

SIEMENS

MICROMASTER 440

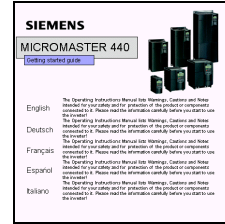
Parameter List

Issue B1



Getting Started Guide

Is for quick commissioning with SDP and BOP.



Operating Instructions

Gives information about features of the MM440, Installation, Commissioning, Control modes, System Parameter structure, Troubleshooting, Specifications and available options of the MM440.



Parameter List

The Parameterlist contains the description of all Parameters structured in functional order and a detailed description. The Parameter list also includes a series of function plans.



Reference Manual

The reference Manual gives elaborate information about engineering communication troubleshooting and maintenance.



Catalogues

In the catalogue you will find all needs to select a certain inverter, as well as filters chokes, operator panels or communications options.



SIEMENS

MICROMASTER 440

Parameter List
User Documentation

Valid for

Issue B1

Converter Type
MICROMASTER 440

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Warning

Please refer to all Definitions and Warnings contained in the Operating Instructions. You will find the Operating Instructions on the Docu CD delivered with your inverter. If the CD is lost, it can be ordered via your local Siemens department under the Order No. 6SE6400-5FA00-1AG00.

Further information can be obtained from Internet website:

<http://www.siemens.de/micromaster>

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Other functions not described in this document may be available. However, this fact shall not constitute an obligation to supply such functions with a new control, or when servicing.

We have checked that the contents of this document correspond to the hardware and software described. There may be discrepancies nevertheless, and no guarantee can be given that they are completely identical. The information contained in this document is reviewed regularly and any necessary changes will be included in the next edition. We welcome suggestions for improvement.

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Parameters MICROMASTER 440

This Parameter List must only be used together with the Operating Instructions or the Reference Manual of the MICROMASTER 440. Please pay special attention to the Warnings, Cautions, Notices and Notes contained in these manuals.

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1 Parameters

1.1 Introduction to MICROMASTER 440 System Parameters

The layout of the parameter description is as follows.

1 Par number [index]	2 Parameter name	5 Datatype	7 Unit:	9 Min:	12 Level: 2
	3 CStat:	6 active:	8 Quick Comm:	10 Def:	
	4 P-Group:			11 Max:	

13 Description:

1. 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 (in such cases, dashes “-“ are entered at the points “Unit”, “Min”, “Def” and “Max” in the header of the parameter description.

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.

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

2. Parameter name

Indicates the name of the relevant parameter. Certain parameter names include the following abbreviated prefixes: BI, BO, CI, and CO 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

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, 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.).

3. CStat

Commissioning status of the parameter. Three states are possible:

- Commissioning C
- Ready to run U
- Run 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

4. **P-Group**

Indicates the functional group of the particular.

Note

Parameter P0004 (parameter filter) acts as a filter and focuses access to parameters according to the functional group selected.

5. **Datatype**

The data types available are shown in the table below.

Notation	Meaning
U16	16-bit unsigned
U32	32-bit unsigned
I16	16-bit integer
I32	32-bit integer
Float	Floating point

6. **Active**

Indicates whether

- ◆ Immediately changes to the parameter values take effective immediately after they have been entered, or
- ◆ Confirm the "P" button on the operator panel (BOP or AOP) must be pressed before the changes take effect.

7. **Unit**

Indicates the unit of measure applicable to the parameter values

8. **QuickComm**

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).

9. **Min**

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

10. **Def**

Indicates the default value, i.e. the value which applies if the user does not specify a particular value for the parameter.

11. **Max**

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

12. **Level**

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).

13. **Description**

The parameter description consists of the sections and contents listed below. Some of these sections and contents are optional and will be omitted on a case-to-case basis if not applicable.

Description:	Brief explanation of the parameter function.
Diagram:	Where applicable, diagram to illustrate the effects of parameters on a characteristic curve, for example
Settings:	List of applicable settings. These include Possible settings, Most common settings, Index and Bitfields
Example:	Optional example of the effects of a particular parameter setting.
Dependency:	Any conditions that must be satisfied in connection with this parameter. Also any particular effects, which this parameter has on other parameter(s) or which other parameters have on this one.
Warning / Caution / Notice / Note:	Important information which must be heeded to prevent personal injury or damage to equipment / specific information which should be heeded in order to avoid problems / information which may be helpful to the user
More details:	Any sources of more detailed information concerning the particular parameter.

1.2 Quick commissioning (P0010=1)

The following parameters are necessary for quick commissioning (P0010=1).

No	Name	Access level	Cstat
P0100	Europe / North America	1	C
P0205	Inverter application	3	C
P0300	Select motor type	2	C
P0304	Motor voltage rating	1	C
P0305	Motor current rating	1	C
P0307	Motor power rating	1	C
P0308	Motor cosPhi rating	2	C
P0309	Motor efficiency rating	2	C
P0310	Motor frequency rating	1	C
P0311	Motor speed rating	1	C
P0320	Motor magnetizing current	3	CT
P0335	Motor cooling	2	CT
P0640	Motor overload factor [%]	2	CUT
P0700	Selection of command source	1	CT
P1000	Selection of frequency setpoint	1	CT
P1080	Min. speed	1	CUT
P1082	Max. speed	1	CT
P1120	Ramp-up time	1	CUT
P1121	Ramp-down time	1	CUT
P1135	OFF3 ramp-down time	2	CUT
P1300	Control mode	2	CT
P1500	Selection of torque setpoint	2	CT
P1910	Select motor data identification	2	CT
P3900	End of quick commissioning	1	C

When P0010=1 is chosen, P0003 (user access level) can be used to select the parameters to be accessed. This parameter also allows selection of a user-defined parameter list for quick commissioning.

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.

Reset to Factory default

To reset all parameters to the factory default settings; the following parameters should be set as follows:

Set P0010=30.

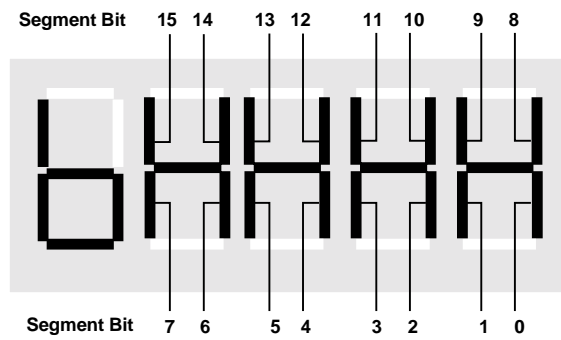
Set P0970=1.

Note

The reset process takes approximately 10 seconds to complete. Reset to Factory default

Seven-segment display

The seven-segment display is structured as follows:



The significance of the relevant bits in the display is described in the status and control word parameters.

1.3 Parameter Description

Note:

Level 4 Parameters are not visible with BOP or AOP.

r0000	Drive display	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 1
	P-Group: ALWAYS				

Displays the user selected output as defined in P0005.

Note:

Pressing the "Fn" button for 2 seconds allows the user to view the values of DC link voltage, output current, output frequency, and chosen r0000 setting (defined in P0005).

r0002	Drive state	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: COMMANDS				

Displays actual drive state.

Settings:

- 0 Commissioning mode (P0010 != 0)
- 1 Drive ready
- 2 Drive fault active
- 3 Drive starting (DC-link precharging)
- 4 Drive running
- 5 Stopping (ramping down)

Dependency:

State 3 visible only while precharging DC link, and when externally powered communications board is fitted.

P0003	User access level			Min: 0 Def: 1 Max: 4	Level: 1
	CStat: CUT	Datatype: U16	Unit: -		
	P-Group: ALWAYS	Active: first confirm	QuickComm. No		

Defines user access level to parameter sets. The default setting (standard) is sufficient for most simple applications.

Settings:

- 0 User defined parameter list - see P0013 for details on use
- 1 Standard: Allows access into most frequently used parameters.
- 2 Extended: Allows extended access e.g. to inverter I/O functions.
- 3 Expert: For expert use only.
- 4 Service: Only for use by authorized service personal - password protected.

P0004	Parameter filter			Min: 0 Def: 0 Max: 22	Level: 1
	CStat: CUT	Datatype: U16	Unit: -		
	P-Group: ALWAYS	Active: first confirm	QuickComm. No		

Filters available parameters according to functionality to enable a more focussed approach to commissioning.

Example:

P0004 = 22 specifies that only PID parameters will be visible.

Settings:

- 0 All parameters
- 2 Inverter
- 3 Motor
- 4 Speed sensor
- 5 Technol. application / units
- 7 Commands, binary I/O
- 8 ADC and DAC
- 10 Setpoint channel / RFG
- 12 Drive features
- 13 Motor control
- 20 Communication
- 21 Alarms / warnings / monitoring
- 22 Technology controller (e.g. PID)

Dependency:

Parameters marked "Quick Comm: Yes" in the parameter header can only be set when P0010 = 1 (Quick Commissioning).

Note:

The inverter will start with any setting of P0004.

P0005[3]	Display selection	Min: 2	Level: 2	
	CStat: CUT	Datatype: U16		Def: 21
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 2294

Selects display for parameter r0000 (drive display).

Settings:

- 21 Actual frequency
- 25 Output voltage
- 26 DC link voltage
- 27 Output current

Index:

- P0005[0] : 1st. Drive data set (DDS)
- P0005[1] : 2nd. Drive data set (DDS)
- P0005[2] : 3rd. Drive data set (DDS)

Notice:

These settings refer to read only parameter numbers ("rxxxx").

Details:

See relevant "rxxxx" parameter descriptions.

P0006	Display mode	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 2
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 4

Defines mode of display for r0000 (drive display).

Settings:

- 0 In Ready state alternate between setpoint and output freq. In run display output freq.
- 1 In Ready state display setpoint. In run display output freq.
- 2 In Ready state alternate between P0005 value and r0020 value. In run display P0005 value
- 3 In Ready state alternate between r0002 value and r0020 value. In run display r0002 value
- 4 In all states just display P0005

Note:

When inverter is not running, the display alternates between the values for "Not Running" and "Running".

Per default, the setpoint and actual frequency values are displayed alternately.

P0007	Backlight delay time	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 2000

Defines time period after which the backlight display turns off if no operator keys have been pressed.

Value:

P0007 = 0 : Backlight always on (default state)

P0007 = 1-2000 : Number of seconds after which the backlight will turn off

P0010	Commissioning parameter filter	Min: 0	Level: 1	
	CStat: CT	Datatype: U16		Def: 0
	P-Group: ALWAYS	Active: first confirm		QuickComm. No Max: 30

Filters parameters so that only those related to a particular functional group are selected.

Settings:

- 0 Ready
- 1 Quick commissioning
- 2 Inverter
- 29 Download
- 30 Factory setting

Dependency:

Reset to 0 for inverter to run.

P0003 (user access level) also determines access to parameters.

Note:

If P3900 is not 0 (0 is the default value), this parameter is automatically reset to 0.

P0011	Lock for user defined parameter	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 65535

Details:

See parameter P0013 (user defined parameter)

P0012	Key for user defined parameter	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 65535

Details:

See parameter P0013 (user defined parameter).

P0013[20]	User defined parameter	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 65535

Defines a limited set of parameters to which the end user will have access.

Instructions for use:

- Step 1: Set P0003 = 3 (expert user)
- Step 2: Go to P0013 indices 0 to 16 (user list)
- Step 3: Enter into P0013 index 0 to 16 the parameters required to be visible in the user-defined list. The following values are fixed and cannot be changed:
 - P0013 index 19 = 12 (key for user defined parameter)
 - P0013 index 18 = 10 (commissioning parameter filter)
 - P0013 index 17 = 3 (user access level)
- Step 4: Set P0003 = 0 to activate the user defined parameter.

Dependency:

First, set P0011 ("lock") to a different value than P0012 ("key") to prevent changes to user-defined parameter. Then, set P0003 to 0 to activate the user-defined list.

When locked and the user-defined parameter is activated, the only way to exit the user-defined parameter (and view other parameters) is to set P0012 ("key") to the value in P0011 ("lock").

Note:

Alternatively, set P0010 = 30 (commissioning parameter filter = factory setting) and P0970 = 1 (factory reset) to perform a complete factory reset.

The default values of P0011 ("lock") and P0012 ("key") are the same.

r0018	Firmware version	Min: -	Level: 1	
	Datatype: Float	Unit: -		Def: -
	P-Group: INVERTER			Max: -

Displays version number of installed firmware.

r0019	CO/BO: BOP control word	Min: -	Level: 3	
	Datatype: U16	Unit: -		Def: -
	P-Group: COMMANDS			Max: -

Displays status of operator panel commands.

The settings below are used as the "source" codes for keypad control when connecting to BICO input parameters.

Bitfields:

Bit00	ON/OFF1	0	NO
		1	YES
Bit01	OFF2: Electrical stop	0	YES
		1	NO
Bit02	OFF3: Fast stop	0	YES
		1	NO
Bit08	JOG right	0	NO
		1	YES
Bit09	JOG left	0	NO
		1	YES
Bit11	Reverse (setpoint inversion)	0	NO
		1	YES
Bit13	Motor potentiometer MOP up	0	NO
		1	YES
Bit14	Motor potentiometer MOP down	0	NO
		1	YES

Note:

When BICO technology is used to allocate functions to panel buttons, this parameter displays the actual status of the relevant command.

The following functions can be "connected" to individual buttons:

- ON/OFF1,
- OFF2,
- JOG,
- REVERSE,
- INCREASE,
- DECREASE

r0020	CO: Act. frequency setpoint	Min: -	Level: 3	
	Datatype: Float	Unit: Hz		Def: -
	P-Group: CONTROL			Max: -

Displays actual frequency setpoint (output from ramp function generator).

r0021	CO: Act. frequency	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 2
	P-Group: CONTROL				
	Displays actual inverter output frequency (r0024) excluding slip compensation, resonance damping and frequency limitation.				
r0022	Act. rotor speed	Datatype: Float	Unit: 1/min	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays calculated rotor speed based on inverter output frequency [Hz] x 120 / number of poles.				
	Note: This calculation makes no allowance for load-dependent slip.				
r0024	CO: Act. output frequency	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays actual output frequency (slip compensation, resonance damping and frequency limitation are included).				
r0025	CO: Act. output voltage	Datatype: Float	Unit: V	Min: - Def: - Max: -	Level: 2
	P-Group: CONTROL				
	Displays [rms] voltage applied to motor.				
r0026	CO: Act. DC-link voltage	Datatype: Float	Unit: V	Min: - Def: - Max: -	Level: 2
	P-Group: INVERTER				
	Displays DC-link voltage.				
r0027	CO: Act. output current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 2
	P-Group: CONTROL				
	Displays [rms] value of motor current [A].				
r0029	CO: Flux gen. current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays flux-generating current component.				
	The flux-generating current component is based on the nominal flux, which is calculated from the motor parameters (P0340 - Calculation of motor parameters).				
	Dependency: Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.				
	Note: The flux-generating current component is generally constant up to the base speed of the motor; above base speed, this component is weakened (field weakening) thus enabling an increase in motor speed but at reduced torque.				
r0030	CO: Torque gen. current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays torque-generating current component.				
	The torque-generating current component is calculated from the torque setpoint values delivered by the speed regulator.				
	Dependency: Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.				
	Note: For asynchronous motors, a limit is calculated for the torque generating current component (in conjunction with the maximum possible output voltage (r0071), motor leakage and current field weakening (r0377)) and this prevents motor stalling.				
r0031	CO: Act. torque	Datatype: Float	Unit: Nm	Min: - Def: - Max: -	Level: 2
	P-Group: CONTROL				
	Displays motor torque.				

r0032	CO: Act. power	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: CONTROL				
	Displays motor power.				
	Dependency: Value is displayed in [kW] or [hp] depending on setting for P0100 (operation for Europe / North America).				
r0035[3]	CO: Act. motor temperature	Datatype: Float	Unit: °C	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays measured motor temperature.				
r0036	CO: Inverter overload utilization	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: INVERTER				
	Displays inverter overload utilization calculated via I2t model.				
	The actual I2t value relative to the max. possible I2t value supplies utilization in [%].				
	If the nominal current of the inverter is not exceeded, 0 % utilization will be displayed.				
	If the current exceeds the threshold for P0294 (inverter I2t overload warning), warning A0504 (inverter overtemperature) is generated and the output current of the inverter reduced via P0290 (inverter overload reaction).				
	If 100 % utilization is exceeded, alarm F0005 (inverter I2T) is tripped.				
r0037[2]	CO: Inverter temperature [°C]	Datatype: Float	Unit: °C	Min: - Def: - Max: -	Level: 3
	P-Group: INVERTER				
	Displays measured heatsink temperature and calculated junction temperature of IGBTs based on thermal model.				
	Index: r0037[0] : Measured heat sink temperature r0037[1] : Chip temperature				
r0038	CO: Act. power factor	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays actual power factor.				
	Dependency: Applies when V/f control is selected in P1300 (control mode); otherwise, the display shows the value zero.				
r0039	CO: Energy consumpt. meter [kWh]	Datatype: Float	Unit: kWh	Min: - Def: - Max: -	Level: 2
	P-Group: INVERTER				
	Displays electrical energy used by inverter since display was last reset (see P0040 - reset energy consumption meter).				
	Dependency: Value is reset when P3900 = 1 (end quick commissioning), P0970 = 1 (factory reset) or P0040 = 1 (reset energy consumption meter).				
P0040	Reset energy consumption meter	Datatype: U16	Unit: -	Min: 0 Def: 0 Max: 1	Level: 2
	CStat: CT Active: first confirm QuickComm. No				
	P-Group: INVERTER				
	Resets value of parameter r0039 (energy consumption meter) to zero.				
	Settings: 0 No reset 1 Reset r0039 to 0				
	Dependency: No reset until "P" is pressed.				
r0050	CO: Active command data set	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: COMMANDS				
	Displays currently selected and active binector and connector (BICO) data set.				
	Settings: 0 1st. Command data set (CDS) 1 2nd. Command data set (CDS) 2 3rd. Command data set (CDS)				

r0051[2]	CO: Active drive data set	Datatype: U16	Unit: -	Min: -	Level: 2
	P-Group: COMMANDS			Def: - Max: -	

Displays currently selected and active drive data set.

Settings:

0 1st. Drive data set (DDS)
1 2nd. Drive data set (DDS)
2 3rd. Drive data set (DDS)

Index:

r0051[0] : Selected drive data set
r0051[1] : Active drive data set

r0052	CO/BO: Act. status word 1	Datatype: U16	Unit: -	Min: -	Level: 2
	P-Group: COMMANDS			Def: - Max: -	

Displays first active status word of inverter (bit format) and can be used to diagnose inverter status. The display segments for the status word are shown in the "Introduction to MICROMASTER System Parameters".

Bitfields:

Bit00	Drive ready	0	NO
		1	YES
Bit01	Drive ready to run	0	NO
		1	YES
Bit02	Drive running	0	NO
		1	YES
Bit03	Drive fault active	0	NO
		1	YES
Bit04	OFF2 active	0	YES
		1	NO
Bit05	OFF3 active	0	YES
		1	NO
Bit06	ON inhibit active	0	NO
		1	YES
Bit07	Drive warning active	0	NO
		1	YES
Bit08	Deviation setp. / act. value	0	YES
		1	NO
Bit09	PZD control	0	NO
		1	YES
Bit10	Maximum frequency reached	0	NO
		1	YES
Bit11	Warning: Motor current limit	0	YES
		1	NO
Bit12	Motor holding brake active	0	NO
		1	YES
Bit13	Motor overload	0	YES
		1	NO
Bit14	Motor runs direction right	0	NO
		1	YES
Bit15	Inverter overload	0	YES
		1	NO

Note:

Output of Bit 3 (Fault) will be inverted on digital output (Low = Fault, High = No Fault).

r0053	CO/BO: Act. status word 2	Min: -	Level: 2
	Datatype: U16	Def: -	
	Unit: -	Max: -	
P-Group: COMMANDS			

Displays second status word of inverter (in bit format).

Bitfields:

Bit00	DC brake active	0	NO
		1	YES
Bit01	Act. freq. r0024 > P2167	0	NO
		1	YES
Bit02	Act. freq. r0024 > P1080	0	NO
		1	YES
Bit03	Act. current r0027 >= P2170	0	NO
		1	YES
Bit04	Act. freq. r0024 > P2155	0	NO
		1	YES
Bit05	Act. freq. r0024 <= P2155	0	NO
		1	YES
Bit06	Act. freq. r0024 >= setpoint	0	NO
		1	YES
Bit07	Act. Vdc r0026 < P2172	0	NO
		1	YES
Bit08	Act. Vdc r0026 > P2172	0	NO
		1	YES
Bit09	Ramping finished	0	NO
		1	YES
Bit10	PID output r2294 < P2291	0	NO
		1	YES
Bit11	PID output r2294 >= P2291	0	NO
		1	YES
Bit14	Download data set 0 from AOP	0	NO
		1	YES
Bit15	Download data set 1 from AOP	0	NO
		1	YES

Details:

See description of seven-segment display given in the introduction

r0054	CO/BO: Act. control word 1	Min: -	Level: 3
	Datatype: U16	Def: -	
	Unit: -	Max: -	
P-Group: COMMANDS			

Displays first control word of inverter and can be used to diagnose which commands are active.

Bitfields:

Bit00	ON/OFF1	0	NO
		1	YES
Bit01	OFF2: Electrical stop	0	YES
		1	NO
Bit02	OFF3: Fast stop	0	YES
		1	NO
Bit03	Pulse enable	0	NO
		1	YES
Bit04	RFG enable	0	NO
		1	YES
Bit05	RFG start	0	NO
		1	YES
Bit06	Setpoint enable	0	NO
		1	YES
Bit07	Fault acknowledge	0	NO
		1	YES
Bit08	JOG right	0	NO
		1	YES
Bit09	JOG left	0	NO
		1	YES
Bit10	Control from PLC	0	NO
		1	YES
Bit11	Reverse (setpoint inversion)	0	NO
		1	YES
Bit13	Motor potentiometer MOP up	0	NO
		1	YES
Bit14	Motor potentiometer MOP down	0	NO
		1	YES
Bit15	CDS Bit 0 (Local/Remote)	0	NO
		1	YES

Details:

See description of seven-segment display given in the introduction

r0055	CO/BO: Add. act. control word	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMMANDS			Def: - Max: -	

Displays additional control word of inverter and can be used to diagnose which commands are active.

Bitfields:

Bit00	Fixed frequency Bit 0	0	NO
		1	YES
Bit01	Fixed frequency Bit 1	0	NO
		1	YES
Bit02	Fixed frequency Bit 2	0	NO
		1	YES
Bit03	Fixed frequency Bit 3	0	NO
		1	YES
Bit04	Drive data set (DDS) Bit 0	0	NO
		1	YES
Bit05	Drive data set (DDS) Bit 1	0	NO
		1	YES
Bit08	PID enabled	0	NO
		1	YES
Bit09	DC brake enabled	0	NO
		1	YES
Bit11	Droop	0	NO
		1	YES
Bit12	Torque control	0	NO
		1	YES
Bit13	External fault 1	0	YES
		1	NO
Bit15	Command data set (CDS) Bit 1	0	NO
		1	YES

Details:

See description of seven-segment display given in the introduction

r0056	CO/BO: Status of motor control	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: CONTROL			Def: - Max: -	

Displays status of motor control (MM420: V/f status), which can be used to diagnose inverter status.

Bitfields:

Bit00	Init. control finished	0	NO
		1	YES
Bit01	Motor demagnetizing finished	0	NO
		1	YES
Bit02	Pulses enabled	0	NO
		1	YES
Bit03	Voltage soft start select	0	NO
		1	YES
Bit04	Motor excitation finished	0	NO
		1	YES
Bit05	Starting boost active	0	NO
		1	YES
Bit06	Acceleration boost active	0	NO
		1	YES
Bit07	Frequency is negative	0	NO
		1	YES
Bit08	Field weakening active	0	NO
		1	YES
Bit09	Volts setpoint limited	0	NO
		1	YES
Bit10	Slip frequency limited	0	NO
		1	YES
Bit11	F_out > F_max Freq. limited	0	NO
		1	YES
Bit12	Phase reversal selected	0	NO
		1	YES
Bit13	I-max controller active	0	NO
		1	YES
Bit14	Vdc-max controller active	0	NO
		1	YES
Bit15	Vdc-min controller active	0	NO
		1	YES

Details:

See description of seven-segment display given in the introduction

r0061	CO: Act. rotor speed	Datatype: Float	Unit: Hz	Min: -	Level: 4
	P-Group: CONTROL			Def: - Max: -	

Displays current speed detected by encoder.

r0062	CO: Freq. setpoint	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays speed setpoint of vector controller.					
r0063	CO: Act. frequency	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays actual speed.					
r0064	CO: Dev. frequency controller	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays actual deviation of speed controller.					
This value is calculated from the speed setpoint (r0062) and the actual speed (r0063).					
Dependency:					
Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.					
r0065	CO: Slip frequency	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays slip frequency of motor in [%] relative to the rated motor frequency (P0310).					
Details:					
For V/f control, see also P1335 (slip compensation)					
r0066	CO: Act. output frequency	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays actual output frequency.					
Note:					
The output frequency is limited by the values entered in P1080 (min. frequency) and P1082 (max. frequency).					
r0067	CO: Act. output current limit	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays valid maximum output current of drive.					
This value is influenced by P0640 (max. output current), the derating characteristics and the thermal motor and inverter protection.					
Dependency:					
P0610 (motor I2t temperature reaction) defines reaction when limit is reached.					
Note:					
Normally, current limit = rated motor current (P0305) x motor current limit (P0640). It is less than or equal to maximum inverter current r0209.					
The current limit may be reduced if the motor thermal model calculation indicates that overheating will occur.					
r0068	CO: Output current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
Displays unfiltered [rms] value of motor current [A].					
Note:					
Used for process control purposes (in contrast to r0027 (output current), which is filtered and is used to display the value on the BOP/AOP).					
r0069[3]	CO: Act. phase currents	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
Displays phase currents.					
Index:					
r0069[0] : U_phase					
r0069[1] : V_phase					
r0069[2] : W_phase					

r0070	CO: Act. DC-link voltage	Datatype: Float	Unit: V	Min: - Def: - Max: -	Level: 3
	P-Group: INVERTER				
	Displays (unfiltered) DC-link voltage.				
	Note:	Used for process control purposes (in contrast to r0026 (actual DC-link voltage), which is filtered and is used to display the value on the BOP/AOP).			
r0071	CO: Max. output voltage	Datatype: Float	Unit: V	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays maximum output voltage.				
	Dependency:	Actual maximum output voltage depends on the actual input supply voltage.			
r0072	CO: Act. output voltage	Datatype: Float	Unit: V	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays output voltage.				
r0074	CO: Actual modulation	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
	Displays actual modulation index.				
	The modulation index is defined as ratio between the magnitude of the fundamental component in the inverter phase output voltage and half of the dc-link voltage.				
r0075	CO: Current setpoint Isd	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays setpoint of flux generating current component.				
	Dependency:	Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.			
r0076	CO: Act. current Isd	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays flux generating current component.				
	Dependency:	Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.			
r0077	CO: Current setpoint Isq	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays setpoint for component of torque generating current.				
	Dependency:	Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.			
r0078	CO: Act. current Isq	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays component of torque generating current.				
r0079	CO: Torque setpoint (total)	Datatype: Float	Unit: Nm	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays total torque setpoint.				
	Dependency:	Applies when vector control is selected in P1300 (control mode); otherwise, the display shows the value zero.			
r0080	CO: Actual torque	Datatype: Float	Unit: Nm	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
	Displays actual torque.				

r0084	CO: Act. air gap flux	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
	Displays air gap flux in [%] relative to the rated motor flux.				
r0086	CO: Act. active current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays active (real part) of motor current.				
	Dependency: Applies when V/f control is selected in P1300 (control mode); otherwise, the display shows the value zero.				
r0090	CO: Act. rotor angle	Datatype: Float	Unit: °	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
	Displays current position detected by encoder				
P0095[10]	CI: Display PZD signals	Datatype: U32	Unit: -	Min: 0:0 Def: 0:0 Max: 4000:0	Level: 3
	CStat: CT	Active: first confirm	QuickComm. No		
	P-Group: CONTROL				
	Selects source of display for PZD signals.				
	Index:	P0095[0] : 1st. PZD signal P0095[1] : 2nd. PZD signal P0095[2] : 3rd. PZD signal P0095[3] : 4th. PZD signal P0095[4] : 5th. PZD signal P0095[5] : 6th. PZD signal P0095[6] : 7th. PZD signal P0095[7] : 8th. PZD signal P0095[8] : 9th. PZD signal P0095[9] : 10th. PZD signal			
r0096[10]	PZD signals	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 3
	P-Group: CONTROL				
	Displays PZD signals in [%].				
	Index:	r0096[0] : 1st. PZD signal r0096[1] : 2nd. PZD signal r0096[2] : 3rd. PZD signal r0096[3] : 4th. PZD signal r0096[4] : 5th. PZD signal r0096[5] : 6th. PZD signal r0096[6] : 7th. PZD signal r0096[7] : 8th. PZD signal r0096[8] : 9th. PZD signal r0096[9] : 10th. PZD signal			
	Note:	r0096 = 100 % corresponds to 4000 hex			

P0100	Europe / North America			Min: 0	Level: 1
	CStat: C	Datatype: U16	Unit: -	Def: 0	
	P-Group: QUICK	Active: first confirm	QuickComm. Yes	Max: 2	

Determines whether power settings (e.g. nominal rating plate power - P0307) are expressed in [kW] or [hp].

