: Accelerating when determining kT, moment of inertia or reluctance torque too short or the accelerating time is too long.
173: Internal problem.
180: Identification speed (maximum speed, rated speed) less than p1755.
190: Speed setpoint not equal to zero.
191: An actual speed of zero is not reached.
192: Speed setpoint not reached.
193: Inadmissible motion of the motor when identifying the voltage emulation error.
194: Supplementary torque (r1515) not equal to zero.
195: Closed-loop torque control active.
200, 201: Not possible to identify the voltage emulation error characteristic of the drive converter (p1952, p1953).

Remedy: Re fault value = 0:
- check whether the motor is correctly connected. Observe configuration (star/delta).

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 power unit? The ratio of the power unit to the rated motor current should not be less than 0.5 and not be greater than 4.
- check motor config. (star-delta).

Re fault value = 4, 7:
- Check whether inductances are correctly entered in p0233.
- check whether motor was correctly connected (star/delta).

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Re fault value = 101:
- increase current limit (p0640) or torque limit (p1520, p1521).
- check current controller gain (p1715).
It may be impossible to completely identify the L characteristic, as required current amplitude is too high.
- suppress meas. (p1909, p1959).
Re fault value = 102, 104:
- reduce current limit (p0640).
- check current controller P gain.
- suppress meas. (p1909, p1959).
Re fault value = 103:
- increase external moment of inertia (if possible).
- suppress meas. (p1909, p1959).
Re fault value = 113:
- check the limits (p0640, p1520, p1521, p1530, p1531), correct the zero values.
Re fault value = 120:
- check current controller P gain (p1715) and if required, reduce.
- increase the pulse frequency (p1800).
Re fault value = 125:
- reduce cable resistance (p0352).
Re fault value = 127, 128, 129:
- it is possible that current controller is oscillating. Reduce p1715 before next measurement.
Re fault value = 130:
- do not initiate a drive data set changeover during motor ident. routine.
Re fault value = 140:
- Prior to measurement, enable at least one direction of rotation (p1110 = 0 or p1111 = 0 or p1959.14 = 1 or p1959.15 = 1).
Re fault value = 160:
- extend accelerating time when determining kT, moment of inertia and reluctance torque, e.g. by increasing max. speed (p1082), increasing moment of inertia or reducing max. current (p0640).
- increase speed controller P-gain (p1470).
- suppress meas. (p1959).
Re fault value = 173:
-
Re fault value = 180:
- increase max. speed (p1082).
- reduce p1755.
- suppress meas. (p1909, p1959).
Re fault value = 190:
- set speed setpoint to zero.
Re fault value = 191:
- do not start motor data ident. routine while motor is still rotating.
Re fault value = 192:
- check closed-loop speed control (motor rotor may be locked or closed-loop speed control is not functioning).
- ensure that enable signals are present during measurement.
- remove any pulling loads from motor.
- increase max. current (p0640).
- reduce max. speed (p1082).
- suppress meas. (p1959).
Re fault value = 193:
The motor has moved through more than 5 ° electrical. Lock motor rotor at one of these pole position angles: 90 °, 210 ° or 330 ° (+/-5 °) and then start identification.
Re fault value = 194:
- switch out all supplementary torques (e.g. CI: p1511).
- for hanging/suspended axes: Lock motor rotor at one of these pole position angles: 90 °, 210 ° or 330 ° (+/-1 °) and then start identification.
Re fault value = 195:
- de-select closed-loop torque control (p1300 = 20 or set the signal source in p1501 to a 0 signal).
Re fault value = 200, 201:
- reduce length of cable between power unit and motor.

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A07991 (N) Drive: Motor data identification activated

Reaction: NONE

Acknowledge: NONE

Cause: The motor data ident. routine is activated.
The motor data identification routine is carried out at the next power-on command.
See also: p1910 (Motor data identification selection)

Remedy: None necessary.
The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.

A07994 (N) Drive: motor data identification not performed

Reaction: NONE

Acknowledge: NONE

Cause: Motor data identification has not yet been performed with the actual data set.

Remedy: - Perform motor data identification (see p1900).
- Return data set.
- Parameterize V/f control (p1300 < 20).

F08700 (A) CAN: Communications error

Reaction: OFF3 (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 interrupted.
- bus cable not connected.
- 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 node 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 baud rate), p8623 (CAN Bit Timing selection)

F08701 CAN: NMT state change

Reaction: OFF3

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: None necessary.
Acknowledge the fault and continue operation.

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A08751 CAN: Telegram loss

Reaction: NONE

Acknowledge: NONE

Cause: The CAN controller has lost a receive message (telegram).

Remedy: Reduce the cycle times of the receive messages.