The default settings for the nominal rating plate frequency (P0310) and maximum motor frequency (P1082) are also set automatically here, in addition to reference frequency (P2000).

Settings:

0 Europe [kW], frequency default 50 Hz
 1 North America [hp], frequency default 60 Hz
 2 North America [kW], frequency default 60 Hz

Dependency:

The setting of DIP switch 2 under the I/O board determines the validity of settings 0 and 1 for P0100 according to the table below:

DIP 2 setting	Meaning		P0100 setting	Meaning
OFF	[kW], frequency default 50 [Hz]	overwrites	1	[hp], frequency default 60 [Hz]
ON	[hp], frequency default 60 [Hz]	overwrites	0	[kW], frequency default 50 [Hz]

Stop drive first (i.e. disable all pulses) before you change this parameter.

P0010 = 1 (commissioning mode) enables changes to be made.

Changing P0100 resets all rated motor parameters as well as other parameters that depend on the rated motor parameters (see P0340 - calculation of motor parameters).

Notice:

P0100 setting 2 (==> [kW], frequency default 60 [Hz]) is not overwritten by the setting of DIP switch 2 (see table above).

r0200	Act. power stack code number			Min: -	Level: 3
		Datatype: U32	Unit: -	Def: -	
	P-Group: INVERTER			Max: -	

Identifies hardware variant as shown in table below.

No.	MLFB	No.	MLFB	No.	MLFB
41	6SE6440-2UC11-2AA0	74	6SE6440-2UC33-0FA0	105	6SE6440-2AD33-0EA0
42	6SE6440-2UC12-5AA0	75	6SE6440-2UC33-7FA0	106	6SE6440-2AD33-7EA0
43	6SE6440-2UC13-7AA0	76	6SE6440-2UC34-5FA0	107	6SE6440-2UD34-5FA0
44	6SE6440-2UC15-5AA0	80	6SE6440-2UD13-7AA0	108	6SE6440-2UD35-5FA0
45	6SE6440-2UC17-5AA0	81	6SE6440-2UD15-5AA0	109	6SE6440-2UD37-5FA0
46	6SE6440-2AB11-2AA0	82	6SE6440-2UD17-5AA0	110	6SE6440-2AD34-5FA0
47	6SE6440-2AB12-5AA0	83	6SE6440-2UD21-1AA0	111	6SE6440-2AD35-5FA0
48	6SE6440-2AB13-7AA0	84	6SE6440-2UD21-5AA0	112	6SE6440-2AD37-5FA0
49	6SE6440-2AB15-5AA0	85	6SE6440-2UD22-2BA0	113	6SE6440-2UE17-5CA0
50	6SE6440-2AB17-5AA0	86	6SE6440-2UD23-0BA0	114	6SE6440-2UE21-5CA0
51	6SE6440-2UC21-1BA0	87	6SE6440-2UD24-0BA0	115	6SE6440-2UE22-2CA0
52	6SE6440-2UC21-5BA0	88	6SE6440-2AD22-2BA0	116	6SE6440-2UE24-0CA0
53	6SE6440-2UC22-2BA0	89	6SE6440-2AD23-0BA0	117	6SE6440-2UE25-5CA0
54	6SE6440-2AB21-1BA0	90	6SE6440-2AD24-0BA0	118	6SE6440-2UE27-5CA0
55	6SE6440-2AB21-5BA0	91	6SE6440-2UD25-5CA0	119	6SE6440-2UE31-1CA0
56	6SE6440-2AB22-2BA0	92	6SE6440-2UD27-5CA0	120	6SE6440-2UE31-5DA0
57	6SE6440-2UC23-0CA0	93	6SE6440-2UD31-1CA0	121	6SE6440-2UE31-8DA0
58	6SE6440-2UC24-0CA0	94	6SE6440-2AD25-5CA0	122	6SE6440-2UE32-2DA0
59	6SE6440-2UC25-5CA0	95	6SE6440-2AD27-5CA0	123	6SE6440-2UE33-0EA0
60	6SE6440-2AB23-0CA0	96	6SE6440-2AD31-1CA0	124	6SE6440-2UE33-7EA0
61	6SE6440-2AC23-0CA0	97	6SE6440-2UD31-5DA0	125	6SE6440-2UE34-5FA0
62	6SE6440-2AC24-0CA0	98	6SE6440-2UD31-8DA0	126	6SE6440-2UE35-5FA0
63	6SE6440-2AC25-5CA0	99	6SE6440-2UD32-2DA0	127	6SE6440-2UE37-5FA0
64	6SE6440-2UC27-5DA0	100	6SE6440-2AD31-5DA0		
65	6SE6440-2UC31-1DA0	101	6SE6440-2AD31-8DA0		
66	6SE6440-2UC31-5DA0	102	6SE6440-2AD32-2DA0		
70	6SE6440-2UC31-8EA0	103	6SE6440-2UD33-0EA0		
71	6SE6440-2UC32-2EA0	104	6SE6440-2UD33-7EA0		

Notice:

Parameter r0200 = 0 indicates that no power stack has been identified.

P0201	Power stack code number	Min: 0	Level:
	CStat: C Datatype: U16 Unit: - Def: 0		3
	P-Group: INVERTER Active: first confirm QuickComm. No Max: 65535		

Confirms actual power stack identified.

r0203	Act. inverter type	Min: -	Level:
	Datatype: U16 Unit: - Def: -		3
	P-Group: INVERTER Max: -		

Type number of actual power stack identified.

Settings:

- 1 MICROMASTER 420
- 2 MICROMASTER 440
- 3 MICRO- / COMBIMASTER 411
- 4 MICROMASTER 410
- 5 Reserved

r0204	Power stack features	Min: -	Level:
	Datatype: U32 Unit: - Def: -		3
	P-Group: INVERTER Max: -		

Displays hardware features of power stack.

Bitfields:

Bit00	DC input voltage	0	NO
		1	YES
Bit01	RFI filter	0	NO
		1	YES

Note:

Parameter r0204 = 0 indicates that no power stack has been identified.

P0205	Inverter application	Min: 0	Level:
	CStat: C Datatype: U16 Unit: - Def: 0		3
	P-Group: INVERTER Active: first confirm QuickComm. Yes Max: 1		

Selects inverter application.

Constant torque (CT):

CT is used if the application needs a constant torque on the whole frequency range.

Variable torque (VT):

VT is used if the application has a parabolic frequency-torque characteristic like many fans and pumps.

Variable torque allows with the same inverter:

- * Higher rated inverter current r0207
- * Higher rated inverter power r0206
- * Higher threshold for I2t protection

If P0205 is modified in quick commissioning it immediately calculates various motor parameters

- 1. Rated motor current P0305 (Level 2)
- 2. Rated motor power P0307 (Level 2)
- 3. Motor overload factor P0640 (Level 2)
- 4. Control mode P1300 (Level 2)

It is recommended to modify P0205 first. Afterwards motor parameter may be adapted. Motor parameter will be overridden by changing this sequence.

Settings:

- 0 Constant torque
- 1 Variable torque

Note:

The parameter value is not reset by the factory setting (see P970).

To set P0205 = 1 (variable torque) is not possible for all inverters.

Notice:

Use setting 1 (variable torque) only for variable-torque applications (e.g. pumps and fans). If used for constant-load applications, I2t warning will be produced too late, causing overheating in the motor.

r0206	Rated inverter power [kW] / [hp]	Min: -	Level:
	Datatype: Float Unit: - Def: -		2
	P-Group: INVERTER Max: -		

Displays nominal rated motor power from inverter.

Dependency:

Value is displayed in [kW] or [hp] depending on setting for P0100 (operation for Europe / North America).

r0207	Rated inverter current	Min: -	Level:
	Datatype: Float Unit: A Def: -		2
	P-Group: INVERTER Max: -		

Displays maximum continuous output current of inverter.

r0208	Rated inverter voltage	Datatype: U32	Unit: V	Min: - Def: - Max: -	Level: 2
	P-Group: INVERTER				

Displays nominal AC supply voltage of inverter.

Value:

r0208 = 230 : 200 - 240 V +/- 10 %
r0208 = 400 : 380 - 480 V +/- 10 %
r0208 = 575 : 500 - 600 V +/- 10 %

r0209	Maximum inverter current	Datatype: Float	Unit: A	Min: - Def: - Max: -	Level: 2
	P-Group: INVERTER				

Displays maximum output current of inverter.

P0210	Supply voltage			Min: 0 Def: 230 Max: 1000	Level: 3
	CStat: CT	Datatype: U16	Unit: V		
	P-Group: INVERTER	Active: Immediately	QuickComm. No		

Optimizes Vdc controller, which extends the ramp-down time if regenerative energy from motor would otherwise cause DC link overvoltage trips.

Reducing the value enables controller to cut in earlier and reduce the risk of overvoltage.

Dependency:

Set P1254 ("Auto detect Vdc switch-on levels") = 0. Cut-in levels for Vdc-controller and compound braking are then derived directly from P0210 (supply voltage).

Vdc_min switch-on level = $P1245 * V_{mains}$
Vdc_max switch-on level = $1.15 * \sqrt{2} * V_{mains}$
Compound braking switch-on level = $1.13 * \sqrt{2} * V_{mains}$
Dynamic braking switch-on level = $1.13 * \sqrt{2} * V_{mains}$

Note:

If mains voltage is higher than value entered, automatic deactivation of the Vdc controller may occur to avoid acceleration of the motor. An alarm will be issued in this case (A0910).

r0231[2]	Max. cable length	Datatype: U16	Unit: m	Min: - Def: - Max: -	Level: 3
	P-Group: INVERTER				

Indexed parameter to display maximum allowable cable length between inverter and motor.

Index:

r0231[0] : Max. allowed unscreened cable length
r0231[1] : Max. allowed screened cable length

Notice:

For full EMC compliance, the screened cable must not exceed 25 m in length when an EMC filter is fitted.

P0290	Inverter overload reaction			Min: 0 Def: 2 Max: 3	Level: 3
	CStat: CT	Datatype: U16	Unit: -		
	P-Group: INVERTER	Active: first confirm	QuickComm. No		

Selects reaction of inverter to an internal over-temperature.

Settings:

0 Reduce output frequency (usually only effective on variable torque appl.)
1 Trip (F0004)
2 Reduce pulse frequency and output frequency
3 Reduce pulse frequency then trip (F0004)

Notice:

A trip will always result eventually, if the action taken does not sufficiently reduce internal temperature.

The pulse frequency is normally reduced only if higher than 2 kHz (see P0291 - configuration of inverter protection).

P0291[3]	Config. of inverter protection				Min: 0	Level: 4
	CStat: CT	Datatype: U16	Unit: -	Def: 1		
	P-Group: INVERTER	Active: Immediately	QuickComm. No	Max: 7		

Control bit for enabling/disabling automatic pulse frequency reduction at output frequencies below 2 Hz. Bit2 shows if phase loss is enabled after factory reset. Depends on framsize.

Bitfields:

Bit00	Pulse freq reduced below 2Hz	0	NO
		1	YES
Bit01	Dead time compensation	0	NO
		1	YES
Bit02	Phase loss detection enable	0	NO
		1	YES

Index:

P0291[0] : 1st. Drive data set (DDS)
 P0291[1] : 2nd. Drive data set (DDS)
 P0291[2] : 3rd. Drive data set (DDS)

Details:

See P0290 (inverter overload reaction)

P0292	Inverter overload warning				Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: °C	Def: 15		
	P-Group: INVERTER	Active: first confirm	QuickComm. No	Max: 25		

Defines temperature difference (in [°C]) between inverter over-temperature trip and warning thresholds.

P0294	Inverter I2t overload warning				Min: 10.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: %	Def: 95.0		
	P-Group: INVERTER	Active: first confirm	QuickComm. No	Max: 100.0		

Defines the [%] value at which warning A0504 (inverter overtemperature) is generated.

Inverter I2t calculation is used to estimate a maximum tolerable period for inverter overload. The I2t calculation value is deemed = 100 % when this maximum tolerable period is reached.

Dependency:

Motor overload factor (P0640) reduced to 100 % at this point.

Note:

P0294 = 100 % corresponds to stationary nominal load.

P0295	Inverter fan off delay time				Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: s	Def: 0		
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 3600		

Defines inverter fan switch off delay time in seconds after drive has stopped.

Note:

Setting to 0, inverter fan will switch off when the drive stops, that is no delay.

P0300[3]	Select motor type	Datatype: U16	Unit: -	Min: 1	Level: 2
	CStat: C	Active: first confirm	QuickComm. Yes	Def: 1	
	P-Group: MOTOR			Max: 2	

Selects motor type.

This parameter is required during commissioning to select motor type and optimize inverter performance. Most motors are asynchronous; if in doubt, use the formula below.
(rated motor frequency (P0310) * 60) / rated motor speed (P0311)

If the result is a whole number, the motor is synchronous.

Settings:

- 1 Asynchronous rotational motor
- 2 Synchronous rotational motor

Index:

P0300[0] : 1st. Drive data set (DDS)
P0300[1] : 2nd. Drive data set (DDS)
P0300[2] : 3rd. Drive data set (DDS)

Dependency:

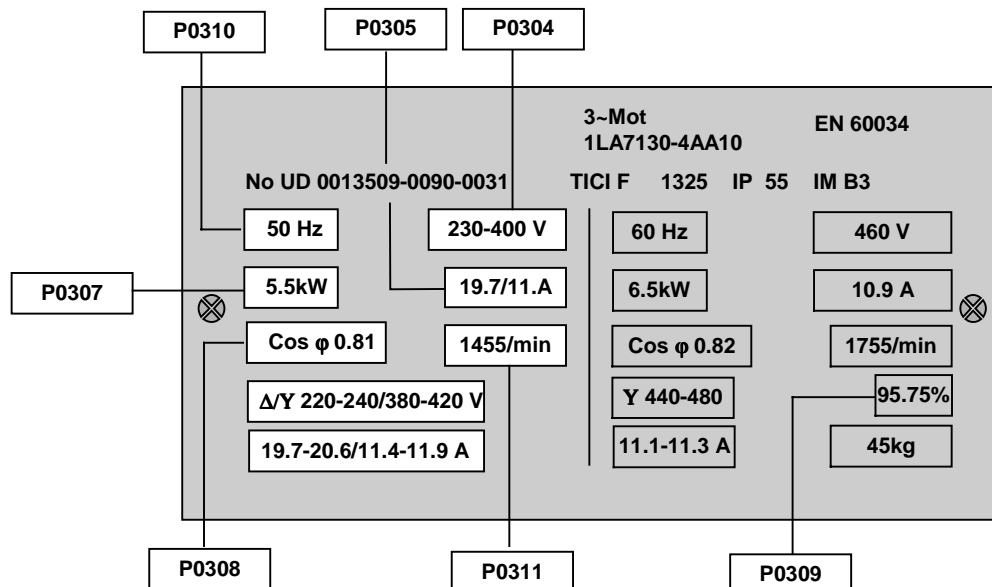
Changeable only when P0010 = 1 (quick commissioning).

If synchronous motor is selected, the following functions are not available:

Power factor (P0308)
Motor efficiency (P0309)
Magnetization time (P0346 (Level 3))
Demagnetization time (P0347 (Level 3))
Flying start (P1200, P1202 (Level 3), P1203 (Level 3))
DC braking (P1230 (Level 3), P1232, P1233)
Slip compensation (P1335)
Slip limit (P1336)
Motor magnetizing current (P0320 (Level 3)),
Rated motor slip (P0330),
Rated magnetization current (P0331),
Rated power factor (P0332),
Rotor time constant (P0384)

P0304[3]	Rated motor voltage	Datatype: U16	Unit: V	Min: 10	Level: 1
	CStat: C	Active: first confirm	QuickComm. Yes	Def: 230	
	P-Group: MOTOR			Max: 2000	

Nominal motor voltage [V] from rating plate. Following diagram shows a typical rating plate with the locations of the relevant motor data.



Index:

P0304[0] : 1st. Drive data set (DDS)
P0304[1] : 2nd. Drive data set (DDS)
P0304[2] : 3rd. Drive data set (DDS)

Dependency:

Changeable only when P0010 = 1 (quick commissioning).

P0305[3]	Rated motor current	Min: 0.01	Level: 1	
	CStat: C	Datatype: Float		Unit: A
	P-Group: MOTOR	Active: first confirm		QuickComm. Yes

Nominal motor current [A] from rating plate - see diagram in P0304.

Index:

- P0305[0] : 1st. Drive data set (DDS)
- P0305[1] : 2nd. Drive data set (DDS)
- P0305[2] : 3rd. Drive data set (DDS)

Dependency:

Changeable only when P0010 = 1 (quick commissioning).

Depends also on P0320 (motor magnetization current).

Note:

For asynchronous motors, the maximum value is defined as the maximum inverter current (r0209).

For synchronous motors, the maximum value is defined as twice the maximum inverter current (r0209)

The minimum value is defined as 1/32 times inverter rated current (r0207).

P0307[3]	Rated motor power	Min: 0.01	Level: 1	
	CStat: C	Datatype: Float		Unit: -
	P-Group: MOTOR	Active: first confirm		QuickComm. Yes

Nominal motor power [kW/hp] from rating plate.

Index:

- P0307[0] : 1st. Drive data set (DDS)
- P0307[1] : 2nd. Drive data set (DDS)
- P0307[2] : 3rd. Drive data set (DDS)

Dependency:

If P0100 = 1 ([kW],frequency default 50 Hz), values will be in [hp] - see diagram P0304 (rating plate).

Changeable only when P0010 = 1 (quick commissioning).

P0308[3]	Rated motor cosPhi	Min: 0.000	Level: 2	
	CStat: C	Datatype: Float		Unit: -
	P-Group: MOTOR	Active: first confirm		QuickComm. Yes

Nominal motor power factor (cosPhi) from rating plate - see diagram P0304.

Index:

- P0308[0] : 1st. Drive data set (DDS)
- P0308[1] : 2nd. Drive data set (DDS)
- P0308[2] : 3rd. Drive data set (DDS)

Dependency:

Changeable only when P0010 = 1 (quick commissioning).

Visible only when P0100 = 0 or 2, (motor power entered in [kW]).

Setting 0 causes internal calculation of value (see r0332).

P0309[3]	Rated motor efficiency	Min: 0.0	Level: 2	
	CStat: C	Datatype: Float		Unit: %
	P-Group: MOTOR	Active: first confirm		QuickComm. Yes

Nominal motor efficiency in [%] from rating plate.

Index:

- P0309[0] : 1st. Drive data set (DDS)
- P0309[1] : 2nd. Drive data set (DDS)
- P0309[2] : 3rd. Drive data set (DDS)

Dependency:

Changeable only when P0010 = 1 (quick commissioning).

Visible only when P0100 = 1, (i.e. motor power entered in [hp]).

Setting 0 causes internal calculation of value (see r0332).

Note:

P0309 = 100 % corresponds to superconducting.

Details:

See diagram in P0304 (rating plate)

P0310[3]	Rated motor frequency	Min: 12.00	Level:
CStat: C	Datatype: Float	Unit: Hz	Def: 50.00
P-Group: MOTOR	Active: first confirm	QuickComm. Yes	Max: 650.00
1			
Nominal motor frequency [Hz] from rating plate.			
Index:			
P0310[0] : 1st. Drive data set (DDS)			
P0310[1] : 2nd. Drive data set (DDS)			
P0310[2] : 3rd. Drive data set (DDS)			
Dependency:			
Changeable only when P0010 = 1 (quick commissioning).			
Pole pair number recalculated automatically if parameter is changed.			
Details:			
See diagram in P0304 (rating plate)			
P0311[3]	Rated motor speed	Min: 0	Level:
CStat: C	Datatype: U16	Unit: 1/min	Def: 0
P-Group: MOTOR	Active: first confirm	QuickComm. Yes	Max: 40000
1			
Nominal motor speed [rpm] from rating plate.			
Index:			
P0311[0] : 1st. Drive data set (DDS)			
P0311[1] : 2nd. Drive data set (DDS)			
P0311[2] : 3rd. Drive data set (DDS)			
Dependency:			
Changeable only when P0010 = 1 (quick commissioning).			
Setting 0 causes internal calculation of value.			
Required for vector control and V/f control with speed controller.			
Slip compensation in V/f control requires rated motor speed for correct operation.			
Pole pair number recalculated automatically if parameter is changed.			
Details:			
See diagram in P0304 (rating plate)			
r0313[3]	Motor pole pairs	Min: -	Level:
	Datatype: U16	Unit: -	Def: -
P-Group: MOTOR		Max: -	3
Displays number of motor pole pairs that the inverter is currently using for internal calculations.			
Value:			
r0313 = 1 : 2-pole motor			
r0313 = 2 : 4-pole motor			
etc.			
Index:			
r0313[0] : 1st. Drive data set (DDS)			
r0313[1] : 2nd. Drive data set (DDS)			
r0313[2] : 3rd. Drive data set (DDS)			
Dependency:			
Recalculated automatically when P0310 (rated motor frequency) or P0311 (rated motor speed) is changed.			
P0314[3]	Motor pole pair number	Min: 0	Level:
CStat: C	Datatype: U16	Unit: -	Def: 0
P-Group: MOTOR	Active: first confirm	QuickComm. No	Max: 99
4			
Specifies number of pole pairs of motor.			
Value:			
P0314 = 1 : 2-pole motor			
P0314 = 2 : 4-pole motor			
etc.			
Index:			
P0314[0] : 1st. Drive data set (DDS)			
P0314[1] : 2nd. Drive data set (DDS)			
P0314[2] : 3rd. Drive data set (DDS)			
Dependency:			
Recalculated automatically when P0310 (rated motor frequency) or P0311 (rated motor speed) is changed.			

P0320[3]	Motor magnetizing current	Min: 0.0	Level: 3	
	CStat: CT	Datatype: Float		Def: 0.0
	P-Group: MOTOR	Active: Immediately		QuickComm. Yes Max: 99.0

Defines motor magnetization current in [%] relative to P0305 (rated motor current).

Index:

- P0320[0] : 1st. Drive data set (DDS)
- P0320[1] : 2nd. Drive data set (DDS)
- P0320[2] : 3rd. Drive data set (DDS)

Dependency:

Affected by P0366 - P0369 (magnetizing curve imag. 1 - 4) Setting 0 causes calculation by P0340 = 1 (data entered from rating plate) or by P3900 = 1 or 2 (end of quick commissioning).

r0330[3]	Rated motor slip	Min: -	Level: 3	
	Datatype: Float	Unit: %		Def: -
	P-Group: MOTOR	Max: -		

Displays nominal motor slip in [%] relative to P0310 (rated motor frequency) and P0311 (rated motor speed).

Index:

- r0330[0] : 1st. Drive data set (DDS)
- r0330[1] : 2nd. Drive data set (DDS)
- r0330[2] : 3rd. Drive data set (DDS)

r0331[3]	Rated magnetization current	Min: -	Level: 3	
	Datatype: Float	Unit: A		Def: -
	P-Group: MOTOR	Max: -		

Displays calculated magnetizing current of motor in [A].

Index:

- r0331[0] : 1st. Drive data set (DDS)
- r0331[1] : 2nd. Drive data set (DDS)
- r0331[2] : 3rd. Drive data set (DDS)

r0332[3]	Rated power factor	Min: -	Level: 3	
	Datatype: Float	Unit: -		Def: -
	P-Group: MOTOR	Max: -		

Displays power factor for motor

Index:

- r0332[0] : 1st. Drive data set (DDS)
- r0332[1] : 2nd. Drive data set (DDS)
- r0332[2] : 3rd. Drive data set (DDS)

Dependency:

Value is calculated internally if P0308 (rated motor cosPhi) set to 0; otherwise, value entered in P0308 is displayed.

r0333[3]	Rated motor torque	Min: -	Level: 3	
	Datatype: Float	Unit: Nm		Def: -
	P-Group: MOTOR	Max: -		

Displays rated motor torque.

Index:

- r0333[0] : 1st. Drive data set (DDS)
- r0333[1] : 2nd. Drive data set (DDS)
- r0333[2] : 3rd. Drive data set (DDS)

Dependency:

Value is calculated from P0310 (rated motor power) and P0311 (rated motor speed).

P0335[3]	Motor cooling	Min: 0	Level: 2	
	CStat: CT	Datatype: U16		Def: 0
	P-Group: MOTOR	Active: first confirm		QuickComm. Yes Max: 3

Selects motor cooling system used.

Settings:

- 0 Self-cooled: Using shaft mounted fan attached to motor
- 1 Force-cooled: Using separately powered cooling fan
- 2 Self-cooled and internal fan
- 3 Force-cooled and internal fan

Index:

- P0335[0] : 1st. Drive data set (DDS)
- P0335[1] : 2nd. Drive data set (DDS)
- P0335[2] : 3rd. Drive data set (DDS)

Notice:

Motors of series 1LA1 and 1LA8 have an internal fan. This internal motor fan must not be confused with the fan at the end of the motor shaft.

P0340[3]	Calculation of motor parameters				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: MOTOR	Active: first confirm	QuickComm. No	Max: 4		

Calculates various motor parameters, including:

Motor weight	P0344 (Level 3)
Magnetization time	P0346 (Level 3)
Demagnetization time	P0347 (Level 3)
Stator resistance	P0350 (Level 2)
Reference frequency	P2000 (Level 2)
Reference current	P2002 (Level 3)

Settings:

0	No calculation
1	Complete parameterization
2	Calc. equivalent circuit data
3	Calc. V/f and vector control
4	Calc. only controller setting

Index:

P0340[0]	: 1st. Drive data set (DDS)
P0340[1]	: 2nd. Drive data set (DDS)
P0340[2]	: 3rd. Drive data set (DDS)

Note:

This parameter is required during commissioning to optimize inverter performance.

P0341[3]	Motor inertia [kg*m²]				Min: 0.00010	Level: 3
	CStat: CUT	Datatype: Float	Unit: -	Def: 0.00180		
	P-Group: MOTOR	Active: Immediately	QuickComm. No	Max: 1000.0		

Sets no-load inertia of motor.

Together with P0342 (inertia ratio total/motor) and P1496 (scaling factor acceleration), this value produces the acceleration torque (r1517), which can be added to any additional torque produced from a BICO source (P1511), and incorporated in the torque control function.

Index:

P0341[0]	: 1st. Drive data set (DDS)
P0341[1]	: 2nd. Drive data set (DDS)
P0341[2]	: 3rd. Drive data set (DDS)

Note:

The result of
P0341 * P0342 (inertia ratio total/motor) = total motor inertia
and is included in the speed controller calculation.

P1496 (scaling factor acceleration) = 100 % activates acceleration pre-control for the speed controller and calculates the torque from P0341 (motor inertia) and P0342 (inertia ratio total/motor).

P0342[3]	Inertia ratio total/motor				Min: 1.000	Level: 3
	CStat: CUT	Datatype: Float	Unit: -	Def: 1.000		
	P-Group: MOTOR	Active: Immediately	QuickComm. No	Max: 400.000		

Specifies ratio between total inertia (load + motor) and motor inertia.

Index:

P0342[0]	: 1st. Drive data set (DDS)
P0342[1]	: 2nd. Drive data set (DDS)
P0342[2]	: 3rd. Drive data set (DDS)

P0344[3]	Motor weight				Min: 1.0	Level: 3
	CStat: CUT	Datatype: Float	Unit: kg	Def: 9.4		
	P-Group: MOTOR	Active: Immediately	QuickComm. No	Max: 6500.0		

Specifies motor weight [kg].

Index:

P0344[0]	: 1st. Drive data set (DDS)
P0344[1]	: 2nd. Drive data set (DDS)
P0344[2]	: 3rd. Drive data set (DDS)

Note:

This value is used in the motor thermal model.

It is normally calculated automatically from P0340 (motor parameters) but can also be entered manually.

r0345[3]	Motor start-up time	Datatype: Float	Unit: s	Min: -	Level: 3
	P-Group: MOTOR			Def: - Max: -	

Displays motor start-up time. This time corresponds to the standardized motor inertia.

The start-up time is the time taken to reach rated motor speed from standstill at acceleration with rated motor torque (r0333).

Index:

- r0345[0] : 1st. Drive data set (DDS)
- r0345[1] : 2nd. Drive data set (DDS)
- r0345[2] : 3rd. Drive data set (DDS)

P0346[3]	Magnetization time	Datatype: Float	Unit: s	Min: 0.000	Level: 3
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 1.000 Max: 20.000	

Sets magnetization time [s], i.e. waiting time between pulse enable and start of ramp-up. Motor magnetization builds up during this time.

Magnetization time is normally calculated automatically from the motor data and corresponds to the rotor time constant (r0384).

Index:

- P0346[0] : 1st. Drive data set (DDS)
- P0346[1] : 2nd. Drive data set (DDS)
- P0346[2] : 3rd. Drive data set (DDS)

Note:

If boost settings are higher than 100 %, magnetization may be reduced.

Notice:

An excessive reduction of this time can result in insufficient motor magnetization.

P0347[3]	Demagnetization time	Datatype: Float	Unit: s	Min: 0.000	Level: 3
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 1.000 Max: 20.000	

Changes time allowed after OFF2 / fault condition, before pulses can be re-enabled.

Index:

- P0347[0] : 1st. Drive data set (DDS)
- P0347[1] : 2nd. Drive data set (DDS)
- P0347[2] : 3rd. Drive data set (DDS)

Note:

The demagnetization time is approximately 2.5 x rotor time constant (r0384) in seconds.

Notice:

Not active following a normally completed ramp-down, e.g. after OFF1, OFF3 or JOG.

Overcurrent trips will occur if the time is decreased excessively.

P0350[3]	Stator resistance (line-to-line)	Datatype: Float	Unit: Ohm	Min: 0.00001	Level: 2
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 4.0 Max: 2000.0	

Stator resistance value in [Ohms] for connected motor (from line-to-line). The parameter value includes the cable resistance.

There are three ways to determine the value for this parameter:

1. Calculate using P0340 = 1 (data entered from rating plate) or P3900 = 1,2 or 3 (end of quick commissioning)
2. Measure using P1910 = 1 (motor data identification - value for stator resistance is overwritten)
3. Measure manually using an Ohmmeter.

Index:

- P0350[0] : 1st. Drive data set (DDS)
- P0350[1] : 2nd. Drive data set (DDS)
- P0350[2] : 3rd. Drive data set (DDS)

Note:

Since measured line-to-line, this value may appear to be higher (up to 2 times higher) than expected.

The value entered in P0350 (stator resistance) is the one obtained by the method last used.

P0352[3]	Cable resistance	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: Ohm Def: 0.0		3
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 120.0		
Describes cable resistance between inverter and motor for one phase.			
The value corresponds to the resistance of the cable between the inverter and the motor, relative to the rated impedance.			
Index:			
P0352[0] : 1st. Drive data set (DDS)			
P0352[1] : 2nd. Drive data set (DDS)			
P0352[2] : 3rd. Drive data set (DDS)			
P0354[3]	Rotor resistance	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: Ohm Def: 10.0		4
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 300.0		
Sets rotor resistance of motor equivalent circuit (phase value).			
Index:			
P0354[0] : 1st. Drive data set (DDS)			
P0354[1] : 2nd. Drive data set (DDS)			
P0354[2] : 3rd. Drive data set (DDS)			
Dependency:			
Calculated automatically using the motor model or determined using P1910 (motor identification).			
P0356[3]	Stator leakage inductance	Min: 0.00001	Level:
	CStat: CUT Datatype: Float Unit: - Def: 10.0		4
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 1000.0		
Sets stator leakage inductance [mH] of motor equivalent circuit (phase value).			
Index:			
P0356[0] : 1st. Drive data set (DDS)			
P0356[1] : 2nd. Drive data set (DDS)			
P0356[2] : 3rd. Drive data set (DDS)			
Dependency:			
Calculated automatically using the motor model or determined using P1910 (motor identification).			
P0358[3]	Rotor leakage inductance	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: - Def: 10.0		4
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 1000.0		
Sets rotor leakage inductance [mH] of motor equivalent circuit (phase value).			
Index:			
P0358[0] : 1st. Drive data set (DDS)			
P0358[1] : 2nd. Drive data set (DDS)			
P0358[2] : 3rd. Drive data set (DDS)			
Dependency:			
Calculated automatically using the motor model or determined using P1910 (motor identification).			
P0360[3]	Main inductance	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: - Def: 10.0		4
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 3000.0		
Sets main inductance [mH] of the motor equivalent circuit (phase value).			
Index:			
P0360[0] : 1st. Drive data set (DDS)			
P0360[1] : 2nd. Drive data set (DDS)			
P0360[2] : 3rd. Drive data set (DDS)			
Dependency:			
Calculated automatically using the motor model or determined using P1910 (motor identification).			
P0362[3]	Magnetizing curve flux 1	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 60.0		4
	P-Group: MOTOR Active: Immediately QuickComm. No Max: 300.0		
Specifies first (lowest) flux value of saturation characteristic in [%] relative to rated motor voltage (P0304).			
Index:			
P0362[0] : 1st. Drive data set (DDS)			
P0362[1] : 2nd. Drive data set (DDS)			
P0362[2] : 3rd. Drive data set (DDS)			
Note:			
P0362 = 100 % corresponds to rated motor flux			
Rated flux = rated EMF			
Notice:			
The value belongs to the first magnetizing current value and must be smaller than or equal to magnetizing curve flux 2 (P0363).			
Details:			
See P0365 (magnetizing curve flux 4).			

P0363[3]	Magnetizing curve flux 2	Min: 0.0	Level: 4		
	CStat: CUT	Datatype: Float		Unit: %	Def: 85.0
	P-Group: MOTOR	Active: Immediately		QuickComm. No	Max: 300.0

Specifies second flux value of saturation characteristic in [%] relative to rated motor voltage (P0304).

Index:

- P0363[0] : 1st. Drive data set (DDS)
- P0363[1] : 2nd. Drive data set (DDS)
- P0363[2] : 3rd. Drive data set (DDS)

Note:

P0363 = 100 % corresponds to rated motor flux

Rated flux = rated EMF

Notice:

The value belongs to the second magnetizing current value and must be smaller than or equal to magnetizing curve flux 3 (P0364) and greater than or equal to magnetizing curve flux 1 (P0362).

Details:

See P0365 (magnetizing curve flux 4).

P0364[3]	Magnetizing curve flux 3	Min: 0.0	Level: 4		
	CStat: CUT	Datatype: Float		Unit: %	Def: 115.0
	P-Group: MOTOR	Active: Immediately		QuickComm. No	Max: 300.0

Specifies third (highest) flux value of saturation characteristic in [%] relative to rated motor voltage (P0304).

Index:

- P0364[0] : 1st. Drive data set (DDS)
- P0364[1] : 2nd. Drive data set (DDS)
- P0364[2] : 3rd. Drive data set (DDS)

Note:

P0364 = 100 % corresponds to rated motor flux

Rated flux = rated EMF

Notice:

The value belongs to the third magnetizing current value and must be smaller than or equal to magnetizing curve flux 4 (P0365) and greater than or equal to magnetizing curve flux 2 (P0363).

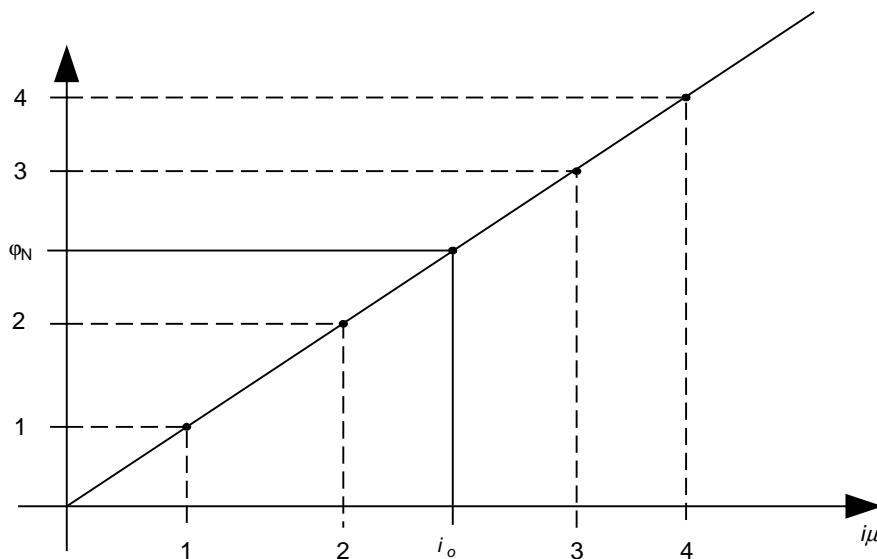
Details:

See P0365 (magnetizing curve flux 4).

P0365[3]	Magnetizing curve flux 4			Min: 0.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: %	Def: 125.0	
	P-Group: MOTOR	Active: Immediately	QuickComm. No	Max: 300.0	

Specifies fourth (highest) flux value of saturation characteristic in [%] relative to rated motor voltage (P0304).

The parameter settings for the values of imag 1 to imag 4 are illustrated in the diagram below.



Index:

- P0365[0] : 1st. Drive data set (DDS)
- P0365[1] : 2nd. Drive data set (DDS)
- P0365[2] : 3rd. Drive data set (DDS)

Note:

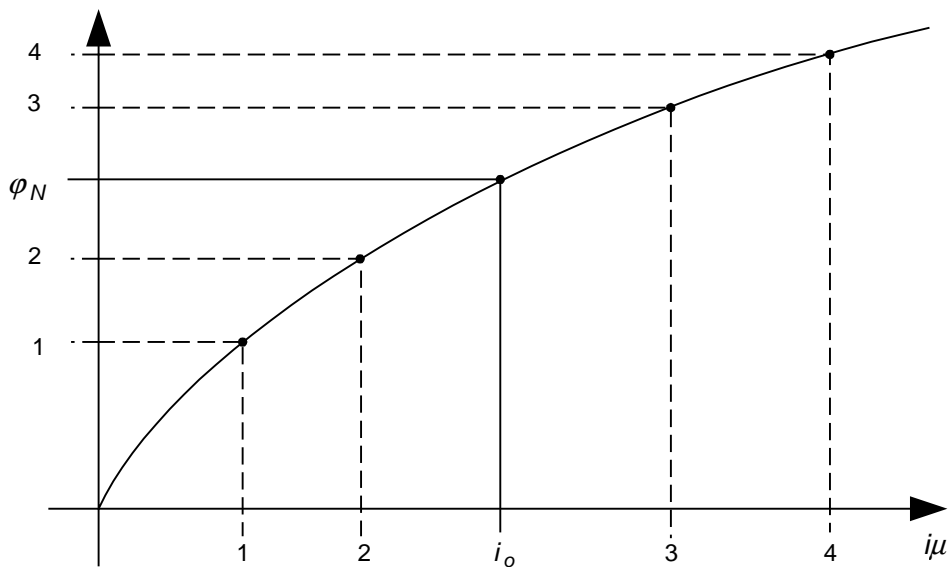
P0365 = 100 % corresponds to rated motor flux

Rated flux = rated EMF

Notice:

The value belongs to the third magnetizing current value and must be greater than or equal to magnetizing curve flux 3 (P0364).

If the magnetization values entered in P0362 to P0365 do not match, a linear characteristic is applied internally as shown in the following diagram:

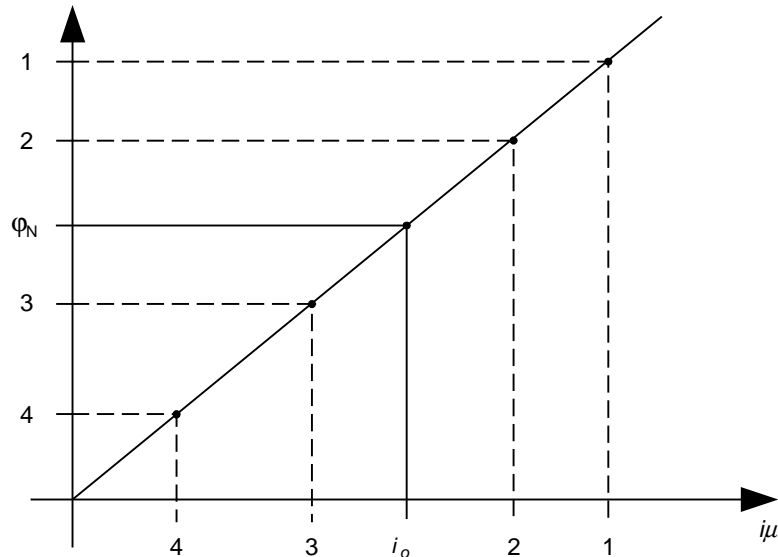


P0366[3]	Magnetizing curve imag 1	Min: 0.0	Level: 4
	CStat: CUT Datatype: Float Unit: % Def: 50.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 500.0		
	Specifies first (lowest) magnetizing current value of the saturation characteristic in [%] relative to the rated magnetizing current (P0331).		
Index:	P0366[0] : 1st. Drive data set (DDS) P0366[1] : 2nd. Drive data set (DDS) P0366[2] : 3rd. Drive data set (DDS)		
Dependency:	Affects P0320 (motor magnetizing current).		
Notice:	The value belongs to the first flux value and must be less than or equal to magnetizing curve imag 2 (P0367).		
Details:	See P0369 (magnetizing curve imag 4).		
P0367[3]	Magnetizing curve imag 2	Min: 0.0	Level: 4
	CStat: CUT Datatype: Float Unit: % Def: 75.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 500.0		
	Specifies second magnetizing current value of saturation characteristic in [%] relative to rated magnetizing current (P0331).		
Index:	P0367[0] : 1st. Drive data set (DDS) P0367[1] : 2nd. Drive data set (DDS) P0367[2] : 3rd. Drive data set (DDS)		
Dependency:	Affects P0320 (motor magnetizing current).		
Notice:	The value belongs to the second flux value and must be less than or equal to magnetizing curve imag 3 (P0368) and greater than or equal to magnetizing curve imag 1 (P0366).		
Details:	See diagram in P0369 (magnetizing curve imag 4).		
P0368[3]	Magnetizing curve imag 3	Min: 0.0	Level: 4
	CStat: CUT Datatype: Float Unit: % Def: 135.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 500.0		
	Specifies third (lowest) magnetizing current value of saturation characteristic in [%] relative to rated magnetizing current (P0331).		
Index:	P0368[0] : 1st. Drive data set (DDS) P0368[1] : 2nd. Drive data set (DDS) P0368[2] : 3rd. Drive data set (DDS)		
Dependency:	Affects P0320 (motor magnetizing current).		
Notice:	The value belongs to the third flux value and must be less than or equal to magnetizing curve imag 4 (P0369) and greater than or equal to magnetizing curve imag 2 (P0367).		
Details:	See P0369 (magnetizing curve imag 4).		

P0369[3]	Magnetizing curve imag 4			Min: 0.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: %	Def: 170.0	
	P-Group: MOTOR	Active: Immediately	QuickComm. No	Max: 500.0	

Specifies fourth (lowest) magnetizing current value of saturation characteristic in [%] relative to rated magnetizing current (P0331).

The parameter settings for the values of imag 1 to imag 4 are illustrated in the diagram below.

**Index:**

P0369[0] : 1st. Drive data set (DDS)
P0369[1] : 2nd. Drive data set (DDS)
P0369[2] : 3rd. Drive data set (DDS)

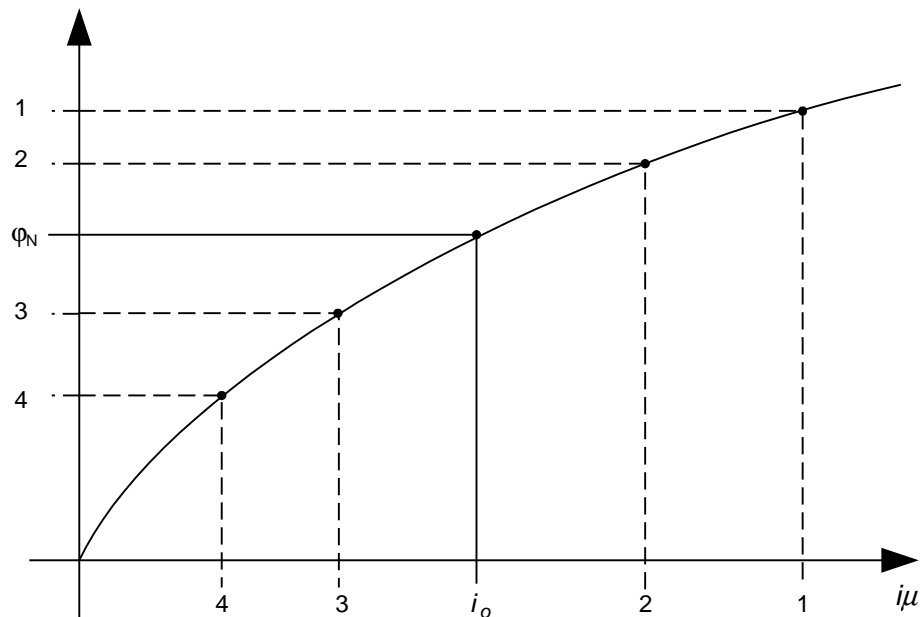
Dependency:

Affects P0320 (motor magnetizing current).

Notice:

The value belongs to the third flux value and must be less than or equal to magnetizing curve imag 3 (P0368).

If the magnetization values entered in P0366 to P0369 do not match, a linear characteristic is applied internally as shown in the following diagram:



r0370[3]	Stator resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				

Displays standardized stator resistance of motor equivalent circuit (phase value) in [%].

Index:

- r0370[0] : 1st. Drive data set (DDS)
- r0370[1] : 2nd. Drive data set (DDS)
- r0370[2] : 3rd. Drive data set (DDS)

Note:

100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$

r0372[3]	Cable resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				

Displays standardized cable resistance of motor equivalent circuit (phase value)in [%]. It is estimated to be 20 % of the stator resistance.

Index:

- r0372[0] : 1st. Drive data set (DDS)
- r0372[1] : 2nd. Drive data set (DDS)
- r0372[2] : 3rd. Drive data set (DDS)

Note:

100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$

r0373[3]	Rated stator resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				

Displays rated stator resistance of the motor equivalent circuit (phase value) in [%].

Index:

- r0373[0] : 1st. Drive data set (DDS)
- r0373[1] : 2nd. Drive data set (DDS)
- r0373[2] : 3rd. Drive data set (DDS)

Note:

100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$

r0374[3]	Rotor resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				

Displays standardized rotor resistance of the motor equivalent circuit (phase value) in [%].

Index:

- r0374[0] : 1st. Drive data set (DDS)
- r0374[1] : 2nd. Drive data set (DDS)
- r0374[2] : 3rd. Drive data set (DDS)

Note:

100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$

r0376[3]	Rated rotor resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				

Displays rated rotor resistance of the motor equivalent circuit (phase value) in [%].

Index:

- r0376[0] : 1st. Drive data set (DDS)
- r0376[1] : 2nd. Drive data set (DDS)
- r0376[2] : 3rd. Drive data set (DDS)

Note:

100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$

r0377[3]	Total leakage reactance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
	Displays standardized total leakage reactance of the motor equivalent circuit (phase value) in [%].				
Index:	r0377[0] : 1st. Drive data set (DDS) r0377[1] : 2nd. Drive data set (DDS) r0377[2] : 3rd. Drive data set (DDS)				
Note:	100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$				
r0382[3]	Main reactance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
	Displays standardized main reactance of the motor equivalent circuit (phase value) in [%].				
Index:	r0382[0] : 1st. Drive data set (DDS) r0382[1] : 2nd. Drive data set (DDS) r0382[2] : 3rd. Drive data set (DDS)				
Note:	100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$				
r0384[3]	Rotor time constant	Datatype: Float	Unit: ms	Min: - Def: - Max: -	Level: 3
	P-Group: MOTOR				
	Displays calculated rotor time constant [ms].				
Index:	r0384[0] : 1st. Drive data set (DDS) r0384[1] : 2nd. Drive data set (DDS) r0384[2] : 3rd. Drive data set (DDS)				
r0386[3]	Total leakage time constant	Datatype: Float	Unit: ms	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
	Displays total leakage time constant of motor.				
Index:	r0386[0] : 1st. Drive data set (DDS) r0386[1] : 2nd. Drive data set (DDS) r0386[2] : 3rd. Drive data set (DDS)				
r0394	CO: Stator resistance IGBT [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
	Displays stator resistance calculated in [%] from IGBT ON voltage and current amplitude .				
Note:	100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$				
r0395	CO: Total stator resistance [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 3
	P-Group: MOTOR				
	Displays stator resistance of motor as [%] of combined stator/cable resistance.				
Note:	100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$				
r0396	CO: Act. rotor resistance	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 3
	P-Group: MOTOR				
	Displays (adapted) rotor resistance of the motor equivalent circuit (phase value) in [%].				
Note:	100 % means : $Z_{ratedmot} * \frac{P0304}{P0305}$				
Notice:	Values greater than 25 % tend to produce excessive motor slip. Check rated motor speed [rpm] value (P0311).				

P0400[3]	Select encoder type	Min: 0	Level: 4	
	CStat: CT	Datatype: U16		Def: 0
	P-Group: ENCODER	Active: Immediately		QuickComm. No

Selects encoder type.

The term "quadrature" in settings 2 and 3 refers to two periodic functions separated by a quarter cycle or 90 degrees.

Settings:

- 0 Disabled
- 1 Single channel encoder
- 2 Quadrature encoder without zero pulse
- 3 External pulse train
- " Quadrature encoder with zero pulse

Index:

- P0400[0] : 1st. Drive data set (DDS)
- P0400[1] : 2nd. Drive data set (DDS)
- P0400[2] : 3rd. Drive data set (DDS)

P0408[3]	No. of encoder pulses	Min: 2	Level: 4	
	CStat: CT	Datatype: U16		Def: 1024
	P-Group: ENCODER	Active: Immediately		QuickComm. No

Specifies the number of encoder pulses per revolution.

Index:

- P0408[0] : 1st. Drive data set (DDS)
- P0408[1] : 2nd. Drive data set (DDS)
- P0408[2] : 3rd. Drive data set (DDS)

P0500[3]	Technological application	Min: 0	Level: 4	
	CStat: CT	Datatype: U16		Def: 0
	P-Group: TECH_APL	Active: first confirm		QuickComm. Yes

Selects technological application. Sets control mode (P1300 - Level 2).

Settings:

- 0 Constant torque
- 1 Pumps and fans

Index:

- P0500[0] : 1st. Drive data set (DDS)
- P0500[1] : 2nd. Drive data set (DDS)
- P0500[2] : 3rd. Drive data set (DDS)

P0601[3]	Motor temperature sensor	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: MOTOR	Active: first confirm		QuickComm. No

Selects motor temperature sensor.

Settings:

- 0 No sensor
- 1 PTC thermistor
- 2 KTY84

Index:

- P0601[0] : 1st. Drive data set (DDS)
- P0601[1] : 2nd. Drive data set (DDS)
- P0601[2] : 3rd. Drive data set (DDS)

Dependency:

If "no sensor" is selected, the motor temperature monitoring will be done based on the estimated value of the thermal motor model.

P0604[3]	Threshold motor temperature	Min: 0.0	Level: 2	
	CStat: CUT	Datatype: Float		Def: 130.0
	P-Group: MOTOR	Active: Immediately		QuickComm. No

Enters warning threshold for motor temperature protection. The trip or I_{max} reduction temperature defined in the P0600 (reaction to motor temperature) is always 10 % higher than the warning level.

Index:

- P0604[0] : 1st. Drive data set (DDS)
- P0604[1] : 2nd. Drive data set (DDS)
- P0604[2] : 3rd. Drive data set (DDS)

Dependency:

Warning effective only when "Temperature sensor" chosen (i.e., no PTC).

Note:

Default value depends on P0300 (select motor type).