A08752 CAN: Error counter for error passive exceeded

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 baud rate), p8623 (CAN Bit Timing selection)

A08753 CAN: Message buffer overflow

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.
See also: p8622 (CAN baud rate), p8623 (CAN Bit Timing selection)

A08754 CAN: Incorrect communications mode

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: Object cannot be mapped

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.

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A08757 CAN: Set COB-ID invalid

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: Number of PDO channels too low

Reaction: NONE

Acknowledge: NONE

Cause: The number of PDO channels in p8740 has either been set to 0 or too low.

Remedy: The number of channels set in p8740 must be greater than or equal to the number of PDOs.
There are 2 possibilities:
Increase the number of channels in p8740 and confirm the selection using p8741.
Reduce the number of PDOs by setting the COB-ID to invalid.
See also: p8741 (CAN PDO configuration acknowledgement)

A08759 CAN: PDO COB-ID already available

Reaction: NONE

Acknowledge: NONE

Cause: An existing PDO COB-ID was allocated.

Remedy: Select another PDO COB-ID.

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F30001 Power unit: Overcurrent

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).
- V/f operation: Up ramp set too low.
- V/f operation: rated current of motor much greater than that of power unit.
- High discharge and post-charging current for line supply voltage interruptions.
- High post-charging currents for overload when motoring and DC link voltage dip.
- Short-circuit currents at power-on due to the missing commutating reactor.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.
- Line phase interrupted.

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.

Remedy:
- check the motor data - if required, carry out commissioning.
- Check the motor circuit configuration (star/delta)
- V/f operation: Increase up ramp.
- V/f operation: check assignment of rated currents of motor and power unit.
- check the line supply quality.
- Reduce motor load.
- Correct connection of 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.

F30002 Power unit: DC link voltage, overvoltage

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The power unit has detected an overvoltage condition in the DC link.
- motor regenerates too much energy.
- line supply voltage too high.
- Line phase interrupted.

Fault value (r0949, interpret decimal):
DC link voltage [1 bit = 100 mV].

Remedy:
- Increase the ramp-down time (p1121).
- Set the rounding times (p1130, p1136). This is particularly recommended in V/f operation to relieve the DC link voltage controller with rapid ramp-down times of the ramp-function generator.
- Activate the DC link voltage controller (p1240, p1280).
- Check the line connection voltage (p0210).
- check and correct the phase assignment at the power unit.
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration (vector control))

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F30003 Power unit: DC link voltage, undervoltage

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 phase interrupted.

Note:
The monitoring threshold for the DC link undervoltage is the minimum of the following values:
- for a calculation, refer to p0210.

Remedy:
- check the line supply voltage
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage)

F30004 Power unit: Overtemperature heat sink AC inverter

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

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.
- Reduce the current limit p0640.
- During operation with V/f characteristic: reduce p1341 of the current limiting controller.

See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

F30011 Power unit: Line phase failure in main circuit

Reaction: OFF2 (OFF1)

Acknowledge: IMMEDIATELY

Cause: A line phase failure was detected at the power unit.
- the fuse of a phase of a main circuit has ruptured.
- the DC link voltage ripple has exceeded the permissible limit value.

Remedy: Check the fuses in the main circuit.

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F30015 Power unit: Phase failure motor feeder cable

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: A phase failure was detected at the power unit output (motor feeder cable).
Note:
The fault can also be signaled if the drive stalled in V/f control. In this particular case, a phase failure does not necessarily have to be present, but a current of 0 was measured in one phase due to current dissymmetry.

Remedy: 1. Check the motor feeder cables.
2. If the drive has stalled in V/f control, the acceleration or deceleration time (p1120) should be increased.

A30016 (N) Power unit: Load supply switched out

Reaction: NONE

Acknowledge: NONE

Cause: The DC link voltage is too low.
Fault value (r0949, interpret decimal):
DC link voltage in [V].

Remedy: Under certain circumstances, the AC line supply is not switched in.

F30017 Power unit: Hardware current limit has responded too often

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.
- 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:
- check the motor data.
- 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.

F30021 Power unit: Ground fault

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Power unit has detected a ground fault.
- ground fault in the power cables
- winding fault or ground fault at the motor.
- CT defective.
- when the brake is applied, this causes the hardware DC current monitoring to respond.

Fault value (r0949, interpret decimal):
Absolute value, summation current [32767 = 271 % rated current].

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).

See also: p0287 (Ground fault monitoring thresholds)

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F30024 Power unit: Overtemperature thermal model

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 (Power unit temperatures)

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 brake is active: reduce braking current (see p1232).