P0610[3]	Motor I2t temperature reaction	Min: 0	Level:
	CStat: CT Datatype: U16 Unit: - Def: 2 P-Group: MOTOR Active: first confirm QuickComm. No Max: 2		3
	Defines reaction when motor temperature reaches warning threshold.		
Settings:	0 No reaction, warning only 1 Warning and I _{max} reduction (results in reduced output freq.) 2 Warning and trip (F0011)		
Dependency:	Trip level = P0604 (motor temperature warning level) * 105 %		
P0625[3]	Ambient motor temperature	Min: -40.0	Level:
	CStat: CUT Datatype: Float Unit: °C Def: 20.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 80.0		3
	Measures ambient temperature of motor at time of motor data identification.		
Index:	P0625[0] : 1st. Drive data set (DDS) P0625[1] : 2nd. Drive data set (DDS) P0625[2] : 3rd. Drive data set (DDS)		
P0626[3]	Overtemperature stator iron	Min: 20.0	Level:
	CStat: CUT Datatype: Float Unit: °C Def: 50.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 200.0		4
	Measures overtemperature of stator iron.		
Index:	P0626[0] : 1st. Drive data set (DDS) P0626[1] : 2nd. Drive data set (DDS) P0626[2] : 3rd. Drive data set (DDS)		
Note:	Temperature rises are valid for sinusoidal operations (line supply temperature rises). Temperature rises due to converter operation (modulation losses) and output filter are also considered.		
P0627[3]	Overtemperature stator winding	Min: 20.0	Level:
	CStat: CUT Datatype: Float Unit: °C Def: 80.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 200.0		4
	Measures overtemperature of the stator winding.		
Index:	P0627[0] : 1st. Drive data set (DDS) P0627[1] : 2nd. Drive data set (DDS) P0627[2] : 3rd. Drive data set (DDS)		
Note:	Temperature rises are valid for sinusoidal operations (line supply temperature rises). Temperature rises due to converter operation (modulation losses) and output filter are also considered.		
P0628[3]	Overtemperature rotor winding	Min: 20.0	Level:
	CStat: CUT Datatype: Float Unit: °C Def: 100.0 P-Group: MOTOR Active: Immediately QuickComm. No Max: 200.0		4
	Measures overtemperature of the rotor winding.		
Index:	P0628[0] : 1st. Drive data set (DDS) P0628[1] : 2nd. Drive data set (DDS) P0628[2] : 3rd. Drive data set (DDS)		
Note:	Temperature rises are valid for sinusoidal operations (line supply temperature rises). Temperature rises due to converter operation (modulation losses) and output filter are also considered.		
r0630[3]	CO: Ambient temperature	Min: -	Level:
	Datatype: Float Unit: °C Def: - P-Group: MOTOR Active: - QuickComm. - Max: -		4
	Displays ambient temperature of motor mass model.		
Index:	r0630[0] : 1st. Drive data set (DDS) r0630[1] : 2nd. Drive data set (DDS) r0630[2] : 3rd. Drive data set (DDS)		

r0631[3]	CO: Stator iron temperature	Datatype: Float	Unit: °C	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
Displays iron temperature of motor mass model.					
Index: r0631[0] : 1st. Drive data set (DDS) r0631[1] : 2nd. Drive data set (DDS) r0631[2] : 3rd. Drive data set (DDS)					
r0632[3]	CO: Stator winding temperature	Datatype: Float	Unit: °C	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
Displays stator winding temperature of motor mass model.					
Index: r0632[0] : 1st. Drive data set (DDS) r0632[1] : 2nd. Drive data set (DDS) r0632[2] : 3rd. Drive data set (DDS)					
r0633[3]	CO: Rotor winding temperature	Datatype: Float	Unit: °C	Min: - Def: - Max: -	Level: 4
	P-Group: MOTOR				
Displays rotor winding temperature of motor mass model.					
Index: r0633[0] : 1st. Drive data set (DDS) r0633[1] : 2nd. Drive data set (DDS) r0633[2] : 3rd. Drive data set (DDS)					
P0640[3]	Motor overload factor [%]	Datatype: Float	Unit: %	Min: 10.0 Def: 150.0 Max: 400.0	Level: 2
	CStat: CUT Active: Immediately QuickComm. Yes				
P-Group: MOTOR					
Defines motor overload current limit in [%] relative to P0305 (rated motor current). current.					
Index: P0640[0] : 1st. Drive data set (DDS) P0640[1] : 2nd. Drive data set (DDS) P0640[2] : 3rd. Drive data set (DDS)					
Dependency: Limited to maximum inverter current or to 400 % of rated motor current (P0305), whichever is the lower.					
Details: See function diagram for current limitation.					
P0700[3]	Selection of command source	Datatype: U16	Unit: -	Min: 0 Def: 2 Max: 6	Level: 1
	CStat: CT Active: first confirm QuickComm. Yes				
P-Group: COMMANDS					
Selects digital command source.					
Settings:					
0 Factory default setting					
1 BOP (keypad)					
2 Terminal					
4 USS on BOP link					
5 USS on COM link					
6 CB on COM link					
Index: P0700[0] : 1st. Command data set (CDS) P0700[1] : 2nd. Command data set (CDS) P0700[2] : 3rd. Command data set (CDS)					
Note: Changing this parameter resets (to default) all settings on item selected. For example: Changing form 1 to 2 resets all digital inputs to default settings.					

P0701[3]	Function of digital input 1				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 1		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 1.

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 15 Fixed setpoint (Direct selection)
- 16 Fixed setpoint (Direct selection + ON)
- 17 Fixed setpoint (Binary coded selection + ON)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0701[0] : 1st. Command data set (CDS)
- P0701[1] : 2nd. Command data set (CDS)
- P0701[2] : 3rd. Command data set (CDS)

Dependency:

Setting 99 (enable BICO parameterization) requires P0700 (command source) or P3900 (end of quick commissioning) = 1, 2 or P0970 (factory reset) = 1 in order to reset.

Notice:

Setting 99 (BICO) for expert use only.

P0702[3]	Function of digital input 2				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 12		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 2.

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 15 Fixed setpoint (Direct selection)
- 16 Fixed setpoint (Direct selection + ON)
- 17 Fixed setpoint (Binary coded selection + ON)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0702[0] : 1st. Command data set (CDS)
- P0702[1] : 2nd. Command data set (CDS)
- P0702[2] : 3rd. Command data set (CDS)

Details:

See P0701 (function of digital input1).

P0703[3]	Function of digital input 3				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 9		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 3.

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 15 Fixed setpoint (Direct selection)
- 16 Fixed setpoint (Direct selection + ON)
- 17 Fixed setpoint (Binary coded selection + ON)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0703[0] : 1st. Command data set (CDS)
- P0703[1] : 2nd. Command data set (CDS)
- P0703[2] : 3rd. Command data set (CDS)

Details:

See P0701 (function of digital input 1).

P0704[3]	Function of digital input 4				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 15		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 4.

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 15 Fixed setpoint (Direct selection)
- 16 Fixed setpoint (Direct selection + ON)
- 17 Fixed setpoint (Binary coded selection + ON)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0704[0] : 1st. Command data set (CDS)
- P0704[1] : 2nd. Command data set (CDS)
- P0704[2] : 3rd. Command data set (CDS)

Details:

See P0701 (function of digital input 1).

P0705[3]	Function of digital input 5				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 15		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 5 (via analog input)

Settings:

0	Digital input disabled
1	ON/OFF1
2	ON reverse /OFF1
3	OFF2 - coast to standstill
4	OFF3 - quick ramp-down
9	Fault acknowledge
10	JOG right
11	JOG left
12	Reverse
13	MOP up (increase freq.)
14	MOP down (decrease freq.)
15	Fixed setpoint (Direct selection)
16	Fixed setpoint (Direct selection + ON)
17	Fixed setpoint (Binary coded selection + ON)
25	DC brake enable
29	External trip
33	Disable additional freq setpoint
99	Enable BICO parameterization

Index:

P0705[0] : 1st. Command data set (CDS)
P0705[1] : 2nd. Command data set (CDS)
P0705[2] : 3rd. Command data set (CDS)

Details:

See P0701 (function of digital input 1).

P0706[3]	Function of digital input 6				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 15		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 6 (via analog input)

Settings:

0	Digital input disabled
1	ON/OFF1
2	ON reverse /OFF1
3	OFF2 - coast to standstill
4	OFF3 - quick ramp-down
9	Fault acknowledge
10	JOG right
11	JOG left
12	Reverse
13	MOP up (increase freq.)
14	MOP down (decrease freq.)
15	Fixed setpoint (Direct selection)
16	Fixed setpoint (Direct selection + ON)
17	Fixed setpoint (Binary coded selection + ON)
25	DC brake enable
29	External trip
33	Disable additional freq setpoint
99	Enable BICO parameterization

Index:

P0706[0] : 1st. Command data set (CDS)
P0706[1] : 2nd. Command data set (CDS)
P0706[2] : 3rd. Command data set (CDS)

Details:

See P0701 (function of digital input 1).

P0707[3]	Function of digital input 7				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 7 (via analog input)

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0707[0] : 1st. Command data set (CDS)
- P0707[1] : 2nd. Command data set (CDS)
- P0707[2] : 3rd. Command data set (CDS)

Note:

Signals above 4 V are active, signals below 1,6 V are inactive.

Details:

See P0701 (function of digital input 1).

P0708[3]	Function of digital input 8				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 99		

Selects function of digital input 8 (via analog input)

Settings:

- 0 Digital input disabled
- 1 ON/OFF1
- 2 ON reverse /OFF1
- 3 OFF2 - coast to standstill
- 4 OFF3 - quick ramp-down
- 9 Fault acknowledge
- 10 JOG right
- 11 JOG left
- 12 Reverse
- 13 MOP up (increase freq.)
- 14 MOP down (decrease freq.)
- 25 DC brake enable
- 29 External trip
- 33 Disable additional freq setpoint
- 99 Enable BICO parameterization

Index:

- P0708[0] : 1st. Command data set (CDS)
- P0708[1] : 2nd. Command data set (CDS)
- P0708[2] : 3rd. Command data set (CDS)

Note:

Signals above 4 V are active, signals below 1,6 V are inactive.

Details:

See P0701 (function of digital input 1).

P0719[3]	Selection of cmd. & freq. setp.				Min: 0	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 66		

Central switch to select control command source for inverter.

Switches command and setpoint source between freely programmable BICO parameters and fixed command/setpoint profiles. Command and setpoint sources can be changed independently.

The tens digit chooses the command source and the units digit chooses the setpoint source.

Settings:

0	Cmd = BICO parameter	Setpoint = BICO parameter
1	Cmd = BICO parameter	Setpoint = MOP setpoint
2	Cmd = BICO parameter	Setpoint = Analog setpoint
3	Cmd = BICO parameter	Setpoint = Fixed frequency
4	Cmd = BICO parameter	Setpoint = USS on BOP link
5	Cmd = BICO parameter	Setpoint = USS on COM link
6	Cmd = BICO parameter	Setpoint = CB on COM link
10	Cmd = BOP	Setpoint = BICO parameter
11	Cmd = BOP	Setpoint = MOP setpoint
12	Cmd = BOP	Setpoint = Analog setpoint
13	Cmd = BOP	Setpoint = Fixed frequency
14	Cmd = BOP	Setpoint = USS on BOP link
15	Cmd = BOP	Setpoint = USS on COM link
16	Cmd = BOP	Setpoint = CB on COM link
40	Cmd = USS on BOP link	Setpoint = BICO parameter
41	Cmd = USS on BOP link	Setpoint = MOP setpoint
42	Cmd = USS on BOP link	Setpoint = Analog setpoint
43	Cmd = USS on BOP link	Setpoint = Fixed frequency
44	Cmd = USS on BOP link	Setpoint = USS on BOP link
45	Cmd = USS on BOP link	Setpoint = USS on COM link
46	Cmd = USS on BOP link	Setpoint = CB on COM link
50	Cmd = USS on COM link	Setpoint = BICO parameter
51	Cmd = USS on COM link	Setpoint = MOP setpoint
52	Cmd = USS on COM link	Setpoint = Analog setpoint
53	Cmd = USS on COM link	Setpoint = Fixed frequency
54	Cmd = USS on COM link	Setpoint = USS on BOP link
55	Cmd = USS on COM link	Setpoint = USS on COM link
56	Cmd = USS on COM link	Setpoint = CB on COM link
60	Cmd = CB on COM link	Setpoint = BICO parameter
61	Cmd = CB on COM link	Setpoint = MOP setpoint
62	Cmd = CB on COM link	Setpoint = Analog setpoint
63	Cmd = CB on COM link	Setpoint = Fixed frequency
64	Cmd = CB on COM link	Setpoint = USS on BOP link
65	Cmd = CB on COM link	Setpoint = USS on COM link
66	Cmd = CB on COM link	Setpoint = CB on COM link

Index:

- P0719[0] : 1st. Command data set (CDS)
- P0719[1] : 2nd. Command data set (CDS)
- P0719[2] : 3rd. Command data set (CDS)

Note:

If set to a value other than 0 (i.e. BICO parameter is not the setpoint source), P0844 / P0848 (first source of OFF2 / OFF3) are not effective; instead, P 0845 / P0849 (second source of OFF2 / OFF3) apply and the OFF commands are obtained via the particular source defined.

BICO connections made previously remain unchanged.

r0720	Number of digital inputs				Min: -	Level: 3
		Datatype: U16	Unit: -	Def: -		
	P-Group: COMMANDS			Max: -		

Displays number of digital inputs.

r0722	CO/BO: Binary input values	Datatype: U16	Unit: -	Min: -	Level: 2
	P-Group: COMMANDS			Def: - Max: -	

Displays status of digital inputs.

Bitfields:

Bit00	Digital input 1	0	OFF
		1	ON
Bit01	Digital input 2	0	OFF
		1	ON
Bit02	Digital input 3	0	OFF
		1	ON
Bit03	Digital input 4	0	OFF
		1	ON
Bit04	Digital input 5	0	OFF
		1	ON
Bit05	Digital input 6	0	OFF
		1	ON
Bit06	Digital input 7 (via ADC 1)	0	OFF
		1	ON
Bit07	Digital input 8 (via ADC 2)	0	OFF
		1	ON

Note:

Segment is lit when signal is active.

P0724	Debounce time for digital inputs	Datatype: U16	Unit: -	Min: 0	Level: 3
	CStat: CT	Active: Immediately	QuickComm. No	Def: 3 Max: 3	

Defines debounce time (filtering time) used for digital inputs.

Settings:

0	No debounce time
1	2.5 ms debounce time
2	8.2 ms debounce time
3	12.3 ms debounce time

P0725	PNP / NPN digital inputs	Datatype: U16	Unit: -	Min: 0	Level: 3
	CStat: CT	Active: Immediately	QuickComm. No	Def: 1 Max: 1	

Switches between active high (PNP) and active low (NPN). This is valid for all digital inputs simultaneously.

The following is valid by using the internal supply:

Value:

NPN: Terminals 5/6/7/8/16/17 must be connected via terminal 28 (0 V).
PNP: Terminals 5/6/7/8/16/17 must be connected via terminal 9 (24 V).

Settings:

0	NPN mode ==> low active
1	PNP mode ==> high active

r0730	Number of digital outputs	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMMANDS			Def: - Max: -	

Displays number of digital outputs (relays).

P0731[3]	BI: Function of digital output 1				Min: 0:0	Level: 2
	CStat: CUT	Datatype: U32	Unit: -	Def: 52:3		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines source of digital output 1.

Settings:

52.0	Drive ready	0	Closed
52.1	Drive ready to run	0	Closed
52.2	Drive running	0	Closed
52.3	Drive fault active	0	Closed
52.4	OFF2 active	1	Closed
52.5	OFF3 active	1	Closed
52.6	Switch on inhibit active	0	Closed
52.7	Drive warning active	0	Closed
52.8	Deviation setpoint/actual value	1	Closed
52.9	PZD control (Process Data Control)	0	Closed
52.A	Maximum frequency reached	0	Closed
52.B	Warning: Motor current limit	1	Closed
52.C	Motor holding brake (MHB) active	0	Closed
52.D	Motor overload	1	Closed
52.E	Motor running direction right	0	Closed
52.F	Inverter overload	1	Closed
53.0	DC brake active	0	Closed
53.1	Inverter freq. less switch off limit	0	Closed
53.2	Inverter freq. less minimum freq.	0	Closed
53.3	Current greater or equal than limit	0	Closed
53.4	Act. freq. greater comparison freq.	0	Closed
53.5	Act. freq. less comparison freq.	0	Closed
53.6	Act. freq. greater/equal setpoint	0	Closed
53.7	Voltage less than threshold	0	Closed
53.8	Voltage greater than threshold	0	Closed
53.A	PID output at lower limit (P2292)	0	Closed
53.B	PID output at upper limit (P2291)	0	Closed

Index:

P0731[0] : 1st. Command data set (CDS)
P0731[1] : 2nd. Command data set (CDS)
P0731[2] : 3rd. Command data set (CDS)

P0732[3]	BI: Function of digital output 2				Min: 0:0	Level: 2
	CStat: CUT	Datatype: U32	Unit: -	Def: 52:7		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines source of digital output 2.

Settings:

52.0	Drive ready	0	Closed
52.1	Drive ready to run	0	Closed
52.2	Drive running	0	Closed
52.3	Drive fault active	0	Closed
52.4	OFF2 active	1	Closed
52.5	OFF3 active	1	Closed
52.6	Switch on inhibit active	0	Closed
52.7	Drive warning active	0	Closed
52.8	Deviation setpoint/actual value	1	Closed
52.9	PZD control (Process Data Control)	0	Closed
52.A	Maximum frequency reached	0	Closed
52.B	Warning: Motor current limit	1	Closed
52.C	Motor holding brake (MHB) active	0	Closed
52.D	Motor overload	1	Closed
52.E	Motor running direction right	0	Closed
52.F	Inverter overload	1	Closed
53.0	DC brake active	0	Closed
53.1	Inverter freq. less switch off limit	0	Closed
53.2	Inverter freq. less minimum freq.	0	Closed
53.3	Current greater or equal than limit	0	Closed
53.4	Act. freq. greater comparison freq.	0	Closed
53.5	Act. freq. less comparison freq.	0	Closed
53.6	Act. freq. greater/equal setpoint	0	Closed
53.7	Voltage less than threshold	0	Closed
53.8	Voltage greater than threshold	0	Closed
53.A	PID output at lower limit (P2292)	0	Closed
53.B	PID output at upper limit (P2291)	0	Closed

Index:

P0732[0] : 1st. Command data set (CDS)
P0732[1] : 2nd. Command data set (CDS)
P0732[2] : 3rd. Command data set (CDS)

Note:

Other settings are possible in "Expert" mode (see P0003 - user access level).

P0733[3]	BI: Function of digital output 3	Min: 0:0	Level: 2	
	CStat: CUT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No
		Def: 0:0		
		Max: 4000:0		

Defines source of digital output 2.

Settings:

52.0	Drive ready	0	Closed
52.1	Drive ready to run	0	Closed
52.2	Drive running	0	Closed
52.3	Drive fault active	0	Closed
52.4	OFF2 active	1	Closed
52.5	OFF3 active	1	Closed
52.6	Switch on inhibit active	0	Closed
52.7	Drive warning active	0	Closed
52.8	Deviation setpoint/actual value	1	Closed
52.9	PZD control (Process Data Control)	0	Closed
52.A	Maximum frequency reached	0	Closed
52.B	Warning: Motor current limit	1	Closed
52.C	Motor holding brake (MHB) active	0	Closed
52.D	Motor overload	1	Closed
52.E	Motor running direction right	0	Closed
52.F	Inverter overload	1	Closed
53.0	DC brake active	0	Closed
53.1	Inverter freq. less switch off limit	0	Closed
53.2	Inverter freq. less minimum freq.	0	Closed
53.3	Current greater or equal than limit	0	Closed
53.4	Act. freq. greater comparison freq.	0	Closed
53.5	Act. freq. less comparison freq.	0	Closed
53.6	Act. freq. greater/equal setpoint	0	Closed
53.7	Voltage less than threshold	0	Closed
53.8	Voltage greater than threshold	0	Closed
53.A	PID output at lower limit (P2292)	0	Closed
53.B	PID output at upper limit (P2291)	0	Closed

Index:

P0733[0] : 1st. Command data set (CDS)
 P0733[1] : 2nd. Command data set (CDS)
 P0733[2] : 3rd. Command data set (CDS)

Note:

Other settings are possible in "Expert" mode (see P0003 - user access level).

r0747	CO/BO: State of digital outputs	Min: -	Level: 3
	Datatype: U16	Unit: -	
	P-Group: COMMANDS	QuickComm. No	
		Def: -	
		Max: -	

Displays status of digital outputs (also includes inversion of digital outputs via P0748).

Bitfields:

Bit00	Digital output 1 energized	0	NO
		1	YES
Bit01	Digital output 2 energized	0	NO
		1	YES
Bit02	Digital output 3 energized	0	NO
		1	YES

Dependency:

Bit 0 0 = relay de-energized / contacts open
 1 = relay energized / contacts closed

P0748	Invert digital outputs	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No
		Def: 0		
		Max: 7		

Defines high and low states of relay for a given function.

Bitfields:

Bit00	Invert digital output 1	0	NO
		1	YES
Bit01	Invert digital output 2	0	NO
		1	YES
Bit02	Invert digital output 3	0	NO
		1	YES

r0750	Number of ADCs	Min: -	Level: 3
	Datatype: U16	Unit: -	
	P-Group: TERMINAL	QuickComm. No	
		Def: -	
		Max: -	

Displays number of analog inputs available.

r0751	BO: Status word of ADC	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 4
	P-Group: TERMINAL				
	Displays status of analog input.				
	Bitfields:				
	Bit00	Signal lost on ADC 1	0	NO	
			1	YES	
	Bit01	Signal lost on ADC 2	0	NO	
			1	YES	
r0752[2]	Act. input of ADC [V] or [mA]	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: TERMINAL				
	Displays smoothed analog input value in volts before the characteristic block.				
	Index:				
	r0752[0] : Analog input 1 (ADC 1)				
	r0752[1] : Analog input 2 (ADC 2)				
P0753[2]	Smooth time ADC	Datatype: U16	Unit: ms	Min: 0 Def: 3 Max: 10000	Level: 3
	CStat: CUT				
	P-Group: TERMINAL				
	Active: first confirm				
	QuickComm. No				
	Defines filter time (PT1 filter) in [ms] for analog input.				
	Index:				
	P0753[0] : Analog input 1 (ADC 1)				
	P0753[1] : Analog input 2 (ADC 2)				
	Note:				
	Increasing this time (smooth) reduces jitter but slows down response to the analog input.				
	P0753 = 0 : No filtering				
r0754[2]	Act. ADC value after scaling [%]	Datatype: Float	Unit: %	Min: - Def: - Max: -	Level: 2
	P-Group: TERMINAL				
	Shows smoothed value of analog input in [%] after scaling block.				
	Index:				
	r0754[0] : Analog input 1 (ADC 1)				
	r0754[1] : Analog input 2 (ADC 2)				
	Dependency:				
	P0757 to P0760 define range (ADC scaling)				
r0755[2]	CO: Act. ADC after scal. [4000h]	Datatype: I16	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: TERMINAL				
	Displays analog input, scaled using ASPmin and ASPmax.				
	Analog setpoint (ASP) from the analog scaling block can vary from min. analog setpoint (ASPmin) to a max. analog setpoint (ASPmax) as shown in P0757 (ADC scaling).				
	The largest magnitude (value without sign) of ASPmin and ASPmax defines the scaling of 16384.				
	Example:				
	ASPmin = 300 %, ASPmax = 100 % then 16384 represents 300 %.				
	This parameter will vary from 5461 to 16364				
	ASPmin = -200 %, ASPmax = 100 % then 16384 represents 200 %.				
	This parameter will vary from -16384 to +8192				
	Index:				
	r0755[0] : Analog input 1 (ADC 1)				
	r0755[1] : Analog input 2 (ADC 2)				
	Note:				
	This value is used as an input to analog BICO connectors.				
	ASPmax represents the highest analog setpoint (this may be at 10 V)				
	ASPmin represents the lowest analog setpoint (this may be at 0 V)				
	Details:				
	See parameters P0757 to P0760 (ADC scaling)				

P0756[2]	Type of ADC			Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0	
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 4	

Defines type of analog input and also enables analog input monitoring.

To switch over from voltage to current analog input it is not sufficient to merely modify parameter P0756. Rather, the DIPs on the terminal board must also be set to the correct position. The DIP settings are as follows:

- OFF = voltage input (10 V)
- ON = current input (20 mA)

Allocation of DIPs to analog inputs is as follows:

- DIP on left (DIP 1) = Analog input 1
- DIP on right (DIP 2) = Analog input 2

Settings:

- 0 Unipolar voltage input (0 to +10 V)
- 1 Unipolar voltage input with monitoring (0 to 10 V)
- 2 Unipolar current input (0 to 20 mA)
- 3 Unipolar current input with monitoring (0 to 20 mA)
- 4 Bipolar voltage input (-10 V to +10 V)

Index:

- P0756[0] : Analog input 1 (ADC 1)
- P0756[1] : Analog input 2 (ADC 2)

Dependency:

Function disabled if analog scaling block programmed to output negative setpoints (see P0757 to P0760).

Notice:

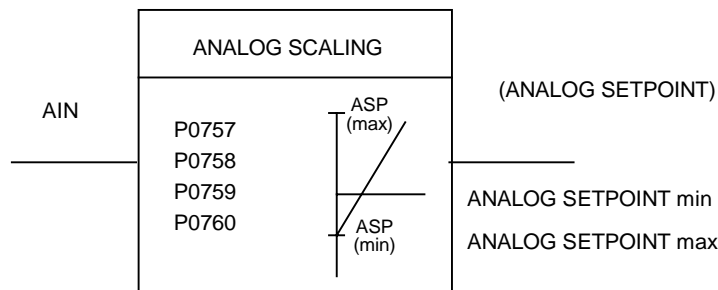
When monitoring is enabled and a deadband defined (P0761), a fault condition will be generated (F0080) if the analog input voltage falls below 50 % of the deadband voltage.

Details:

See P0757 to P0760 (ADC scaling).

P0757[2]	Value x1 of ADC scaling [V / mA]			Min: -20	Level: 2
	CStat: CUT	Datatype: Float	Unit: -	Def: 0	
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 20	

Parameters P0757 - P0760 configure the input scaling as shown in the diagram:



Where:

- Analog setpoints represent a [%] of the normalized frequency in P2000.
- Analog setpoints may be larger than 100 %
- ASPmax represents highest analog setpoint (this may be at 10 V).
- ASPmin represents lowest analog setpoint (this may be at 0 V).
- Default values provide a scaling of 0 V = 0 %, and 10 V = 100 %.

Index:

- P0757[0] : Analog input 1 (ADC 1)
- P0757[1] : Analog input 2 (ADC 2)

P0758[2]	Value y1 of ADC scaling			Min: -99999.9	Level: 2
	CStat: CUT	Datatype: Float	Unit: %	Def: 0.0	
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 99999.9	

Sets value of Y1 in [%] as described in P0757 (ADC scaling)

Index:

- P0758[0] : Analog input 1 (ADC 1)
- P0758[1] : Analog input 2 (ADC 2)

Dependency:

Affects P2000 to P2003 (reference frequency, voltage, current or torque) depending on which setpoint is to be generated.

P0759[2]	Value x2 of ADC scaling [V / mA]				Min: -20	Level: 2
	CStat: CUT	Datatype: Float	Unit: -	Def: 10		
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 20		

Sets value of X2 as described in P0757 (ADC scaling)

Index:

P0759[0] : Analog input 1 (ADC 1)

P0759[1] : Analog input 2 (ADC 2)

P0760[2]	Value y2 of ADC scaling				Min: -99999.9	Level: 2
	CStat: CUT	Datatype: Float	Unit: %	Def: 100.0		
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 99999.9		

Sets value of Y2 in [%] as described in P0757 (ADC scaling)

Index:

P0760[0] : Analog input 1 (ADC 1)

P0760[1] : Analog input 2 (ADC 2)

Dependency:

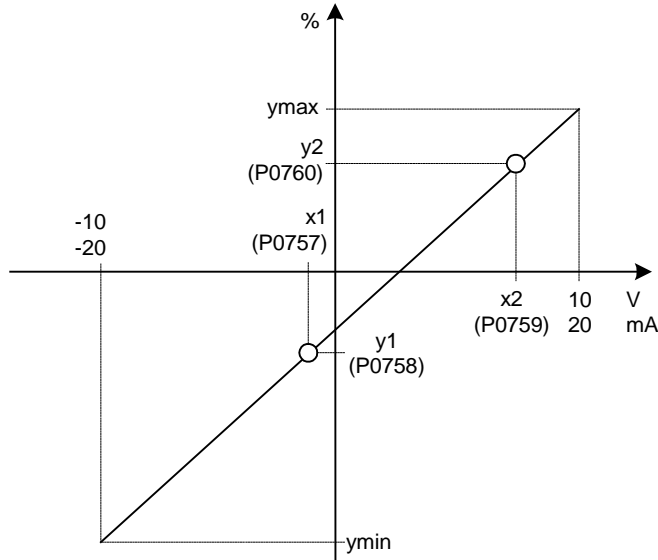
Affects P2000 to P2003 (reference frequency, voltage, current or torque) depending on which setpoint is to be generated.

P0761[2]	Width of ADC deadband [V / mA]			Min: 0	Level: 2
	CStat: CUT	Datatype: Float	Unit: -	Def: 0	
	P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 20	

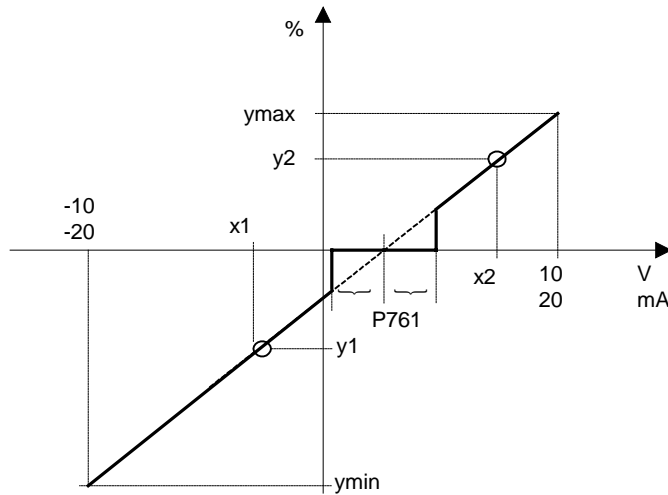
Defines width of deadband on analog input. The diagrams below explain its use

Example:

ADC value 2 to 10 V (0 to 50 Hz)
 The above example produces a 2 to 10 V analog input (0 to 50 Hz)
 P0757 = 2 V P0761 = 2 V P2000 = 50 Hz



ADC value 2 to 10 V (-50 to +50 Hz)
 The above example produces a 2 to 10 V analog input (-50 to +50 Hz) with center zero and a "holding point" 0.2 V wide.
 P0758 = -100 % P0761 = 0.1 (0.1 V to each side of center)



Index:

- P0761[0] : Analog input 1 (ADC 1)
- P0761[1] : Analog input 2 (ADC 2)

Note:

P0761[x] = 0 : No deadband active.

Notice:

Deadband starts from 0 V to value of P0761, if both values of P0758 and P0760 (y coordinates of ADC scaling) are positive or negative respectively. However, deadband is active in both directions from point of intersection (x axis with ADC scaling curve), if sign of P0758 and P0760 are opposite.

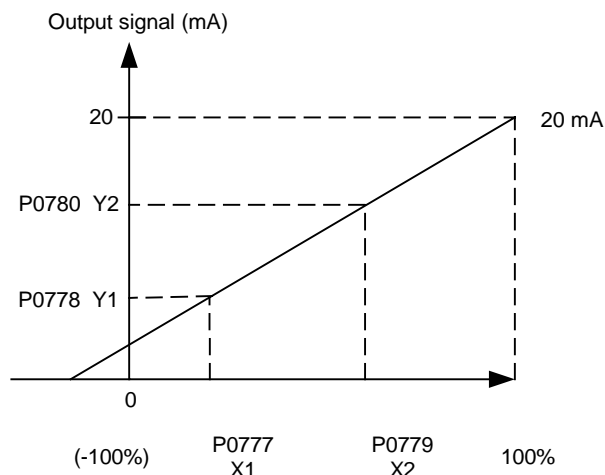
Fmin (P1080) should be zero when using center zero setup. There is no hysteresis at the end of the deadband.

P0762[2]	Delay for loss of signal action	Min: 0	Level:
CStat: CUT	Datatype: U16	Unit: ms	Def: 10
P-Group: TERMINAL	Active: Immediately	QuickComm. No	Max: 10000
3			
Defines time delay between loss of analog setpoint and appearance of fault code F0080.			
Index:			
P0762[0] : Analog input 1 (ADC 1)			
P0762[1] : Analog input 2 (ADC 2)			
Note:			
Expert users can choose the desired reaction to F0080 (default is OFF2).			
r0770	Number of DACs	Min: -	Level:
P-Group: TERMINAL	Datatype: U16	Unit: -	Def: -
			Max: -
3			
Displays number of analog outputs available.			
P0771[2]	CI: DAC	Min: 0:0	Level:
CStat: CUT	Datatype: U32	Unit: -	Def: 21:0
P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 4000:0
2			
Defines function of the 0 - 20 mA analog output.			
Settings:			
21 CO: Act. frequency (scaled to P2000)			
24 CO: Act. output frequency (scaled to P2000)			
25 CO: Act. output voltage (scaled to P2001)			
26 CO: Act. DC-link voltage (scaled to P2001)			
27 CO: Act. output current (scaled to P2002)			
Index:			
P0771[0] : Analog output 1 (DAC 1)			
P0771[1] : Analog output 2 (DAC 2)			
P0773[2]	Smooth time DAC	Min: 0	Level:
CStat: CUT	Datatype: U16	Unit: ms	Def: 2
P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 1000
3			
Defines smoothing time [ms] for analog output signal. This parameter enables smoothing for DAC input using a PT1 filter.			
Index:			
P0773[0] : Analog output 1 (DAC 1)			
P0773[1] : Analog output 2 (DAC 2)			
Dependency:			
P0773 = 0: Deactivates filter.			
r0774[2]	Act. DAC value [V] or [mA]	Min: -	Level:
P-Group: TERMINAL	Datatype: Float	Unit: -	Def: -
			Max: -
2			
Shows value of analog output in [V] or [mA] after filtering and scaling.			
Index:			
r0774[0] : Analog output 1 (DAC 1)			
r0774[1] : Analog output 2 (DAC 2)			
P0776[2]	Type of DAC	Min: 0	Level:
CStat: CT	Datatype: U16	Unit: -	Def: 0
P-Group: TERMINAL	Active: first confirm	QuickComm. No	Max: 1
4			
Defines type of analog output.			
Settings:			
0 Current output			
1 Voltage output			
Index:			
P0776[0] : Analog output 1 (DAC 1)			
P0776[1] : Analog output 2 (DAC 2)			
Note:			
The analog output is designed as a current output with a range of 0...20 mA.			
For a voltage output with a range of 0...10 V an external resistor of 500 Ohms has to be connected at the terminals			
(12/13 or 26/27).			

P0777[2]	Value x1 of DAC scaling	Min: -99999.0	Level:
	CStat: CUT	Datatype: Float	Def: 0.0
	P-Group: TERMINAL	Active: first confirm	QuickComm. No Max: 99999.0

Defines x1 output characteristic in [%]. Scaling block is responsible for adjustment of output value defined in P0771 (DAC connector input).

Parameters of DAC scaling block (P0777 ... P0781) work as follows:



Where:
Points P1 (x1, y1) and P2 (x2, y2) can be chosen freely.

Example:

The default values of the scaling block provides a scaling of P1: 0.0 % = 0 mA or 0 V and P2: 100.0 % = 20 mA or 20 V.

Index:

P0777[0] : Analog output 1 (DAC 1)
P0777[1] : Analog output 2 (DAC 2)

Dependency:

Affects P2000 to P2003 (referency frequency, voltage, current or torque) depending on which setpoint is to be generated.

P0778[2]	Value y1 of DAC scaling	Min: 0	Level:
	CStat: CUT	Datatype: Float	Def: 0
	P-Group: TERMINAL	Active: first confirm	QuickComm. No Max: 20

Defines y1 of output characteristic.

Index:

P0778[0] : Analog output 1 (DAC 1)
P0778[1] : Analog output 2 (DAC 2)

P0779[2]	Value x2 of DAC scaling	Min: -99999.0	Level:
	CStat: CUT	Datatype: Float	Def: 100.0
	P-Group: TERMINAL	Active: first confirm	QuickComm. No Max: 99999.0

Defines x2 of output characteristic in [%].

Index:

P0779[0] : Analog output 1 (DAC 1)
P0779[1] : Analog output 2 (DAC 2)

Dependency:

Affects P2000 to P2003 (referency frequency, voltage, current or torque) depending on which setpoint is to be generated.

P0780[2]	Value y2 of DAC scaling	Min: 0	Level:
	CStat: CUT	Datatype: Float	Def: 20
	P-Group: TERMINAL	Active: first confirm	QuickComm. No Max: 20

Defines y2 of output characteristic.

Index:

P0780[0] : Analog output 1 (DAC 1)
P0780[1] : Analog output 2 (DAC 2)

P0781[2]	Width of DAC deadband	Min: 0	Level: 2	
	CStat: CUT	Datatype: Float		Unit: -
	P-Group: TERMINAL	Active: first confirm		QuickComm. No

Sets width of dead-band in [mA] or [V] for analog output.

Index:

P0781[0] : Analog output 1 (DAC 1)
P0781[1] : Analog output 2 (DAC 2)

P0800[3]	BI: Download parameter set 0	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Defines source of command to start download of parameter set 0 from attached AOP. The first three digits describe the parameter number of the command source, the last digit refers to the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

P0800[0] : 1st. Command data set (CDS)
P0800[1] : 2nd. Command data set (CDS)
P0800[2] : 3rd. Command data set (CDS)

Note:

Signal of digital input:
0 = No download
1 = Start download parameter set 0 from AOP.

P0801[3]	BI: Download parameter set 1	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Defines sources of command to start download of parameter set 1 from attached AOP. The first three digits describe the parameter number of the command source, the last digit refers to the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

P0801[0] : 1st. Command data set (CDS)
P0801[1] : 2nd. Command data set (CDS)
P0801[2] : 3rd. Command data set (CDS)

Note:

Signal of digital input:
0 = No download
1 = Start download parameter set 1 from AOP.

P0809[3]	Copy Command Data Set	Min: 0	Level: 2	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Calls 'Copy command data set' function.

Index:

P0809[0] : Copy from CDS
P0809[1] : Copy to CDS
P0809[2] : Start copy

Note:

Start value in index 2 is automatically reset to '0' after execution of function.

P0810	BI: CDS bit 0 (Local / Remote)	Min: 0:0	Level: 2	
	CStat: CUT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Selects command source from which to read Bit 0 for selecting a BICO data set (see control word 1, Bit 15).

Note:

Bit 1 is also relevant for BICO data set selection.

P0811	BI: CDS bit 1			Min: 0:0	Level: 2
	CStat: CUT	Datatype: U32	Unit: -	Def: 0:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4095:0	

Selects command source from which to read Bit 1 for selecting a BICO data set (see control word 2, Bit 06 in P0055).

Note:

Bit 0 is also relevant for BICO data set selection.

P0819[3]	Copy Drive Data Set			Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 2	

Calls 'Copy drive data set' function.

Index:

P0819[0] : Copy from DDS
P0819[1] : Copy to DDS
P0819[2] : Start copy

Note:

Start value in index 2 is automatically reset to '0' after execution of function.

P0820[3]	BI: DDS bit 0			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4095:0	

Selects command source from which to read Bit 0 for selecting a drive data set (see control word 2, Bit 15 in P0055).

Index:

P0820[0] : 1st. Command data set (CDS)
P0820[1] : 2nd. Command data set (CDS)
P0820[2] : 3rd. Command data set (CDS)

Note:

Bit 1 is also relevant for BICO data set selection.

P0821[3]	BI: DDS bit 1			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4095:0	

Selects command source from which Bit 1 for selecting a drive data set is to be read in (see control word 2, Bit 15 in P0055).

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.0 = ON/OFF1 via BOP/AOP

Index:

P0821[0] : 1st. Command data set (CDS)
P0821[1] : 2nd. Command data set (CDS)
P0821[2] : 3rd. Command data set (CDS)

Note:

Bit 0 is also relevant for BICO data set selection.

P0840[3]	BI: ON/OFF1			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 722:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Allows ON/OFF1 command source to be selected using BICO. The first three digits describe the parameter number of the command source; the last digit denotes the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.0 = ON/OFF1 via BOP/AOP

Index:

P0840[0] : 1st. Command data set (CDS)
 P0840[1] : 2nd. Command data set (CDS)
 P0840[2] : 3rd. Command data set (CDS)

Dependency:

Active only when P0719 = 0 (remote selection of command/setpoint source).

BICO requires P0700 set to 2 (enable BICO).

The default setting (ON right) is digital input 1 (722.0). Alternative source possible only when function of digital input 1 is changed (via P0701) before changing value of P0840.

P0842[3]	BI: ON/OFF1 reverse			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Allows ON/OFF1 reverse command source to be selected using BICO. The first three digits describe the parameter number of the command source and the last digit denotes the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.0 = ON/OFF1 via BOP/AOP

Index:

P0842[0] : 1st. Command data set (CDS)
 P0842[1] : 2nd. Command data set (CDS)
 P0842[2] : 3rd. Command data set (CDS)

Dependency:

Active only when P0719 = 0 (remote selection of command/setpoint source).

P0844[3]	BI: 1. OFF2			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 1:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines first source of OFF2 when P0719 = 0 (BICO). The first three digits describe the parameter number of the command source and the last digit denotes the bit setting for that parameter.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

- 19.0 = ON/OFF1 via BOP/AOP
- 19.1 = OFF2: Electrical stop via BOP/AOP

Index:

- P0844[0] : 1st. Command data set (CDS)
- P0844[1] : 2nd. Command data set (CDS)
- P0844[2] : 3rd. Command data set (CDS)

Dependency:

Active only when P0719 = 0 (remote selection of command/setpoint source).

If one of the digital inputs is selected for OFF2, the inverter will not run unless the digital input is active.

Note:

OFF2 means immediate pulse-disabling; the motor is coasting.

OFF2 is low-active, i.e. :
 0 = Pulse disabling.
 1 = Operating condition.

P0845[3]	BI: 2. OFF2			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 19:1	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines second source of OFF2. The first three digits describe the parameter number of the command source and the last digit denotes the bit setting for that parameter.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

- 19.0 = ON/OFF1 via BOP/AOP

Index:

- P0845[0] : 1st. Command data set (CDS)
- P0845[1] : 2nd. Command data set (CDS)
- P0845[2] : 3rd. Command data set (CDS)

Dependency:

In contrast to P0844 (first source of OFF2), this parameter is always active, independent of P0719 (selection of command and frequency setpoint).

If one of the digital inputs is selected for OFF2, the inverter will not run unless the digital input is active.

Note:

OFF2 means immediate pulse-disabling; the motor is coasting.

OFF2 is low-active, i.e. :
 0 = Pulse disabling.
 1 = Operating condition.

P0848[3]	BI: 1. OFF3			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 1:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines first source of OFF3 when P0719 = 0 (BICO). The first three digits describe the parameter number of the command source and the last digit denotes the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.0 = ON/OFF1 via BOP/AOP

Index:

P0848[0] : 1st. Command data set (CDS)
 P0848[1] : 2nd. Command data set (CDS)
 P0848[2] : 3rd. Command data set (CDS)

Dependency:

Active only when P0719 = 0 (remote selection of command/setpoint source).

If one of the digital inputs is selected for OFF3, the inverter will not run unless the digital input is active.

Note:

OFF3 means fast ramp-down to 0.

OFF3 is low-active, i.e.
 0 = Ramp-down.
 1 = Operating condition.

P0849[3]	BI: 2. OFF3			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 1:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines second source of OFF3. The first three digits describe the parameter number of the command source and the last digit denotes the bit setting for that parameter.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.0 = ON/OFF1 via BOP/AOP

Index:

P0849[0] : 1st. Command data set (CDS)
 P0849[1] : 2nd. Command data set (CDS)
 P0849[2] : 3rd. Command data set (CDS)

Dependency:

In contrast to P0848 (first source of OFF3), this parameter is always active, independent of P0719 (selection of command and frequency setpoint).

If one of the digital inputs is selected for OFF3, the inverter will not run unless the digital input is active.

Note:

OFF3 means fast ramp-down to 0.

OFF3 is low-active, i.e.
 0 = Ramp-down.
 1 = Operating condition.

P0852[3]	BI: Pulse enable			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 1:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines source of pulse enable/disable signal.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

Index:

- P0852[0] : 1st. Command data set (CDS)
- P0852[1] : 2nd. Command data set (CDS)
- P0852[2] : 3rd. Command data set (CDS)

Dependency:

Active only when P0719 = 0 (remote selection of command/setpoint source).

P0918	CB address			Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 3	
	P-Group: COMM	Active: first confirm	QuickComm. No	Max: 65535	

Defines address of CB (communication board) or address of the other option modules.

There are two ways to set the bus address:
 1 via DIP switches on the PROFIBUS module
 2 via a user-entered value

Note:

Possible PROFIBUS settings:
 1 ... 125
 0, 126, 127 are not allowed

The following applies when a PROFIBUS module is used:
 DIP switch = 0 Address defined in P0918 (CB address) is valid
 DIP switch not = 0 DIP switch setting has priority and P0918 indicates DIP switch setting.

P0927	Parameter changeable via			Min: 0	Level: 2
	CStat: CUT	Datatype: U16	Unit: -	Def: 15	
	P-Group: COMM	Active: first confirm	QuickComm. No	Max: 15	

Specifies the interfaces which can be used to change parameters.

Example:

"b - - n n" (bits 0, 1, 2 and 3 set) in the default setting means that parameters can be changed via any interface.
 "b - - r n" (bits 0, 1 and 3 set) would specify that parameters can be changed via PROFIBUS/CB, BOP and USS on COM link (RS485 USS) but not via USS on BOP link (RS232)

Bitfields:

Bit00	PROFIBUS / CB	0	NO
		1	YES
Bit01	BOP	0	NO
		1	YES
Bit02	USS on BOP link	0	NO
		1	YES
Bit03	USS on COM link	0	NO
		1	YES

Details:

The seven-segment display is explained in the "Introduction to MICROMASTER System Parameters".

r0947[8]	Last fault code	Datatype: U16	Unit: -	Min: -	Level: 2
	P-Group: ALARMS			Def: - Max: -	

Displays fault history according to the diagram below

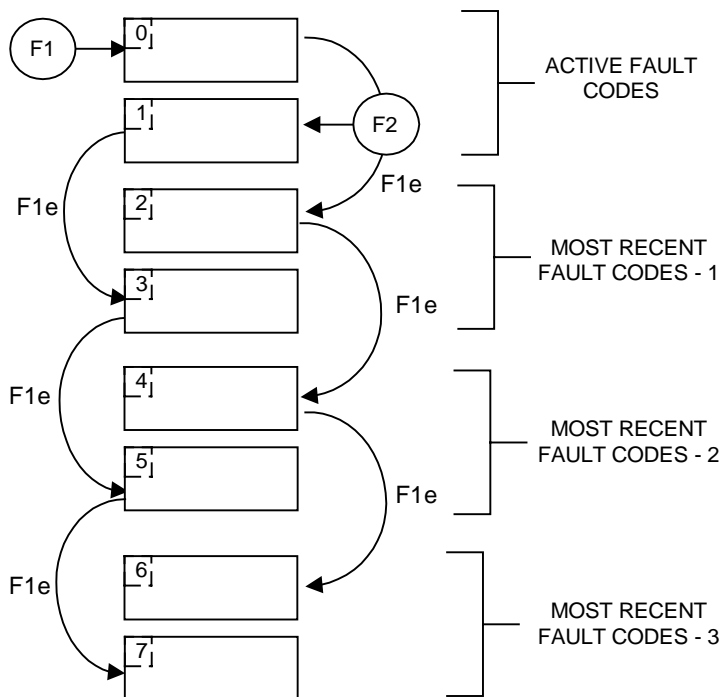
where:

"F1" is the first active fault (not yet acknowledged).

"F2" is the second active fault (not yet acknowledged).

"F1e" is the occurrence of the fault acknowledgement for F1 & F2.

This moves the value in the 2 indices down to the next pair of indices, where they are stored. Indices 0 & 1 contain the active faults. When faults are acknowledged, indices 0 & 1 are reset to 0.



Example:

If the inverter trips on undervoltage and then receives an external trip before the undervoltage is acknowledged, you will obtain:

Index 0 = 3 Undervoltage

Index 1 = 85 External trip

Whenever a fault in index 0 is acknowledged (F1e), the fault history shifts as indicated in the diagram above.

Index:

- r0947[0] : Recent fault trip --, fault 1
- r0947[1] : Recent fault trip --, fault 2
- r0947[2] : Recent fault trip -1, fault 3
- r0947[3] : Recent fault trip -1, fault 4
- r0947[4] : Recent fault trip -2, fault 5
- r0947[5] : Recent fault trip -2, fault 6
- r0947[6] : Recent fault trip -3, fault 7
- r0947[7] : Recent fault trip -3, fault 8

Dependency:

Index 2 used only if second fault occurs before first fault is acknowledged.

Details:

See fault codes in Operating Instructions Manual.

r0948[12]	Fault time	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: ALARMS				

Time stamp to indicate when the fault has occurred. P2114 (run-time counter) or P2115 (real time clock) are the possible sources of the time stamp.

Example:

The time is taken from P2115 if this parameter has been updated with the real time. If not, P2114 is used.

Index:

- r0948[0] : Recent fault trip --, fault time seconds+minutes
- r0948[1] : Recent fault trip --, fault time hours+days
- r0948[2] : Recent fault trip --, fault time month+year
- r0948[3] : Recent fault trip -1, fault time seconds+minutes
- r0948[4] : Recent fault trip -1, fault time hours+days
- r0948[5] : Recent fault trip -1, fault time month+year
- r0948[6] : Recent fault trip -2, fault time seconds+minutes
- r0948[7] : Recent fault trip -2, fault time hours+days
- r0948[8] : Recent fault trip -2, fault time month+year
- r0948[9] : Recent fault trip -3, fault time seconds+minutes
- r0948[10] : Recent fault trip -3, fault time hours+days
- r0948[11] : Recent fault trip -3, fault time month+year

Note:

P2115 can be updated via AOP, Starter, DriveMonitor, etc.

r0949[8]	Fault value	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 4
	P-Group: ALARMS				

Displays drive fault values.

Index:

- r0949[0] : Recent fault trip --, fault value 1
- r0949[1] : Recent fault trip --, fault value 2
- r0949[2] : Recent fault trip -1, fault value 3
- r0949[3] : Recent fault trip -1, fault value 4
- r0949[4] : Recent fault trip -2, fault value 5
- r0949[5] : Recent fault trip -2, fault value 6
- r0949[6] : Recent fault trip -3, fault value 7
- r0949[7] : Recent fault trip -3, fault value 8

P0952	Total number of faults	Datatype: U16	Unit: -	Min: 0 Def: 0 Max: 8	Level: 3
	CStat: CT	Active: first confirm	QuickComm. No:		
	P-Group: ALARMS				

Displays number of faults stored in P0947 (last fault code).

Dependency:

Setting 0 resets fault history (changing to 0 also resets parameter P0948 - fault time).

r0964[5]	Firmware version data	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Firmware version data.

Example:

- r0964[0] = 42 "SIEMENS"
- r0964[1] = 1001 "MICROMASTER 420"
- 1002 "MICROMASTER 440"
- 1003 "MICRO- / COMBIMASTER 411"
- 1004 "MICROMASTER 410"
- 1005 "Reserved"
- r0964[4] = 507 means 5th July.

Index:

- r0964[0] : Company (Siemens = 42)
- r0964[1] : Product type
- r0964[2] : Firmware version
- r0964[3] : Firmware date (year)
- r0964[4] : Firmware date (day/month)

r0965	Profibus profile	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Identification for PROFIDrive. Profile number and version.

r0967	Control word 1	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMM			Def: -	
				Max: -	

Displays control word 1.

Bitfields:

Bit00	ON/OFF1	0	NO
		1	YES
Bit01	OFF2: Electrical stop	0	YES
		1	NO
Bit02	OFF3: Fast stop	0	YES
		1	NO
Bit03	Pulse enable	0	NO
		1	YES
Bit04	RFG enable	0	NO
		1	YES
Bit05	RFG start	0	NO
		1	YES
Bit06	Setpoint enable	0	NO
		1	YES
Bit07	Fault acknowledge	0	NO
		1	YES
Bit08	JOG right	0	NO
		1	YES
Bit09	JOG left	0	NO
		1	YES
Bit10	Control from PLC	0	NO
		1	YES
Bit11	Reverse (setpoint inversion)	0	NO
		1	YES
Bit13	Motor potentiometer MOP up	0	NO
		1	YES
Bit14	Motor potentiometer MOP down	0	NO
		1	YES
Bit15	CDS Bit 0 (Local/Remote)	0	NO
		1	YES

r0968	Status word 1	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMM			Def: -	
				Max: -	

Displays active status word of inverter (in binary) and can be used to diagnose which commands are active.

Bitfields:

Bit00	Drive ready	0	NO
		1	YES
Bit01	Drive ready to run	0	NO
		1	YES
Bit02	Drive running	0	NO
		1	YES
Bit03	Drive fault active	0	NO
		1	YES
Bit04	OFF2 active	0	YES
		1	NO
Bit05	OFF3 active	0	YES
		1	NO
Bit06	ON inhibit active	0	NO
		1	YES
Bit07	Drive warning active	0	NO
		1	YES
Bit08	Deviation setp. / act. value	0	YES
		1	NO
Bit09	PZD control	0	NO
		1	YES
Bit10	Maximum frequency reached	0	NO
		1	YES
Bit11	Warning: Motor current limit	0	YES
		1	NO
Bit12	Motor holding brake active	0	NO
		1	YES
Bit13	Motor overload	0	YES
		1	NO
Bit14	Motor runs direction right	0	NO
		1	YES
Bit15	Inverter overload	0	YES
		1	NO

P0970	Factory reset			Min: 0	Level: 1
	CStat: C	Datatype: U16	Unit: -	Def: 0	
	P-Group: PAR_RESET	Active: first confirm	QuickComm. No	Max: 1	

P0970 = 1 resets all parameters to their default values.

Settings:

0 Disabled
1 Parameter reset

Dependency:

First set P0010 = 30 (factory settings)

Stop drive (i.e. disable all pulses) before you can reset parameters to default values.

Note:

The following parameters retain their values after a factory reset:

P0918 (CB address),
P2010 (USS baud rate) and
P2011 (USS address)

P0971	Transfer data from RAM to EEPROM			Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: -	Def: 0	
	P-Group: COMM	Active: first confirm	QuickComm. No	Max: 1	

Transfers values from RAM to EEPROM when set to 1.

Settings:

0 Disabled
1 Start transfer

Note:

All values in RAM are transferred to EEPROM.

Parameter is automatically reset to 0 (default) after successful transfer.

P1000[3]	Selection of frequency setpoint				Min: 0	Level: 1
	CStat: CT	Datatype: U16	Unit: -	Def: 2		
	P-Group: SETPOINT	Active: first confirm	QuickComm. Yes	Max: 77		

Selects frequency setpoint source. In the table of possible settings below, the main setpoint is selected from the least significant digit (i.e., 0 to 6) and any additional setpoint from the most significant digit (i.e., x0 through to x6).

Example:

Setting 12 selects main setpoint (2) derived from analog input with additional setpoint (1) taken from the motor potentiometer.

Settings:

- 1 Motor potentiometer setpoint
- 2 Analog input
- 3 Fixed frequency setpoint
- 4 USS on BOP link
- 5 USS on COM link
- 6 Communication board (CB) on COM link

Other settings including an additional setpoint can be selected using the table below.

Settings:

- 0 No main setpoint
- 2 Analog setpoint
- 4 USS on BOP link
- 5 USS on COM link
- 6 CB on COM link
- 7 Analog setpoint 2
- 20 No main setpoint + Analog setpoint
- 22 Analog setpoint + Analog setpoint
- 24 USS on BOP link + Analog setpoint
- 25 USS on COM link + Analog setpoint
- 26 CB on COM link + Analog setpoint
- 27 Analog setpoint 2 + Analog setpoint
- 40 No main setpoint + USS on BOP link
- 42 Analog setpoint + USS on BOP link
- 44 USS on BOP link + USS on BOP link
- 45 USS on COM link + USS on BOP link
- 46 CB on COM link + USS on BOP link
- 47 Analog setpoint 2 + USS on BOP link
- 50 No main setpoint + USS on COM link
- 52 Analog setpoint + USS on COM link
- 54 USS on BOP link + USS on COM link
- 55 USS on COM link + USS on COM link
- 56 CB on COM link + USS on COM link
- 57 Analog setpoint 2 + USS on COM link
- 60 No main setpoint + CB on COM link
- 62 Analog setpoint + CB on COM link
- 64 USS on BOP link + CB on COM link
- 65 USS on COM link + CB on COM link
- 66 CB on COM link + CB on COM link
- 67 Analog setpoint 2 + CB on COM link
- 70 No main setpoint + Analog setpoint 2
- 72 Analog setpoint + Analog setpoint 2
- 74 USS on BOP link + Analog setpoint 2
- 75 USS on COM link + Analog setpoint 2
- 76 CB on COM link + Analog setpoint 2
- 77 Analog setpoint 2 + Analog setpoint 2

Index:

- P1000[0] : 1st. Command data set (CDS)
- P1000[1] : 2nd. Command data set (CDS)
- P1000[2] : 3rd. Command data set (CDS)

Note:

Single digits denote main setpoints that have no additional setpoint.