F30025 Power unit: Chip overtemperature

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: 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):
Temperature difference between the heat sink and chip [1 Bit = 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 (Power unit temperatures)

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F30027 Power unit: Precharging DC link time monitoring

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 DC link has either a ground fault or a short-circuit.
8) Pre-charging circuit may be defective.
Fault value (r0949, interpret binary):
Missing internal enable signals, power unit (lower 16 bit):
(Inverted bit-coded representation FFFF hex -> all internal enable signals available)
Bit 0: Power supply of the IGBT gating shut down
Bit 1: Reserved
Bit 2: Reserved
Bit 3: Ground fault detected
Bit 4: Peak current intervention
Bit 5: I2t exceeded
Bit 6. Thermal model overtemperature calculated
Bit 7: (heat sink, gating module, power unit) overtemperature measured
Bit 8: Reserved
Bit 9: Overvoltage detected
Bit 10: Power unit has completed pre-charging, ready for pulse enable
Bit 11: Reserved
Bit 12: Overcurrent detected
Bit 13: Reserved
Bit 14: Reserved
Bit 15: Uce fault detected, transistor de-saturated due to overcurrent/short-circuit
Status, power unit (upper 16 bit, hexadecimal number):
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 bypass contactor to open -> change into the fault state
5: Wait for bypass contactor to open -> change into restart inhibit
6: Commissioning
7: Ready for pre-charging
8: Pre-charging started, DC link voltage lower 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: Reserved
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).
- wait 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 capacitance of the DC link and, if necessary, reduce it in accordance with the maximum permissible DC link capacitance (see relevant Equipment Manual).
Re 7):
- check the DC link for a ground fault or short circuit.
See also: p0210 (Drive unit line supply voltage)

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A30031 Power unit: Hardware current limiting, phase U

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.
- 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, phase V

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.
- 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, phase W

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.
- 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.

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A30042 Power unit: Fan operating time reached or exceeded

Reaction: NONE

Acknowledge: NONE

Cause: The maximum operating time of the fan in the power unit is set in p0252.
This message indicates the following:
Fault value (r0949, interpret decimal):
0: The maximum fan operating time is 500 hours.
1: The maximum fan operating time has been exceeded.

Remedy: Replace the fan in the power unit and reset the operating hours counter to 0 (p0251 = 0).

F30052 EEPROM data error

Reaction: NONE

Acknowledge: POWER ON

Cause: EEPROM data error of the power unit module.
Fault value (r0949, interpret hexadecimal):
0: The EEPROM data read in from the power unit module is inconsistent.
1: The EEPROM data is not compatible with the CU firmware.

Remedy: Re fault value = 0:
Replace power unit module.
Re fault value = 1:
Replace power unit module.

F30071 No new actual values received from the Power Module

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: More than one actual value telegram from the power unit has failed.

Remedy: Check the interface (adjustment and locking) to the power unit.

F30072 Setpoints can no longer be transferred to the Power Module

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: More than one setpoint telegram was not able to be transferred to the power unit module.

Remedy: Check the interface (adjustment and locking) to the power unit.

F30074 Communication error to the Power Module

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Communication is not possible with the power unit module via the plug connection.

Remedy: Either replace the Control Unit or the power unit.
You must check which of the two components must be replaced by replacing one and then the other (functioning) component. If these are not available, then both components must be returned.

F30105 PU: Actual value sensing fault

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.

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F30662 **Error in internal communications**

Reaction: OFF2

Acknowledge: POWER ON

Cause: A module-internal communication error has occurred.
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.

F30664 **Error while booting**

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.

N30800 (F) **Power unit: Group signal**

Reaction: OFF2

Acknowledge: NONE

Cause: The power unit has detected at least one fault.

Remedy: Evaluates other actual messages.

F30802 **Power unit: Time slice overflow**

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Time slide overflow.

Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

A30804 (F) **Power unit: CRC**

Reaction: NONE

Acknowledge: NONE

Cause: CRC error actuator

Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F30805 **Power unit: EPROM checksum error**

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.

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F30809 **Power unit: Switching information not valid**

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: For 3P gating unit:
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**

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.

F30850 **Power unit: Internal software error**

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: POWER ON

Cause: An internal software error in the power unit has occurred.
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.

F30899 (N, A) **Power unit: Unknown fault**

Reaction: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP2)

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).

F30903 **Power unit: I2C bus error occurred**

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP2)

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.

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A30920 (F) Temperature sensor fault

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 > 2120 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.

A30999 (F, N) Power unit: Unknown alarm

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).

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Appendix

A

Contents

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A.1 ASCII Table (excerpt)

The following table contains the decimal and hexadecimal notation of selected ASCII indications.