P1001[3]	Fixed frequency 1			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 0.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 1.

There are 3 types of fixed frequencies:

1. Direct selection
2. Direct selection + ON command
3. Binary coded selection + ON command

1. Direct selection (P0701 - P0706 = 15)

In this mode of operation 1 digital input selects 1 fixed frequency.

If several inputs are active together, the selected frequencies are summed.

E.g.: FF1 + FF2 + FF3 + FF4 + FF5 + FF6.

2. Direct selection + ON command (P0701 - P0706 = 16)

The fixed frequency selection combines the fixed frequencies with an ON command.

In this mode of operation 1 digital input selects 1 fixed frequency.

If several inputs are active together, the selected frequencies are summed.

E.g.: FF1 + FF2 + FF3 + FF4 + FF5 + FF6.

3. Binary coded selection + ON command (P0701 - P0706 = 17)

Up to 16 fixed frequencies can be selected using this method. The fixed frequencies are selected according to the following table:

		DIN4	DIN3	DIN2	DIN1
	OFF	Inactive	Inactive	Inactive	Inactive
P1001	FF1	Inactive	Inactive	Inactive	Active
P1002	FF2	Inactive	Inactive	Active	Inactive
P1003	FF3	Inactive	Inactive	Active	Active
P1004	FF4	Inactive	Active	Inactive	Inactive
P1005	FF5	Inactive	Active	Inactive	Active
P1006	FF6	Inactive	Active	Active	Inactive
P1007	FF7	Inactive	Active	Active	Active
P1008	FF8	Active	Inactive	Inactive	Inactive
P1009	FF9	Active	Inactive	Inactive	Active
P1022	FF10	Active	Inactive	Active	Inactive
P1011	FF11	Active	Inactive	Active	Active
P1012	FF12	Active	Active	Inactive	Inactive
P1013	FF13	Active	Active	Inactive	Active
P1014	FF14	Active	Active	Active	Inactive
P1015	FF15	Active	Active	Active	Active

Index:

- P1001[0] : 1st. Drive data set (DDS)
- P1001[1] : 2nd. Drive data set (DDS)
- P1001[2] : 3rd. Drive data set (DDS)

Dependency:

Select fixed frequency operation (using P1000).

Inverter requires ON command to start in the case of direct selection (P0701 - P0706 = 15)

Note:

Fixed frequencies can be selected using the digital inputs, and can also be combined with an ON command.

P1002[3]	Fixed frequency 2			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 5.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 2.

Index:

- P1002[0] : 1st. Drive data set (DDS)
- P1002[1] : 2nd. Drive data set (DDS)
- P1002[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1003[3]	Fixed frequency 3	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 10.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 3.		
Index:	P1003[0] : 1st. Drive data set (DDS) P1003[1] : 2nd. Drive data set (DDS) P1003[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		
P1004[3]	Fixed frequency 4	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 15.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 4.		
Index:	P1004[0] : 1st. Drive data set (DDS) P1004[1] : 2nd. Drive data set (DDS) P1004[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		
P1005[3]	Fixed frequency 5	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 20.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 5.		
Index:	P1005[0] : 1st. Drive data set (DDS) P1005[1] : 2nd. Drive data set (DDS) P1005[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		
P1006[3]	Fixed frequency 6	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 25.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 6.		
Index:	P1006[0] : 1st. Drive data set (DDS) P1006[1] : 2nd. Drive data set (DDS) P1006[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		
P1007[3]	Fixed frequency 7	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 30.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 7.		
Index:	P1007[0] : 1st. Drive data set (DDS) P1007[1] : 2nd. Drive data set (DDS) P1007[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		
P1008[3]	Fixed frequency 8	Min: -650.00	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 35.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		2
	Defines fixed frequency setpoint 8.		
Index:	P1008[0] : 1st. Drive data set (DDS) P1008[1] : 2nd. Drive data set (DDS) P1008[2] : 3rd. Drive data set (DDS)		
Details:	See parameter P1001 (fixed frequency 1).		

P1009[3]	Fixed frequency 9			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 40.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 9.

Index:

P1009[0] : 1st. Drive data set (DDS)
 P1009[1] : 2nd. Drive data set (DDS)
 P1009[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1010[3]	Fixed frequency 10			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 45.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 10.

Index:

P1010[0] : 1st. Drive data set (DDS)
 P1010[1] : 2nd. Drive data set (DDS)
 P1010[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1011[3]	Fixed frequency 11			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 50.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 11.

Index:

P1011[0] : 1st. Drive data set (DDS)
 P1011[1] : 2nd. Drive data set (DDS)
 P1011[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1012[3]	Fixed frequency 12			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 55.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 12.

Index:

P1012[0] : 1st. Drive data set (DDS)
 P1012[1] : 2nd. Drive data set (DDS)
 P1012[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1013[3]	Fixed frequency 13			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 60.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 13.

Index:

P1013[0] : 1st. Drive data set (DDS)
 P1013[1] : 2nd. Drive data set (DDS)
 P1013[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1014[3]	Fixed frequency 14			Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 65.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines fixed frequency setpoint 14.

Index:

P1014[0] : 1st. Drive data set (DDS)
 P1014[1] : 2nd. Drive data set (DDS)
 P1014[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1015[3]	Fixed frequency 15	Min: -650.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: SETPOINT	Active: Immediately		QuickComm. No

Defines fixed frequency setpoint 15.

Index:

P1015[0] : 1st. Drive data set (DDS)
P1015[1] : 2nd. Drive data set (DDS)
P1015[2] : 3rd. Drive data set (DDS)

Details:

See parameter P1001 (fixed frequency 1).

P1016	Fixed frequency mode - Bit 0	Min: 1	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Fixed frequencies can be selected in three different modes. Parameter P1016 defines the mode of selection Bit 0.

Settings:

1 Direct selection
2 Direct selection + ON command
3 Binary coded selection + ON command

Details:

See table in P1001 (fixed frequency 1) for description of how to use fixed frequencies.

P1017	Fixed frequency mode - Bit 1	Min: 1	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Fixed frequencies can be selected in three different modes. Parameter P1017 defines the mode of selection Bit 1.

Settings:

1 Direct selection
2 Direct selection + ON command
3 Binary coded selection + ON command

Details:

See table in P1001 (fixed frequency 1) for description of how to use fixed frequencies.

P1018	Fixed frequency mode - Bit 2	Min: 1	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Fixed frequencies can be selected in three different modes. Parameter P1018 defines the mode of selection Bit 2.

Settings:

1 Direct selection
2 Direct selection + ON command
3 Binary coded selection + ON command

Details:

See table in P1001 (fixed frequency 1) for description of how to use fixed frequencies.

P1019	Fixed frequency mode - Bit 3	Min: 1	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Fixed frequencies can be selected in three different modes. Parameter P1019 defines the mode of selection Bit 3.

Settings:

1 Direct selection
2 Direct selection + ON command
3 Binary coded selection + ON command

Details:

See table in P1001 (fixed frequency 1) for description of how to use fixed frequencies.

P1020[3]	BI: Fixed freq. selection Bit 0	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 0:0		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines origin of fixed frequency selection.

Settings:

- P1020 = 722.0 ==> Digital input 1
- P1021 = 722.1 ==> Digital input 2
- P1022 = 722.2 ==> Digital input 3
- P1023 = 722.3 ==> Digital input 4
- P1026 = 722.4 ==> Digital input 5
- P1028 = 722.5 ==> Digital input 6

Index:

- P1020[0] : 1st. Command data set (CDS)
- P1020[1] : 2nd. Command data set (CDS)
- P1020[2] : 3rd. Command data set (CDS)

Dependency:

Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)

P1021[3]	BI: Fixed freq. selection Bit 1	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 0:0		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines origin of fixed frequency selection.

Index:

- P1021[0] : 1st. Command data set (CDS)
- P1021[1] : 2nd. Command data set (CDS)
- P1021[2] : 3rd. Command data set (CDS)

Dependency:

Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)

Details:

See P1020 (fixed frequency selection Bit 0) for most common settings

P1022[3]	BI: Fixed freq. selection Bit 2	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 0:0		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines origin of fixed frequency selection.

Index:

- P1022[0] : 1st. Command data set (CDS)
- P1022[1] : 2nd. Command data set (CDS)
- P1022[2] : 3rd. Command data set (CDS)

Dependency:

Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)

Details:

See P1020 (fixed frequency selection Bit 0) for most common settings

P1023[3]	BI: Fixed freq. selection Bit 3	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 722:3		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines origin of fixed frequency selection.

Index:

- P1023[0] : 1st. Command data set (CDS)
- P1023[1] : 2nd. Command data set (CDS)
- P1023[2] : 3rd. Command data set (CDS)

Dependency:

Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)

Details:

See P1020 (fixed frequency selection Bit 0) for most common settings

r1024	CO: Act. fixed frequency	Min: -	Level: 3
	Datatype: Float Unit: Hz Def: -		
	P-Group: SETPOINT Max: -		

Displays sum total of selected fixed frequencies.

P1025	Fixed frequency mode - Bit 4	Min: 1	Level: 3
	CStat: CT Datatype: U16 Unit: - Def: 1		
	P-Group: SETPOINT Active: first confirm QuickComm. No Max: 3		

Direct selection or direct selection + ON for bit 4

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

Details:

See parameter P1001 for description of how to use fixed frequencies.

P1026[3]	BI: Fixed freq. selection Bit 4	Min: 0:0	Level:
	CStat: CT Datatype: U32 Unit: - Def: 722:4 P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		3
	Defines origin of fixed frequency selection.		
Index:	P1026[0] : 1st. Command data set (CDS) P1026[1] : 2nd. Command data set (CDS) P1026[2] : 3rd. Command data set (CDS)		
Dependency:	Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)		
Details:	See P1020 (fixed frequency selection Bit 0) for most common settings		
P1027	Fixed frequency mode - Bit 5	Min: 1	Level:
	CStat: CT Datatype: U16 Unit: - Def: 1 P-Group: SETPOINT Active: first confirm QuickComm. No Max: 3		3
	direct selection or direct selection + ON for bit 5		
Settings:	1 Direct selection 2 Direct selection + ON command 3 Binary coded selection + ON command		
Details:	See parameter P1001 for description of how to use fixed frequencies.		
P1028[3]	BI: Fixed freq. selection Bit 5	Min: 0:0	Level:
	CStat: CT Datatype: U32 Unit: - Def: 722:5 P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		3
	Defines origin of fixed frequency selection.		
Index:	P1028[0] : 1st. Command data set (CDS) P1028[1] : 2nd. Command data set (CDS) P1028[2] : 3rd. Command data set (CDS)		
Dependency:	Accessible only if P0701 - P0706 = 99 (function of digital inputs = BICO)		
Details:	See P1020 (fixed frequency selection Bit 0) for most common settings		
P1031[3]	Setpoint memory of the MOP	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: - Def: 0 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 1		2
	Saves last motor potentiometer setpoint (MOP) that was active before OFF command or power down.		
Settings:	0 PID-MOP setpoint will not be stored 1 PID-MOP setpoint will be stored (P2240 is updated)		
Index:	P1031[0] : 1st. Drive data set (DDS) P1031[1] : 2nd. Drive data set (DDS) P1031[2] : 3rd. Drive data set (DDS)		
Note:	On next ON command, motor potentiometer setpoint will be the saved value in parameter P1040 (setpoint of the MOP).		
P1032	Inhibit reverse direction of MOP	Min: 0	Level:
	CStat: CT Datatype: U16 Unit: - Def: 1 P-Group: SETPOINT Active: first confirm QuickComm. No Max: 1		2
	Inhibits reverse setpoint selection		
Settings:	0 Reserve direction is allowed 1 Reserve direction inhibited		
Dependency:	Motor potentiometer (P1040) must be chosen as main setpoint or additional setpoint (using P1000).		
Note:	It is possible to change motor direction using the motor potentiometer setpoint (increase / decrease frequency either by using digital inputs or BOP/AOP keypad up / down).		

P1035[3]	BI: Enable MOP (UP-command)				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 19:13		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines source for motor potentiometer setpoint increase frequency.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.D = MOP up via BOP/AOP

Index:

- P1035[0] : 1st. Command data set (CDS)
- P1035[1] : 2nd. Command data set (CDS)
- P1035[2] : 3rd. Command data set (CDS)

P1036[3]	BI: Enable MOP (DOWN-command)				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 19:14		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines source for motor potentiometer setpoint decrease frequency.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.E = MOP down via BOP/AOP

Index:

- P1036[0] : 1st. Command data set (CDS)
- P1036[1] : 2nd. Command data set (CDS)
- P1036[2] : 3rd. Command data set (CDS)

P1040[3]	Setpoint of the MOP				Min: -650.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 5.00		
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00		

Determines setpoint for motor potentiometer control (P1000 = 1).

Index:

- P1040[0] : 1st. Drive data set (DDS)
- P1040[1] : 2nd. Drive data set (DDS)
- P1040[2] : 3rd. Drive data set (DDS)

Note:

If motor potentiometer setpoint is selected either as main setpoint or additional setpoint, the reverse direction will be inhibited by default of P1032 (inhibit reverse direction of MOP).

To re-enable reverse direction, set P1032 = 0.

r1050	CO: Act. Output freq. of the MOP				Min: -	Level: 3
		Datatype: Float	Unit: Hz	Def: -		
	P-Group: SETPOINT			Max: -		

Displays output frequency of motor potentiometer setpoint ([Hz]).

P1055[3]	BI: Enable JOG right	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Def: 0:0
Max: 4000:0

Defines source of JOG right when P0719 = 0 (remote selection of command/setpoint source).

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.8 = JOG right via BOP/AOP

Index:

P1055[0] : 1st. Command data set (CDS)
 P1055[1] : 2nd. Command data set (CDS)
 P1055[2] : 3rd. Command data set (CDS)

P1056[3]	BI: Enable JOG left	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Def: 0:0
Max: 4000:0

Defines source of JOG left when P0719 = 0 (remote selection of command/setpoint source).

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.9 = JOG left via BOP/AOP

Index:

P1056[0] : 1st. Command data set (CDS)
 P1056[1] : 2nd. Command data set (CDS)
 P1056[2] : 3rd. Command data set (CDS)

P1058[3]	JOG frequency right	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: SETPOINT	Active: Immediately		QuickComm. No

Def: 5.00
Max: 650.00

Jogging advances the motor speed by small amounts. The JOG buttons uses a non-latching switch on one of the digital inputs to control the motor speed.

While JOG right is selected, this parameter determines the frequency at which the inverter will run.

Index:

P1058[0] : 1st. Drive data set (DDS)
 P1058[1] : 2nd. Drive data set (DDS)
 P1058[2] : 3rd. Drive data set (DDS)

Dependency:

P1060 and P1061 set up and down ramp times respectively for jogging.

P1059[3]	JOG frequency left	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: SETPOINT	Active: Immediately		QuickComm. No

Def: 5.00
Max: 650.00

While JOG left is selected, this parameter determines the frequency at which the inverter will run.

Index:

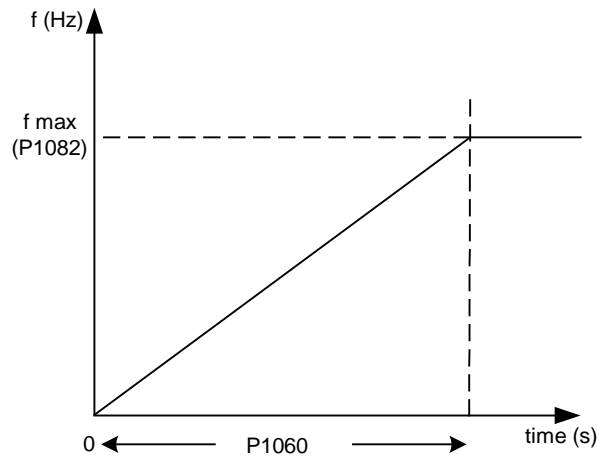
P1059[0] : 1st. Drive data set (DDS)
 P1059[1] : 2nd. Drive data set (DDS)
 P1059[2] : 3rd. Drive data set (DDS)

Dependency:

P1060 and P1061 set up and down ramp times respectively for jogging.

P1060[3]	JOG ramp-up time			Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: s	Def: 10.00	
	P-Group: SETPOINT	Active: first confirm	QuickComm. No	Max: 650.00	

Sets ramp-up time. This is the time used while jogging or when P1124 (enable JOG ramp times) is active.

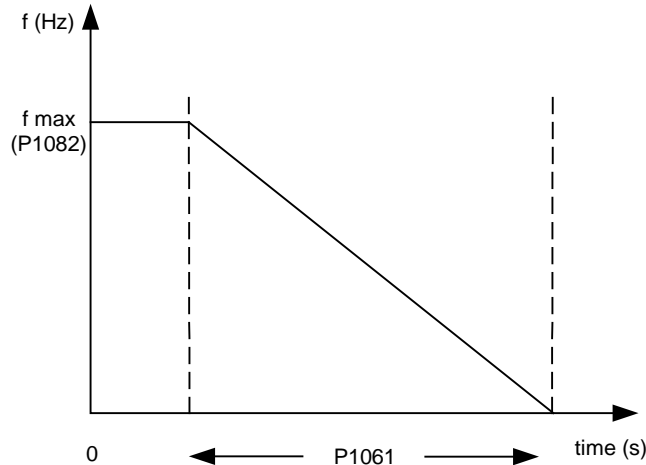


Index:

- P1060[0] : 1st. Drive data set (DDS)
- P1060[1] : 2nd. Drive data set (DDS)
- P1060[2] : 3rd. Drive data set (DDS)

P1061[3]	JOG ramp-down time			Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: s	Def: 10.00	
	P-Group: SETPOINT	Active: first confirm	QuickComm. No	Max: 650.00	

Sets ramp-down time. This is the time used while jogging or when P1124 (enable JOG ramp times) is active.



Index:

- P1061[0] : 1st. Drive data set (DDS)
- P1061[1] : 2nd. Drive data set (DDS)
- P1061[2] : 3rd. Drive data set (DDS)

P1070[3]	CI: Main setpoint			Min: 0.00	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 755:0	
	P-Group: SETPOINT	Active: first confirm	QuickComm. No	Max: 4000:0	

Defines source of main setpoint.

Settings:

- 755 = Analog input 1 setpoint
- 1024 = Fixed frequency setpoint
- 1050 = Motor potentiometer (MOP) setpoint

Index:

- P1070[0] : 1st. Command data set (CDS)
- P1070[1] : 2nd. Command data set (CDS)
- P1070[2] : 3rd. Command data set (CDS)

P1071[3]	CI: Main setpoint scaling	Min: 0:0	Level:
	CStat: CT Datatype: U32 Unit: - Def: 1:0 P-Group: SETPOINT Active: first confirm QuickComm. No Max: 4000:0		3
	Defines source of the main setpoint scaling.		
	Settings:		
	755 = Analog input 1 setpoint		
	1024 = Fixed frequency setpoint		
	1050 = Motor potentiometer (MOP) setpoint		
	Index:		
	P1071[0] : 1st. Command data set (CDS)		
	P1071[1] : 2nd. Command data set (CDS)		
	P1071[2] : 3rd. Command data set (CDS)		
P1074[3]	BI: Disable additional setpoint	Min: 0:0	Level:
	CStat: CUT Datatype: U32 Unit: - Def: 0:0 P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		3
	Disables additional setpoint		
	Settings:		
	722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)		
	722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)		
	722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)		
	722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)		
	722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)		
	722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)		
	722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)		
	722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)		
	Index:		
	P1074[0] : 1st. Command data set (CDS)		
	P1074[1] : 2nd. Command data set (CDS)		
	P1074[2] : 3rd. Command data set (CDS)		
P1075[3]	CI: Additional setpoint	Min: 0:0	Level:
	CStat: CT Datatype: U32 Unit: - Def: 0:0 P-Group: SETPOINT Active: first confirm QuickComm. No Max: 4000:0		3
	Defines source of the additional setpoint (to be added to main setpoint).		
	Settings:		
	755 = Analog input 1 setpoint		
	1024 = Fixed frequency setpoint		
	1050 = Motor potentiometer (MOP) setpoint		
	Index:		
	P1075[0] : 1st. Command data set (CDS)		
	P1075[1] : 2nd. Command data set (CDS)		
	P1075[2] : 3rd. Command data set (CDS)		
P1076[3]	CI: Additional setpoint scaling	Min: 0:0	Level:
	CStat: CT Datatype: U32 Unit: - Def: 1:0 P-Group: SETPOINT Active: first confirm QuickComm. No Max: 4000:0		3
	Defines source of scaling for additional setpoint (to be added to main setpoint).		
	Settings:		
	1 = Scaling of 1.0 (100%)		
	755 = Analog input 1 Setpoint		
	1024 = Fixed Frequency Setpoint		
	1050 = MOP Setpoint		
	Index:		
	P1076[0] : 1st. Command data set (CDS)		
	P1076[1] : 2nd. Command data set (CDS)		
	P1076[2] : 3rd. Command data set (CDS)		
r1078	CO: Total frequency setpoint	Min: - Def: - Max: -	Level:
	Datatype: Float Unit: Hz		3
	P-Group: SETPOINT		
	Displays sum of main and additional setpoints in [Hz].		

r1079	CO: Selected frequency setpoint	Datatype: Float	Unit: Hz	Min: -	Level: 3
	P-Group: SETPOINT			Def: - Max: -	

Displays selected frequency setpoint.

Following frequency setpoints are displayed:

Total frequency setpoint r1078
 JOG frequency right P1058
 JOG frequency left P1059

Dependency:

P1055 (BI: Enable JOG right) or P1056 (BI: Enable JOG left) define command source of JOG right or JOG left respectively.

Note:

P1055 = 0 and P1056 = 0 ==> Total frequency setpoint is selected.

P1080[3]	Min. frequency	Datatype: Float	Unit: Hz	Min: 0.00	Level: 1
	CStat: CUT	Active: Immediately	QuickComm. Yes	Def: 0.00 Max: 650.00	

Sets minimum motor frequency [Hz] at which motor will run irrespective of frequency setpoint.

Index:

P1080[0] : 1st. Drive data set (DDS)
 P1080[1] : 2nd. Drive data set (DDS)
 P1080[2] : 3rd. Drive data set (DDS)

Note:

Value set here is valid both for clockwise and for anticlockwise rotation.

Under certain conditions (e.g. ramping, current limiting), motor can run below minimum frequency.

P1082[3]	Max. frequency	Datatype: Float	Unit: Hz	Min: 0.00	Level: 1
	CStat: CT	Active: first confirm	QuickComm. Yes	Def: 50.00 Max: 650.00	

Sets maximum motor frequency [Hz] at which motor will run irrespective of the frequency setpoint.

Index:

P1082[0] : 1st. Drive data set (DDS)
 P1082[1] : 2nd. Drive data set (DDS)
 P1082[2] : 3rd. Drive data set (DDS)

Dependency:

Limited internally to 200 Hz or 5 * rated motor frequency (P0305) when P1300 >= 20 (control mode = vector control). The value is displayed in r0209 (maximum frequency)

Note:

The value set here is valid for both clockwise and anticlockwise rotation.

The maximum output frequency of inverter can be exceeded if one of the following is active:

Slip compensation = $f_{max} + f_{slipcompmax}$
 or
 Flying restart = $f_{max} + f_{slipnom}$

Notice:

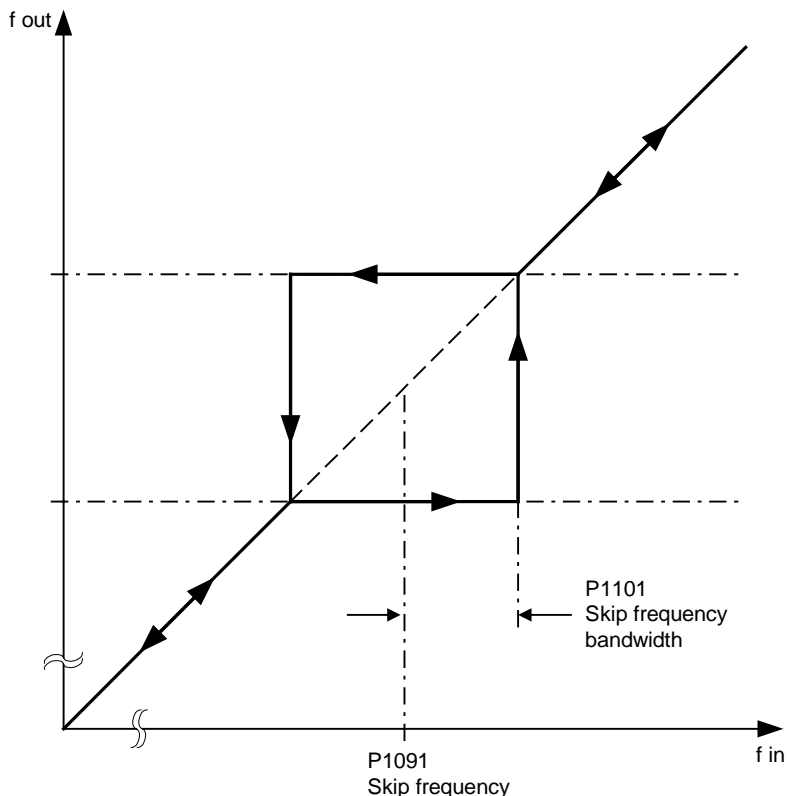
Maximum motor speed is subject to mechanical limitations.

r1084	Max. frequency setpoint	Datatype: Float	Unit: Hz	Min: -	Level: 3
	P-Group: CONTROL			Def: - Max: -	

Displays maximum frequency. The maximum frequency for vector control is the minimum of 200.00Hz and 5*P310 (rated motor frequency).

P1091[3]	Skip frequency 1			Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 0.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines skip frequency 1 which avoids effects of mechanical resonance and suppresses frequencies within +/- P1101 (skip frequency bandwidth).



Index:

- P1091[0] : 1st. Drive data set (DDS)
- P1091[1] : 2nd. Drive data set (DDS)
- P1091[2] : 3rd. Drive data set (DDS)

Notice:

Stationary operation is not possible within the suppressed frequency range; the range is merely passed through (on the ramp).

For example, if P1091 = 10 Hz and P1101 = 2 Hz, it is not possible to operate continuously between 10 Hz +/- 2 Hz (i.e. between 8 and 12 Hz).

P1092[3]	Skip frequency 2			Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 0.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines skip frequency 2 which avoids effects of mechanical resonance and suppresses frequencies within +/- P1101 (skip frequency bandwidth).

Index:

- P1092[0] : 1st. Drive data set (DDS)
- P1092[1] : 2nd. Drive data set (DDS)
- P1092[2] : 3rd. Drive data set (DDS)

Details:

See P1091 (skip frequency 1).

P1093[3]	Skip frequency 3			Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 0.00	
	P-Group: SETPOINT	Active: Immediately	QuickComm. No	Max: 650.00	

Defines skip frequency 3 which avoids effects of mechanical resonance and suppresses frequencies within +/- P1101 (skip frequency bandwidth).

Index:

- P1093[0] : 1st. Drive data set (DDS)
- P1093[1] : 2nd. Drive data set (DDS)
- P1093[2] : 3rd. Drive data set (DDS)

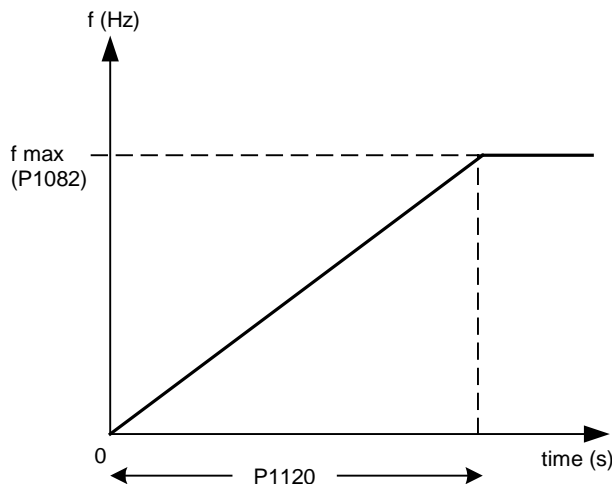
Details:

See P1091 (skip frequency 1).