Table A-1 ASCII-Table (in part)

Indication	Decimal	Hexadecimal	Indication	Dezimal	Hexadecimal
Leerzeichen	32	20	H	72	48
-	45	2D	I	73	49
0	48	30	J	74	4A
1	49	31	K	75	4B
2	50	32	L	76	4C
3	51	33	M	77	4D
4	52	34	N	78	4E
5	53	35	O	79	4F
6	54	36	P	80	50
7	55	37	Q	81	51
8	56	38	R	82	52
9	57	39	S	83	53
A	65	41	T	84	54
B	66	42	U	85	55
C	67	43	V	86	56
D	68	44	W	87	57
E	69	45	X	88	58
F	70	46	Y	89	59
G	71	47	Z	90	5A

A.2 List for motor code

Table A-2 Motor code for synchronous motors

Order number	Motor type (p0300)	Motor code (p0301)
1LE400x-1ABxx-xxxx	204	20401
1LE400x-1BBxx-xxxx	204	20402

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List of Abbreviations

B

Abbreviations used with the SINAMICS G120 Products:

Abbreviation	Meaning
A	
AC	Alternating current
A/D	Analog digital converter
ADR	Address
AFM	Additional frequency modification
AG	Automation unit
AI	Analog input
AK	Request identifier
AO	Analog output
ASIC	Application specific integrated circuit
ASP	Analog setpoint
ASVM	Asymmetric space vector modulation
B	
BCC	Block check character
BCD	Binary-coded decimal code
BI	Binector input
BIA	Berufsgenossenschaftliches Institut für Arbeitssicherheit
BICO	Binector/connector
BO	Binector output
C	
C	Commissioning
CB	Communication board
CCW	Counter-clockwise
CDS	Command data set
CI	Connector input
CM	Configuration management
CMD	Command
CO	Cconnector output

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Abbreviation	Meaning
CO/BO	Connector output/Binector output
COM	Common (terminal is connected to NO or NC)
CT	Commissioning, ready to run
CU	Control unit
CUT	Commissioning, run, ready to run
CW	Clockwise
D	
D/A	Digital analog converter
DC	Digital analog converter
DDS	Drive data set
DI	Digital input
DIP	DIP switch
DO	Digital output
DP	Distributed I/Os
DS	Drive state
E	
ECD	Equivalent circuit diagram
EEC	European Economic Community
EEPROM	Electrical erasable programmable read-only memory
ELCB	Earth leakage circuit breaker
EMC	Electromagnetic compatibility
EMF	Electromagnetic force
ES	Engineering System
F	
FAQ	Frequently asked question
FB	Function block
FFB	Freely Assignable Function block
FCC	Flux current control
FCL	Fast current limiting
FF	Fixed frequency
FFB	Free function block
FOC	Field orientated control
FREQ	Frequency
FSA	Frame size A
FSB	Frame size B
FSC	Frame size C

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Abbreviation	Meaning
FSD	Frame size D
FSE	Frame size E
FSF	Frame size F
G	
GSD	Device data file (Geräte Stamm Datei)
GSG	Getting started guide
GUI ID	Global unique identifier
H	
HIW	Main actual value
HMI	Human machine interface
HO	High Overload (Constant Torque)
HSW	Main setpoint
HTL	High-voltage transistor logic
I	
I/O	In-/output
IBN	Commissioning
IGBT	Insulated gate bipolar transistor
IND	Sub-index
J	
JOG	JOG
K	
KIB	Kinetic buffering
L	
LCD	Liquid crystal display
LED	Light emitting diode
LGE	Length
LO	Light Overload (Variable Torque)
LWL	Fiber Optic conductor
M	
MHB	Motor holding brake
MLP	Multi-Language Pack
MOP	Motor operated potentiometer
N	
NC	Normally closed
NEMA	National Electrical Manufacturers Association
NO	Normally open

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Abbreviation	Meaning
O	
OLM	Optical Link Module
OLP	Optical Link Plug
OP	Operator Panel
OPI	Operating Instructions
P	
PID	Proportional, integral, derivative controller
PKE	Parameter ID
PKW	Parameter ID value area (Parameterkennung Wert)
PLC	Programmable logic control
PM	Power module
PM-IF	Power module interface
PNU	Parameter Number
PPO	Parameter process data object
PTC	Positive temperature coefficient
PWE	Parameter value
PWM	Pulse-width modulation
Pxxxx	Write parameter
PZD	Process data area (Prozessdaten)
Q	
QC	Quick commissioning
R	
RAM	Random-access memory
RCCB	Residual current circuit breaker
RCD	Residual current device
RFG	Ramp-function generator
RFI	Radio frequency interference
ROM	Read-only memory
RPM	Revolutions per minute
rxxxx	read-only parameters of analogue signals
S	
SBC	Safe Break Control
SLVC	Sensorless vector control
SLS	Safe-Limited Speed
SOL	Serial option link
SS1	Safe stop 1

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Abbreviation	Meaning
STO	Safe torque off
STW	Control word
STX	Start of text
SVM	Space vector modulation
T	
TTL	Transistor-transistor logic
U	
USS	Universal serial interface
V	
V/f	Voltage/frequency
VC	Vector control
VT	Variable torque
W	
WEA	Automatic restart
Z	
ZSW	Status word
ZUSW	Additional setpoint

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