P1094[3]	Skip frequency 4	Min: 0.00	Level: 3
	CStat: CUT Datatype: Float Unit: Hz Def: 0.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 650.00		
<p>Defines skip frequency 4 which avoids effects of mechanical resonance and suppresses frequencies within +/- P1101 (skip frequency bandwidth).</p> <p>Index: P1094[0] : 1st. Drive data set (DDS) P1094[1] : 2nd. Drive data set (DDS) P1094[2] : 3rd. Drive data set (DDS)</p> <p>Details: See P1091 (skip frequency 1).</p>			
P1101[3]	Skip frequency bandwidth	Min: 0.00	Level: 3
	CStat: CUT Datatype: Float Unit: Hz Def: 2.00 P-Group: SETPOINT Active: Immediately QuickComm. No Max: 10.00		
<p>Delivers frequency bandwidth to be applied to skip frequencies (in [Hz]).</p> <p>Index: P1101[0] : 1st. Drive data set (DDS) P1101[1] : 2nd. Drive data set (DDS) P1101[2] : 3rd. Drive data set (DDS)</p> <p>Details: See P1091 (skip frequency 1).</p>			
P1110[3]	BI: Inhibit neg. freq. setpoint	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 0:0 P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		
<p>Inhibits direction reversal, thus preventing a negative setpoint from causing motor from running in reverse. Instead, it will run at minimum frequency (P1080) in the normal direction.</p> <p>Settings: 0 = Disabled 1 = Enabled</p> <p>Index: P1110[0] : 1st. Command data set (CDS) P1110[1] : 2nd. Command data set (CDS) P1110[2] : 3rd. Command data set (CDS)</p> <p>Note: It is possible to disable all reverse commands (i.e. the command is ignored). To do this, set P0719 = 0 (remote selection of command/setpoint source) and define the command sources (P1113) individually.</p> <p>Notice: This function does not disable the "reverse" command function; rather, a reverse command causes motor to run in the normal direction as described above.</p>			
P1113[3]	BI: Reverse	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 722:1 P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		
<p>Defines source of reverse command used when P0719 = 0 (remote selection of command/setpoint source).</p> <p>Settings: 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO) 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO) 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO) 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO) 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO) 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)</p> <p>19.B = Reverse via BOP/AOP</p> <p>Index: P1113[0] : 1st. Command data set (CDS) P1113[1] : 2nd. Command data set (CDS) P1113[2] : 3rd. Command data set (CDS)</p>			
r1114	CO: Freq. setp. after dir. ctrl.	Min: -	Level: 3
	Datatype: Float Unit: Hz Def: - P-Group: SETPOINT Max: -		
<p>Displays setpoint frequency after change of direction</p>			
r1119	CO: Freq. setpoint before RFG	Min: -	Level: 3
	Datatype: Float Unit: Hz Def: - P-Group: SETPOINT Max: -		
<p>Displays output frequency after modification by other functions, e.g. BI: Inhibit neg. freq. setpoint (P1110) or skip frequencies, f_min, f_max, limitations, etc.</p>			

P1120[3]	Ramp-up time			Min: 0.00	Level: 1
	CStat: CUT	Datatype: Float	Unit: s	Def: 10.00	
	P-Group: SETPOINT	Active: first confirm	QuickComm. Yes	Max: 650.00	

Time taken for motor to accelerate from standstill up to maximum motor frequency (P1082) when no rounding is used.



Setting the ramp-up time too short can cause the inverter to trip (overcurrent).

Index:

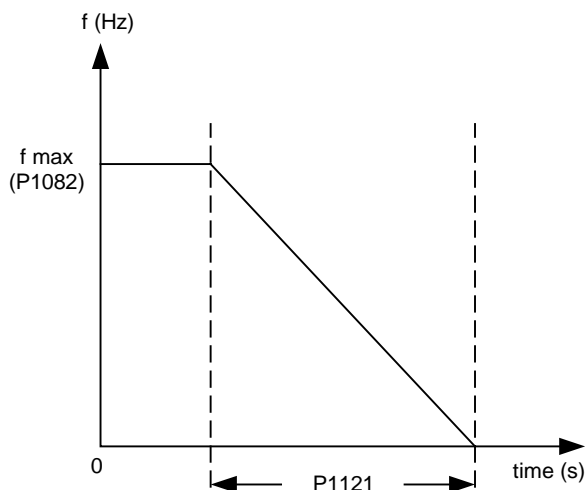
- P1120[0] : 1st. Drive data set (DDS)
- P1120[1] : 2nd. Drive data set (DDS)
- P1120[2] : 3rd. Drive data set (DDS)

Note:

If an external frequency setpoint with set ramp rates is used (e.g. from a PLC), the best way to achieve optimum drive performance is to set ramp times in P1120 and P1121 slightly shorter than those of the PLC.

P1121[3]	Ramp-down time			Min: 0.00	Level: 1
	CStat: CUT	Datatype: Float	Unit: s	Def: 10.00	
	P-Group: SETPOINT	Active: first confirm	QuickComm. Yes	Max: 650.00	

Time taken for motor to decelerate from maximum motor frequency (P1082) down to standstill when no rounding is used.



Index:

- P1121[0] : 1st. Drive data set (DDS)
- P1121[1] : 2nd. Drive data set (DDS)
- P1121[2] : 3rd. Drive data set (DDS)

Notice:

Setting the ramp-down time too short can cause the inverter to trip (overcurrent (F0001) / overvoltage (F0002)).

P1124[3]	BI: Enable JOG ramp times				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines source for switching between jog ramp times and normal ramp times as applied to the RFG.

Settings:

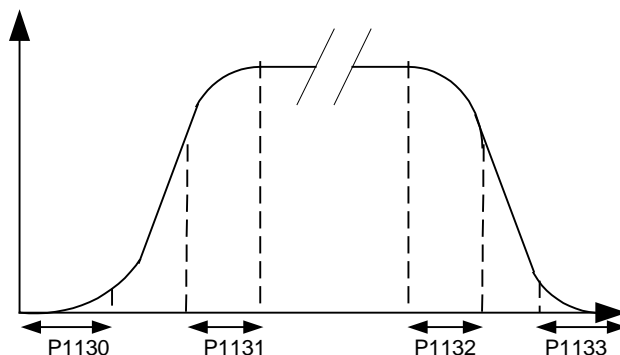
- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

- P1124[0] : 1st. Command data set (CDS)
- P1124[1] : 2nd. Command data set (CDS)
- P1124[2] : 3rd. Command data set (CDS)

P1130[3]	Ramp-up initial rounding time				Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: s	Def: 0.00		
	P-Group: SETPOINT	Active: first confirm	QuickComm. No	Max: 40.00		

Defines initial rounding time in seconds as shown on the diagram below.



where:

$$T_{up\ total} = \frac{1}{2}P1130 + X * P1120 + \frac{1}{2}P1131$$

$$T_{down\ total} = \frac{1}{2}P1130 + X * P1121 + \frac{1}{2}P1133$$

X is defined as $\Delta f = X * f_{max}$

i.e. X is the ratio between the frequency step and f_{max}

Index:

- P1130[0] : 1st. Drive data set (DDS)
- P1130[1] : 2nd. Drive data set (DDS)
- P1130[2] : 3rd. Drive data set (DDS)

Note:

Rounding times are recommended, since they prevent an abrupt response, thus avoiding detrimental effects on the mechanics.

Notice:

Rounding times are not recommended when analog inputs are used, since they would result in overshoot/undershoot in the inverter response.

P1131[3]	Ramp-up final rounding time				Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: s	Def: 0.00		
	P-Group: SETPOINT	Active: first confirm	QuickComm. No	Max: 40.00		

Defines rounding time at end of ramp-up as shown in P1130 (ramp-up initial rounding time).

Index:

- P1131[0] : 1st. Drive data set (DDS)
- P1131[1] : 2nd. Drive data set (DDS)
- P1131[2] : 3rd. Drive data set (DDS)

Note:

Rounding times are recommended, since they prevent an abrupt response, thus avoiding detrimental effects on the mechanics.

Notice:

Rounding times are not recommended when analog inputs are used, since they would result in overshoot/undershoot in the inverter response.

P1132[3]	Ramp-down initial rounding time	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Defines rounding time at start of ramp-down as shown in P1130 (ramp-up initial rounding time).

Index:

- P1132[0] : 1st. Drive data set (DDS)
- P1132[1] : 2nd. Drive data set (DDS)
- P1132[2] : 3rd. Drive data set (DDS)

Note:

Rounding times are recommended, since they prevent an abrupt response, thus avoiding detrimental effects on the mechanics.

Notice:

Rounding times are not recommended when analog inputs are used, since they would result in overshoot/undershoot in the inverter response.

P1133[3]	Ramp-down final rounding time	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: SETPOINT	Active: first confirm		QuickComm. No

Defines rounding time at end of ramp-down as shown in P1130 (ramp-up initial rounding time).

Index:

- P1133[0] : 1st. Drive data set (DDS)
- P1133[1] : 2nd. Drive data set (DDS)
- P1133[2] : 3rd. Drive data set (DDS)

Note:

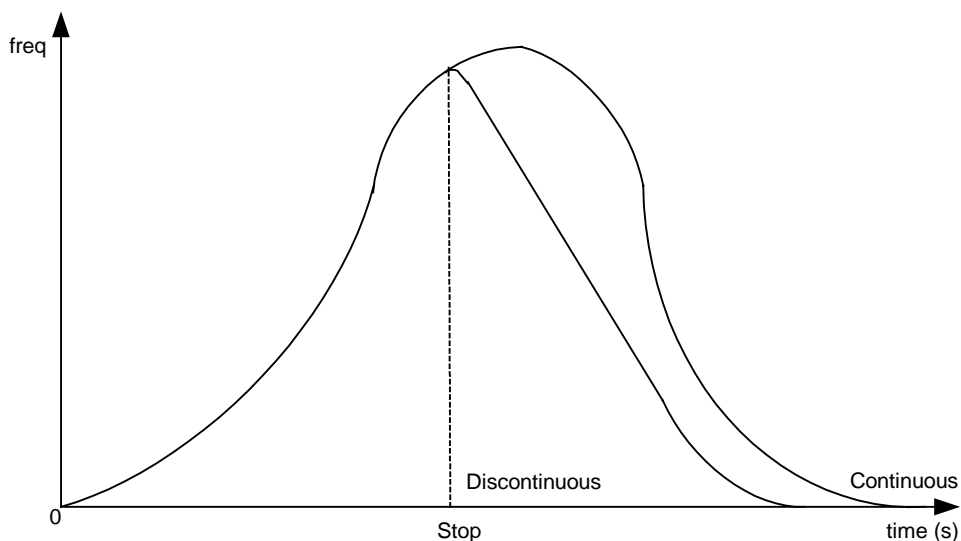
Rounding times are recommended, since they prevent an abrupt response, thus avoiding detrimental effects on the mechanics.

Notice:

Rounding times are not recommended when analog inputs are used, since they would result in overshoot/undershoot in the inverter response.

P1134[3]	Rounding type	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: -
	P-Group: SETPOINT	Active: Immediately		QuickComm. No

Defines smoothing response to OFF commands or setpoint reduction.



Settings:

- 0 Continuous smoothing
- 1 Discontinuous smoothing

Index:

- P1134[0] : 1st. Drive data set (DDS)
- P1134[1] : 2nd. Drive data set (DDS)
- P1134[2] : 3rd. Drive data set (DDS)

Dependency:

No effect until total rounding time (P1130) > 0 s.

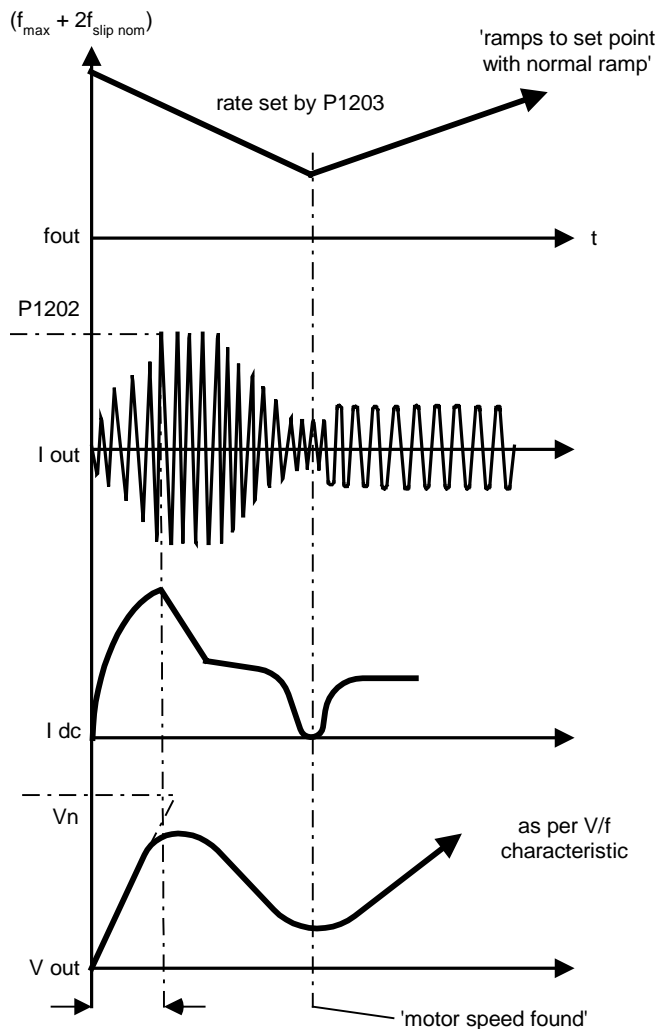
Notice:

Rounding times are not recommended when analog inputs are used, since they would result in overshoot/undershoot in the inverter response.

P1135[3]	OFF3 ramp-down time	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: SETPOINT	Active: first confirm		QuickComm. Yes
		Def: 5.00		
		Max: 650.00		
Defines ramp-down time from maximum frequency to standstill for OFF3 command.				
Index:				
P1135[0] : 1st. Drive data set (DDS)				
P1135[1] : 2nd. Drive data set (DDS)				
P1135[2] : 3rd. Drive data set (DDS)				
Note:				
This time may be exceeded if the VDC_max. level is reached.				
P1140[3]	BI: RFG enable	Min: 0:0	Level: 4	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No
		Def: 1:0		
		Max: 4000:0		
Defines command source of RFG enable command (RFG: ramp function generator).				
Index:				
P1140[0] : 1st. Command data set (CDS)				
P1140[1] : 2nd. Command data set (CDS)				
P1140[2] : 3rd. Command data set (CDS)				
P1141[3]	BI: RFG start	Min: 0:0	Level: 4	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No
		Def: 1:0		
		Max: 4000:0		
Defines command source of RFG start command (RFG: ramp function generator).				
Index:				
P1141[0] : 1st. Command data set (CDS)				
P1141[1] : 2nd. Command data set (CDS)				
P1141[2] : 3rd. Command data set (CDS)				
P1142[3]	BI: RFG enable setpoint	Min: 0:0	Level: 4	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No
		Def: 1:0		
		Max: 4000:0		
Defines command source of RFG enable setpoint command (RFG: ramp function generator).				
Index:				
P1142[0] : 1st. Command data set (CDS)				
P1142[1] : 2nd. Command data set (CDS)				
P1142[2] : 3rd. Command data set (CDS)				
r1170	CO: Frequency setpoint after RFG	Min: -	Level: 3	
	Datatype: Float	Unit: Hz		
	P-Group: SETPOINT	QuickComm. -		
		Def: -		
		Max: -		
Displays overall frequency setpoint after ramp generator.				

P1200	Flying start	Datatype: U16	Unit: -	Min: 0	Level: 2
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 0	
	P-Group: FUNC			Max: 6	

Starts inverter onto a spinning motor by rapidly changing the output frequency of the inverter until the actual motor speed has been found. Then, the motor runs up to setpoint using the normal ramp time.



Settings:

- 0 Flying start disabled
- 1 Flying start is always active, start in direction of setpoint
- 2 Flying start is active if power on, fault, OFF2, start in direction of setpoint
- 3 Flying start is active if fault, OFF2, start in direction of setpoint
- 4 Flying start is always active, only in direction of setpoint
- 5 Flying start is active if power on, fault, OFF2, only in direction of setpoint
- 6 Flying start is active if fault, OFF2, only in direction of setpoint

Note:

Useful for motors with high inertia loads.

Settings 1 to 3 search in both directions.

Settings 4 to 6 search only in direction of setpoint.

Notice:

Flying start must be used in cases where the motor may still be turning (e.g. after a short mains break) or can be driven by the load. Otherwise, overcurrent trips will occur.

P1202[3]	Motor-current: Flying start	Min: 10	Level: 3	
	CStat: CUT	Datatype: U16		Unit: %
	P-Group: FUNC	Active: first confirm		QuickComm. No Def: 100 Max: 200

Defines search current used for flying start.

Value is in [%] based on rated motor current (P0305).

Index:

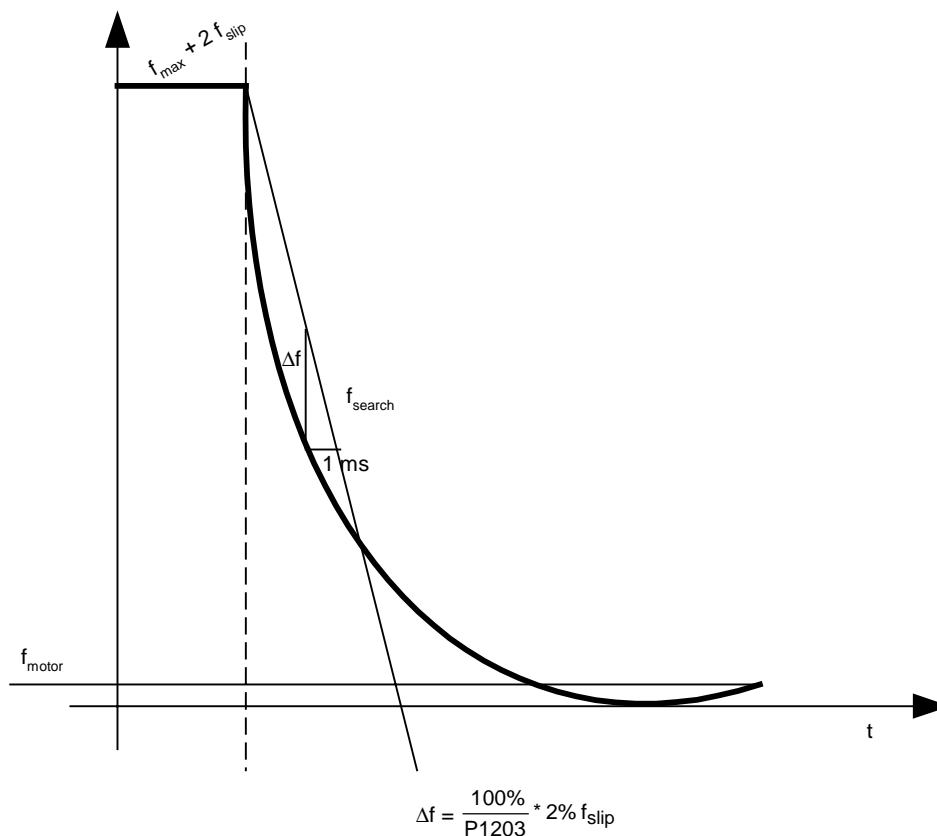
- P1202[0] : 1st. Drive data set (DDS)
- P1202[1] : 2nd. Drive data set (DDS)
- P1202[2] : 3rd. Drive data set (DDS)

Note:

Reducing the search current may improve performance for flying start if the inertia of the system is not very high.

P1203[3]	Search rate: Flying start	Min: 10	Level: 3	
	CStat: CUT	Datatype: U16		Unit: %
	P-Group: FUNC	Active: first confirm		QuickComm. No Def: 100 Max: 200

Sets factor by which the output frequency changes during flying start to synchronize with turning motor. This value is entered in [%] relative to the default time factor defines the initial gradient in the curve below (and thus influences the time taken to search for the motor frequency):



The search time is the time taken to search through all frequencies between $f_{max} + 2 \times f_{slip}$ to 0 Hz.

P1203 = 100 % is defined as giving a rate of 2 % of $f_{slip,nom}$ / [ms]

P1203 = 200 % would result in a rate of frequency change of 1 % of $f_{slip,nom}$ / [ms]

Example:

For a motor with 50 Hz, 1350 rpm, 100 % would produce a maximum search time of 600 ms. If the motor is turning, the motor frequency is found in a shorter time.

Index:

- P1203[0] : 1st. Drive data set (DDS)
- P1203[1] : 2nd. Drive data set (DDS)
- P1203[2] : 3rd. Drive data set (DDS)

Note:

A higher value produces a flatter gradient and thus a longer search time.
A lower value has the opposite effect.

r1204	Status word: Flying start	Datatype: U16	Unit: -	Min: -	Level: 4
	P-Group: FUNC			Def: -	
				Max: -	

Bit parameter for checking and monitoring states during search.

Bitfields:

Bit00	Current applied	0	NO
		1	YES
Bit01	Current could not be applied	0	NO
		1	YES
Bit02	Voltage reduced	0	NO
		1	YES
Bit03	Slope-filter started	0	NO
		1	YES
Bit04	Current less threshold	0	NO
		1	YES
Bit05	Current-minimum	0	NO
		1	YES
Bit07	Speed could not be found	0	NO
		1	YES

r1205	Status flying-start on observer	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: FUNC			Def: -	
				Max: -	

Bit parameter for checking status of flying start performed with n-adaption of observer.

Bitfields:

Bit00	Transformation active	0	NO
		1	YES
Bit01	Initialize n-adaption	0	NO
		1	YES
Bit02	Current applying	0	NO
		1	YES
Bit03	N-controller closed	0	NO
		1	YES
Bit04	Isd-controller open	0	NO
		1	YES
Bit05	RFG hold	0	NO
		1	YES
Bit06	N-adaption set to zero	0	NO
		1	YES
Bit07	Reserved	0	NO
		1	YES
Bit08	Reserved	0	NO
		1	YES
Bit09	Reserved	0	NO
		1	YES
Bit10	Direction Positive	0	NO
		1	YES
Bit11	Search is started	0	NO
		1	YES
Bit12	Current is applied	0	NO
		1	YES
Bit13	Search is aborted	0	NO
		1	YES
Bit14	Deviation is zero	0	NO
		1	YES
Bit15	N-controller is active	0	NO
		1	YES

P1210	Automatic restart	Datatype: U16	Unit: -	Min: 0	Level: 2
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 1	
	P-Group: FUNC			Max: 5	

Enables restart after a mains break or after a fault.

Settings:

0	Disabled	
1	Trip reset after power on:	P1211 disabled
2	Restart mains break; power on:	P1211 disabled
3	Restart after fault/mains break:	P1211 enabled
4	Restart after mains break:	P1211 enabled
5	Restart mains break/fault/power on:	P1211 disabled

Dependency:

Auto restart requires constant ON command (e.g. via a digital input wire link).

Caution1:

Settings 2 to 5 can cause the motor to restart unexpectedly !

Notice:

Flying start must be used in cases where the motor may still be turning (e.g. after a short mains break) or can be driven by the load (P1200).

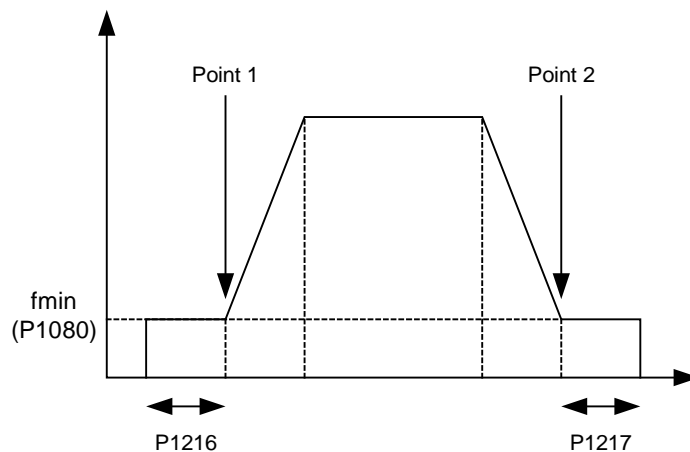
P1211	Number of restart attempts	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 3
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 10

Specifies number of times inverter will attempt to restart if P1210 (flying start) is activated.

P1215	Holding brake enable	Min: 0	Level: 2	
	CStat: T	Datatype: U16		Def: 0
	P-Group: FUNC	Active: first confirm		QuickComm. No Max: 1

Enables/disables holding brake function. This function applies the following profile to the inverter:

Relay switching is also possible at point 1 and point 2 (if programmed in P0731 = 52.C) to control a brake.



- Settings:**
- 0 Motor holding brake disabled
 - 1 Motor holding brake enabled

Note: The brake relay opens at point 1, if enabled using P0731 (function of digital output), and closes at point 2.

P1216	Holding brake release delay	Min: 0	Level: 2	
	CStat: T	Datatype: Float		Unit: s
	P-Group: FUNC	Active: first confirm		QuickComm. No Def: 1.0 Max: 20.0

Defines period during which inverter runs at f_min before ramping up at point 1 (as shown in P1215 - holding brake enable). Inverter starts at f_min on this profile, i.e. it does not use a ramp.

Note: A typical value of f_min for this type of application is the slip frequency of the motor.

You can calculate the rated slip frequency by using the following formula:

$$\frac{n_{syn} - n_n}{n_{syn}} * f_n$$

Notice: If used to hold the motor at a certain frequency against a mechanical brake (i.e. you are using a relay to control mechanical brake), it is important that f_min < 5 Hz; otherwise, the current drawn may be too high and the relay may not open.

P1217	Holding time after ramp down	Min: 0	Level: 2	
	CStat: T	Datatype: Float		Unit: s
	P-Group: FUNC	Active: first confirm		QuickComm. No Def: 1.0 Max: 20.0

Defines time for which inverter runs at minimum frequency (P1080) after ramping down at point 2.

Details: See diagram P1215 (holding brake enable)

P1230[3]	BI: Enable DC braking	Min: 0:0	Level: 3	
	CStat: CUT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Enables DC braking via a signal applied from an external source. Function remains active while external input signal is active.

DC braking causes the motor to stop rapidly by applying a DC braking current (current applied also holds shaft stationary).

When the DC braking signal is applied, the inverter output pulses are blocked and the DC current is not applied until the motor has been sufficiently demagnetized.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

Index:

P1230[0] : 1st. Command data set (CDS)
 P1230[1] : 2nd. Command data set (CDS)
 P1230[2] : 3rd. Command data set (CDS)

Caution2:

Frequent use of long periods of DC braking can cause the motor to overheat.

Notice:

This delay time is set in P0347 (demagnetization time). If this delay is too short, overcurrent trips can occur.

P1232[3]	DC braking current	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: %
	P-Group: FUNC	Active: Immediately		QuickComm. No

Defines level of DC current in [%] relative to rated motor current (P0305).

Index:

P1232[0] : 1st. Drive data set (DDS)
 P1232[1] : 2nd. Drive data set (DDS)
 P1232[2] : 3rd. Drive data set (DDS)

P1233[3]	Duration of DC braking	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: s
	P-Group: FUNC	Active: Immediately		QuickComm. No

Defines duration for which DC injection braking is to be active following an OFF1 command.

Value:

P1233 = 0 : Not active following OFF1.
 P1233 = 1 - 250 : Active for the specified duration.

Index:

P1233[0] : 1st. Drive data set (DDS)
 P1233[1] : 2nd. Drive data set (DDS)
 P1233[2] : 3rd. Drive data set (DDS)

Caution2:

Frequent use of long periods of DC braking can cause the motor to overheat.

Notice:

The DC braking function causes the motor to stop rapidly by applying a DC braking current (the current applied also holds the shaft stationary). When the DC braking signal is applied, the inverter output pulses are blocked and the DC current not applied until the motor has been sufficiently demagnetized (demagnetization time is calculated automatically from motor data).

P1234[3]	DC braking start frequency	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: FUNC	Active: Immediately		QuickComm. No

Sets start frequency for DC braking.

Index:

P1234[0] : 1st. Drive data set (DDS)
 P1234[1] : 2nd. Drive data set (DDS)
 P1234[2] : 3rd. Drive data set (DDS)

Details:

See P1230 (enable DC braking) and P1233 (duration of DC braking)

P1236[3]	Compound braking current	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 0		2
	P-Group: FUNC Active: Immediately QuickComm. No Max: 250		

Defines DC level superimposed on AC waveform. The value is entered in [%] relative to rated motor current (P0305).

$$\text{Compound braking switch-on level} = 1.13 * \sqrt{2} * V_{\text{mains}} = 1.13 * \sqrt{2} * P0210$$

Value:

P1236 = 0 : Compound braking disabled.
 P1236 = 1 - 250 : Level of DC braking current defined as a [%] of rated motor current (P0305).

Index:

P1236[0] : 1st. Drive data set (DDS)
 P1236[1] : 2nd. Drive data set (DDS)
 P1236[2] : 3rd. Drive data set (DDS)

Dependency:

Active after OFF1 / OFF3 command.

Notice:

Increasing the value will generally improve braking performance; however, if you set the value too high, an overcurrent trip may result.

P1237	Dynamic braking	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: - Def: 0		2
	P-Group: FUNC Active: Immediately QuickComm. No Max: 5		

Dynamic braking absorbs the braking energy. This parameter defines the rated duty cycle of the braking resistor (chopper resistor).

$$\text{Dynamic braking switch-on level} = 1.13 * \sqrt{2} * V_{\text{mains}} = 1.13 * \sqrt{2} * P0210$$

Settings:

- 0 Disabled
- 1 5 % duty cycle
- 2 10 % duty cycle
- 3 20 % duty cycle
- 4 50 % duty cycle
- 5 100 % duty cycle

Notice:

Initially the brake will operate at a high duty cycle dependant on the DC link level until the thermal limit is approached. The duty cycle specified by this parameter will then be imposed. The resistor should be able to operate at this level indefinitely without overheating.

P1240[3]	Configuration of Vdc controller	Min: 0	Level:
	CStat: CT Datatype: U16 Unit: - Def: 1		3
	P-Group: FUNC Active: Immediately QuickComm. No Max: 3		

Enables / disables Vdc controller.

The Vdc controller dynamically controls the DC link voltage to prevent overvoltage trips on high inertia systems.

Settings:

- 0 Vdc controller disabled
- 1 Vdc-max controller enabled
- 2 Vdc-min controller (Kinetic buffering) enabled
- 3 Vdc-max and Vdc-min controller enabled

Index:

P1240[0] : 1st. Drive data set (DDS)
 P1240[1] : 2nd. Drive data set (DDS)
 P1240[2] : 3rd. Drive data set (DDS)

Note:

Vdc max automatically increases ramp-down times to keep the DC-link voltage (r0026) within limits (P2172)

Vdc min is activated if DC-link voltage falls below minimum level. The kinetic energy of the motor is then used to buffer the DC-link voltage, thus causing deceleration of the drive.

r1242	CO: Switch-on level of Vdc-max	Min: -	Level:
	Datatype: Float Unit: V Def: -		3
	P-Group: FUNC Max: -		

Displays switch-on level of Vdc max controller.

$$r1242 = 1.15 * \sqrt{2} * V_{\text{mains}} = 1.15 * \sqrt{2} * P0210$$

P1243[3]	Dynamic factor of Vdc-max	Min: 10	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 100 P-Group: FUNC Active: Immediately QuickComm. No Max: 200		3
	Defines dynamic factor for DC link controller in [%].		
Index:	P1243[0] : 1st. Drive data set (DDS) P1243[1] : 2nd. Drive data set (DDS) P1243[2] : 3rd. Drive data set (DDS)		
Dependency:	P1243 = 100 % means parameters P1250, P1251 and P1252 (integration time, differential time and output limitation) are used as set. Otherwise, these are multiplied by P1243 (dynamic factor of Vdc-max).		
Note:	Vdc controller adjustment is calculated automatically from motor and inverter data.		
P1245[3]	Switch on level kin. buffering	Min: 65	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 76 P-Group: FUNC Active: Immediately QuickComm. No Max: 115		3
	Enters switch-on level for kinetic buffering in [%] relative to supply voltage (P0210).		
Index:	P1245 [V] = P1245 [%]* $\sqrt{2}$ * P0210 P1245[0] : 1st. Drive data set (DDS) P1245[1] : 2nd. Drive data set (DDS) P1245[2] : 3rd. Drive data set (DDS)		
P1247[3]	Dyn. factor of kinetic buffering	Min: 10	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 100 P-Group: FUNC Active: Immediately QuickComm. No Max: 200		3
	Enters dynamic factor for kinetic buffering controller (Vdc-min controller).		
Index:	P1247[0] : 1st. Drive data set (DDS) P1247[1] : 2nd. Drive data set (DDS) P1247[2] : 3rd. Drive data set (DDS)		
Note:	P1247 = 100 % = standard setting		
P1250[3]	Gain of Vdc-controller	Min: 0.00	Level:
	CStat: CUT Datatype: Float Unit: - Def: 1.00 P-Group: FUNC Active: Immediately QuickComm. No Max: 10.00		4
	Enters gain for Vdc controller.		
Index:	P1250[0] : 1st. Drive data set (DDS) P1250[1] : 2nd. Drive data set (DDS) P1250[2] : 3rd. Drive data set (DDS)		
P1251[3]	Integration time Vdc-controller	Min: 0.1	Level:
	CStat: CUT Datatype: Float Unit: ms Def: 40.0 P-Group: FUNC Active: Immediately QuickComm. No Max: 1000.0		4
	Enters integral time constant for Vdc controller.		
Index:	P1251[0] : 1st. Drive data set (DDS) P1251[1] : 2nd. Drive data set (DDS) P1251[2] : 3rd. Drive data set (DDS)		
P1252[3]	Differential time Vdc-controller	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: ms Def: 1.0 P-Group: FUNC Active: Immediately QuickComm. No Max: 1000.0		4
	Enters differential time constant for Vdc controller.		
Index:	P1252[0] : 1st. Drive data set (DDS) P1252[1] : 2nd. Drive data set (DDS) P1252[2] : 3rd. Drive data set (DDS)		
P1253[3]	Vdc-controller output limitation	Min: 0	Level:
	CStat: CUT Datatype: Float Unit: Hz Def: 10 P-Group: FUNC Active: Immediately QuickComm. No Max: 600		3
	Limits maximum effect of Vdc max controller.		
Index:	P1253[0] : 1st. Drive data set (DDS) P1253[1] : 2nd. Drive data set (DDS) P1253[2] : 3rd. Drive data set (DDS)		

P1254	Auto detect Vdc switch-on levels				Min: 0	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: 1		
	P-Group: FUNC	Active: Immediately	QuickComm. No	Max: 1		

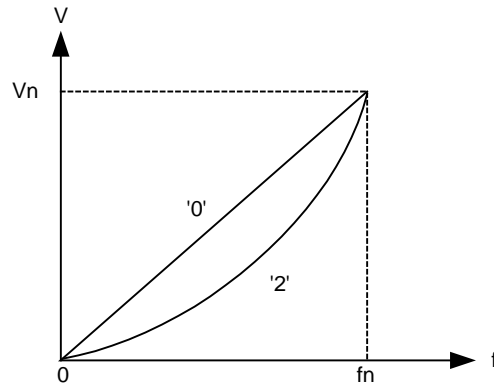
Enables/disables auto-detection of switch-on levels for Vdc max controller.

Settings:

0 Disabled
1 Enabled

P1300[3]	Control mode				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: CONTROL	Active: first confirm	QuickComm. Yes	Max: 23		

Controls relationship between speed of motor and voltage supplied by inverter as illustrated in the diagram below

**Settings:**

0 V/f with linear charac.
1 V/f with FCC
2 V/f with parabolic charac.
3 V/f with programmable charac.
4 V/f with ECO mode
5 V/f for textile applications
6 V/f with FCC for textile applications
19 V/f control with independent voltage setpoint
20 Sensorless vector control
21 Vector control with sensor
22 Sensorless vector torque-control
23 Vector torque-control with sensor

Index:

P1300[0] : 1st. Drive data set (DDS)
P1300[1] : 2nd. Drive data set (DDS)
P1300[2] : 3rd. Drive data set (DDS)

Dependency:

Limited internally to 200 Hz or 5 * rated motor frequency (P0305) when P1300 >= 20 (control mode = vector control). The value is displayed in r0209 (maximum frequency)

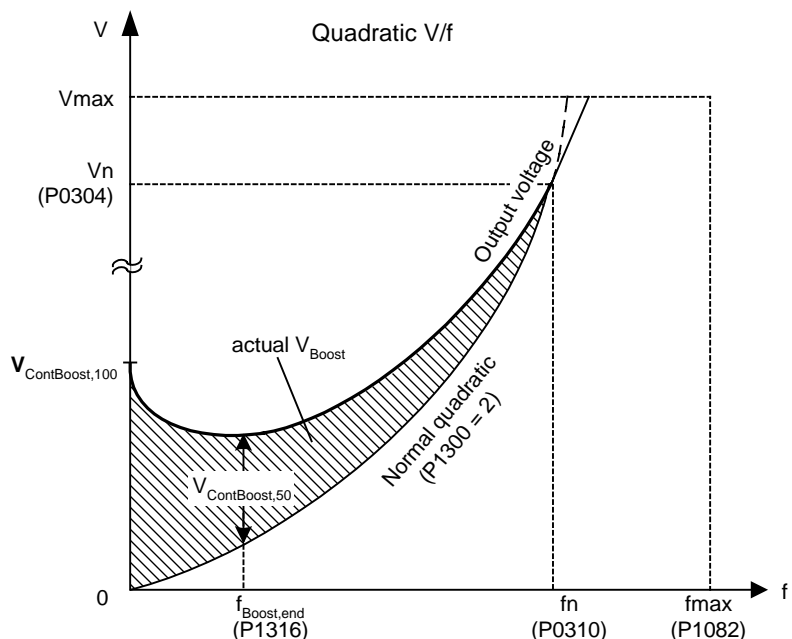
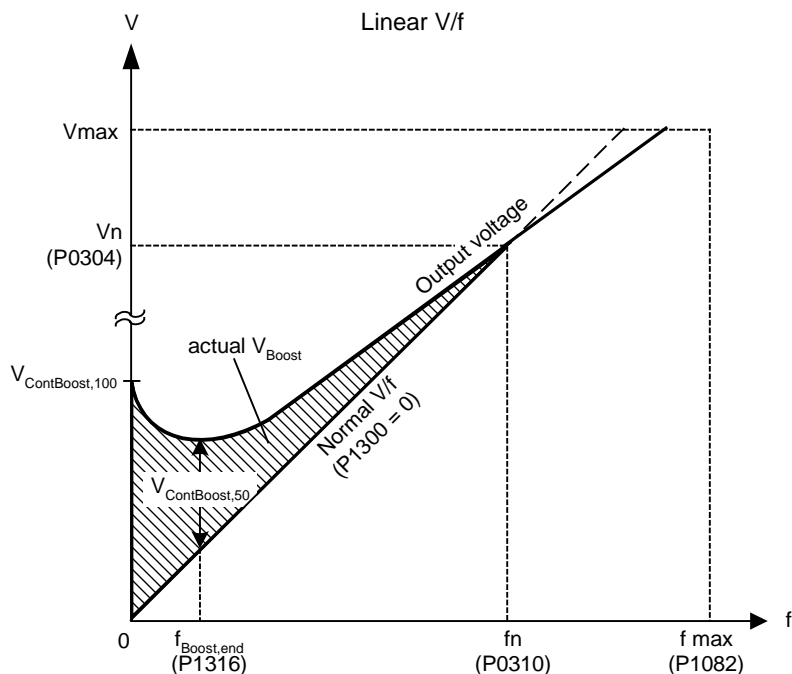
Note:

P1300 = 1 : V/f with FCC
* Maintains motor flux current for improved efficiency
* If FCC is chosen, linear V/f is active at low frequencies.

P1300 = 2 : V/f with a quadratic curve
* Suitable for centrifugal fans / pumps

P1310[3]	Continuous boost	Datatype: Float	Unit: %	Min: 0.0	Level: 2
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 50.0	
	P-Group: CONTROL			Max: 250.0	

Defines boost level in [%] relative to P0305 (rated motor current) applicable to both linear and quadratic V/f curves according to the diagram below:



where
 $V_{Boost,100}$ = voltage given by rated motor current (P0305) * Stator resistance (P0350)

Index:

- P1310[0] : 1st. Drive data set (DDS)
- P1310[1] : 2nd. Drive data set (DDS)
- P1310[2] : 3rd. Drive data set (DDS)

Dependency:

Setting in P0640 (motor overload factor [%]) limits the boost.

Note:

The boost values are combined when continuous boost (P1310) used in conjunction with other boost parameters (acceleration boost P1311 and starting boost P1312). However priorities are allocated to these parameters as follows:

P1310 > P1311 > P1312

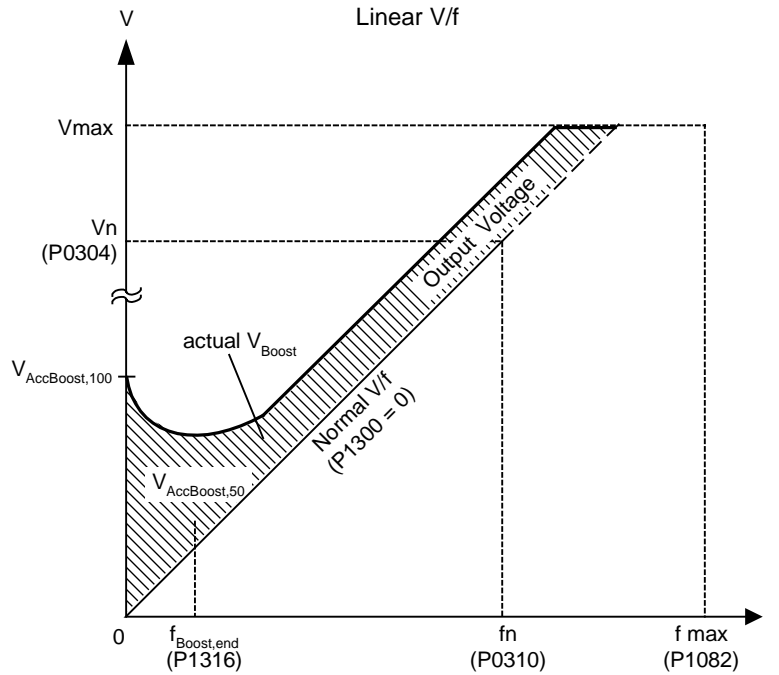
Notice:

Increasing the boost levels increases motor heating (especially at standstill).

$$\sum \text{Boosts} \leq \frac{300}{I_{mot}} * R_s$$

P1311[3]	Acceleration boost	Datatype: Float	Unit: %	Min: 0.0	Level: 2
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 0.0	
	P-Group: CONTROL			Max: 250.0	

Applies boost in [%] relative to P0305 (rated motor current) following a positive setpoint change and drops back out once the setpoint is reached.



Index:

- P1311[0] : 1st. Drive data set (DDS)
- P1311[1] : 2nd. Drive data set (DDS)
- P1311[2] : 3rd. Drive data set (DDS)

Dependency:

Setting in P0640 (motor overload factor [%]) limits boost.

Note:

Acceleration boost can help to improve response to small positive setpoint changes.

$$\sum \text{Boosts} \leq \frac{300}{I_{mot}} * R_s$$

Notice:

Increasing the boost level increases motor heating.

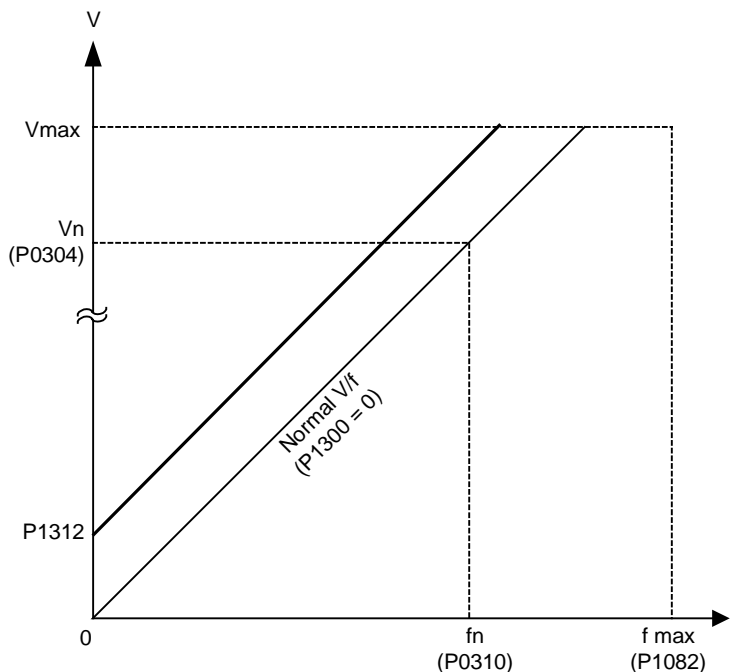
Details:

See note in P1310 for boost priorities.

P1312[3]	Starting boost			Min: 0.0	Level: 2
	CStat: CUT	Datatype: Float	Unit: %	Def: 0.0	
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 250.0	

Applies a constant linear offset (in [%] relative to P0305 (rated motor current)) to active V/f curve (either linear or quadratic) after an ON command and is active until setpoint is reached for the first time. This is useful for starting loads with high inertia.

Setting the starting boost (P1312) too high will cause the inverter to limit the current, which will in turn restrict the output frequency to below the setpoint frequency.



Index:

- P1312[0] : 1st. Drive data set (DDS)
- P1312[1] : 2nd. Drive data set (DDS)
- P1312[2] : 3rd. Drive data set (DDS)

Dependency:

Setting in P0640 (motor overload factor [%]) limits boost.

Notice:

Increasing the boost levels increases motor heating.

$$\sum \text{Boosts} \leq \frac{300}{I_{mot}} * R_s$$

Details:

See note in P1310 for boost priorities.

r1315	CO: Total boost voltage			Min: -	Level: 4
		Datatype: Float	Unit: V	Def: -	
	P-Group: CONTROL			Max: -	

Displays total value of voltage boost (in volts).

P1316[3]	Boost end frequency	Min: 0.0	Level: 3	
	CStat: CUT	Datatype: Float		Unit: %
	P-Group: CONTROL	Active: Immediately		QuickComm. No
		Def: 20.0		
		Max: 100.0		

Defines point at which programmed boost reaches 50 % of its value.

This value is expressed in [%] relative to P0310 (rated motor frequency).

This frequency is defined as follows:

$$f_{\text{Boost min}} = 2 * \left(\frac{153}{\sqrt{P_{\text{motor}}}} + 3 \right)$$

It is displayed as [%] value of the f_nominal.

Index:

- P1316[0] : 1st. Drive data set (DDS)
- P1316[1] : 2nd. Drive data set (DDS)
- P1316[2] : 3rd. Drive data set (DDS)

Note:

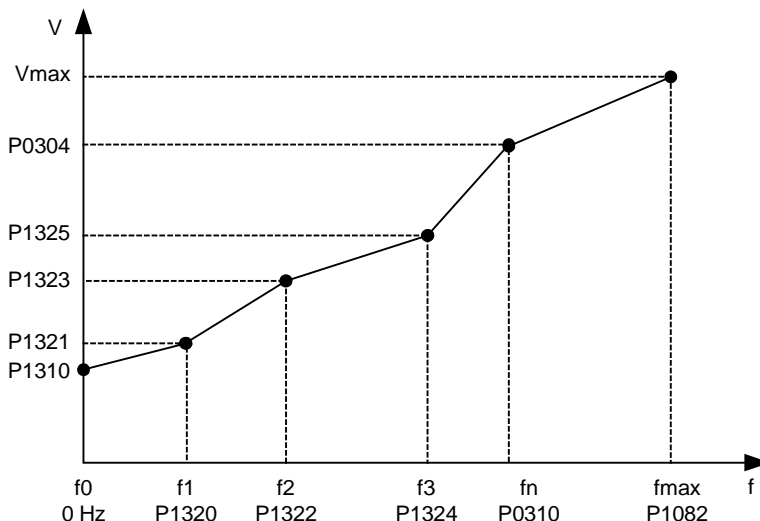
The expert user may change this value to alter the shape of the curve, e.g. to increase torque at a particular frequency.

Details:

See diagram in P1310 (continuous boost)

P1320[3]	Programmable V/f freq. coord. 1	Min: 0.00	Level: 3	
	CStat: CT	Datatype: Float		Unit: Hz
	P-Group: CONTROL	Active: Immediately		QuickComm. No
		Def: 0.00		
		Max: 650.00		

Sets V/f coordinates (P1320/1321 to P1324/1325) to define V/f characteristic.



$$P1310[V] = \frac{P1310[\%]}{100[\%]} \cdot \frac{r0395[\%]}{100[\%]} \cdot P0304[V]$$

Example:

This parameter can be used to provide correct torque at correct frequency and is useful when used with synchronous motors.

Index:

- P1320[0] : 1st. Drive data set (DDS)
- P1320[1] : 2nd. Drive data set (DDS)
- P1320[2] : 3rd. Drive data set (DDS)

Dependency:

To set parameter, select P1300 = 3 (V/f with programmable characteristic)

Note:

Linear interpolation will be applied between points set from P1320/1321 to P1324/1325.

V/f with programmable characteristic (P1300 = 3) has 3 programmable points. The two non-programmable points are:

- Boost voltage P1310 at zero 0 Hz
- Nominal voltage at nominal frequency

The acceleration boost and starting boost defined in P1311 and P1312 are applied to V/f with programmable characteristic.

P1321[3]	Programmable V/f volt. coord. 1	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: V Def: 0.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 3000.0	3	
	See P1320 (programmable V/f freq. coord. 1).		
Index:	P1321[0] : 1st. Drive data set (DDS) P1321[1] : 2nd. Drive data set (DDS) P1321[2] : 3rd. Drive data set (DDS)		
P1322[3]	Programmable V/f freq. coord. 2	Min: 0.00	Level:
	CStat: CT Datatype: Float Unit: Hz Def: 0.00 P-Group: CONTROL Active: Immediately QuickComm. No Max: 650.00	3	
	See P1320 (programmable V/f freq. coord. 1).		
Index:	P1322[0] : 1st. Drive data set (DDS) P1322[1] : 2nd. Drive data set (DDS) P1322[2] : 3rd. Drive data set (DDS)		
P1323[3]	Programmable V/f volt. coord. 2	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: V Def: 0.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 3000.0	3	
	See P1320 (programmable V/f freq. coord. 1).		
Index:	P1323[0] : 1st. Drive data set (DDS) P1323[1] : 2nd. Drive data set (DDS) P1323[2] : 3rd. Drive data set (DDS)		
P1324[3]	Programmable V/f freq. coord. 3	Min: 0.00	Level:
	CStat: CT Datatype: Float Unit: Hz Def: 0.00 P-Group: CONTROL Active: Immediately QuickComm. No Max: 650.00	3	
	See P1320 (programmable V/f freq. coord. 1).		
Index:	P1324[0] : 1st. Drive data set (DDS) P1324[1] : 2nd. Drive data set (DDS) P1324[2] : 3rd. Drive data set (DDS)		
P1325[3]	Programmable V/f volt. coord. 3	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: V Def: 0.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 3000.0	3	
	See P1320 (programmable V/f freq. coord. 1).		
Index:	P1325[0] : 1st. Drive data set (DDS) P1325[1] : 2nd. Drive data set (DDS) P1325[2] : 3rd. Drive data set (DDS)		
P1330[3]	Cl: Voltage setpoint	Min: 0:0	Level:
	CStat: T Datatype: U32 Unit: - Def: 0:0 P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0	3	
	BICO parameter for selecting source of voltage setpoint for independent V/f control.		
Index:	P1330[0] : 1st. Command data set (CDS) P1330[1] : 2nd. Command data set (CDS) P1330[2] : 3rd. Command data set (CDS)		
P1333[3]	Start frequency for FCC	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 10.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 100.0	3	
	Defines start frequency at which FCC (flux current control) is enabled as [%] of rated motor frequency (P0310).		
Index:	P1333[0] : 1st. Drive data set (DDS) P1333[1] : 2nd. Drive data set (DDS) P1333[2] : 3rd. Drive data set (DDS)		
Notice:	If this value is too low, the system may become unstable.		

P1335[3]	Slip compensation	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 0.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 600.0		2
Dynamically adjusts output frequency of inverter so that motor speed is kept constant independent of motor load.			
Value: P1335 = 0 % : Slip compensation disabled. P1335 = 100 % : This uses the motor data and motor model to add the rated slip frequency rated motor speed and rated motor current.			
Index: P1335[0] : 1st. Drive data set (DDS) P1335[1] : 2nd. Drive data set (DDS) P1335[2] : 3rd. Drive data set (DDS)			
Note: Gain adjustment enables fine-tuning of the actual motor speed (see P1460 - gain speed control). 100% = standard setting for warm stator			
P1336[3]	Slip limit	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 250 P-Group: CONTROL Active: Immediately QuickComm. No Max: 600		2
Compensation slip limit in [%] relative to r0330 (rated motor slip), which is added to frequency setpoint.			
Index: P1336[0] : 1st. Drive data set (DDS) P1336[1] : 2nd. Drive data set (DDS) P1336[2] : 3rd. Drive data set (DDS)			
Dependency: Slip compensation (P1335) active.			
r1337	CO: V/f slip frequency	Min: -	Level:
	P-Group: CONTROL Datatype: Float Unit: % Def: - Max: -		3
Displays actual compensated motor slip as [%]			
Dependency: Slip compensation (P1335) active.			
P1338[3]	Resonance damping gain V/f	Min: 0.00	Level:
	CStat: CUT Datatype: Float Unit: - Def: 0.00 P-Group: CONTROL Active: Immediately QuickComm. No Max: 10.00		3
Defines resonance damping gain for V/f.			
Index: P1338[0] : 1st. Drive data set (DDS) P1338[1] : 2nd. Drive data set (DDS) P1338[2] : 3rd. Drive data set (DDS)			
Note: The resonance circuit damps oscillations of the active current which frequently occur during no-load operation. In V/f modes (see P1300), the resonant damping circuit is active in a range from approx. 5 % to 70 % of rated motor frequency (P0310).			
P1340[3]	I_{max} controller prop. gain	Min: 0.000	Level:
	CStat: CUT Datatype: Float Unit: - Def: 0.000 P-Group: CONTROL Active: Immediately QuickComm. No Max: 0.499		3
Proportional gain of the I _{max} frequency controller.			
The I _{max} controller reduces inverter current if the output current exceeds the maximum motor current (P0067).			
In linear V/f, parabolic V/f, FCC, and programmable V/f modes the I _{max} controller uses both a frequency controller (see parameters P1340 and P1341) and a voltage controller (see parameters P1344 and P1345). The frequency controller seeks to reduce current by limiting the inverter output frequency (to a minimum of the two times nominal slip frequency). If this action does not successfully remove the overcurrent condition, the inverter output voltage is reduced using the I _{max} voltage controller. When the overcurrent condition has been removed successfully, frequency limiting is removed using the ramp-up time set in P1120.			

In linear V/f for textiles, FCC for textiles, or external V/f modes only the I_max voltage controller is used to reduce current (See parameters P1345 and P1346).

Index:

P1340[0] : 1st. Drive data set (DDS)
P1340[1] : 2nd. Drive data set (DDS)
P1340[2] : 3rd. Drive data set (DDS)

Note:

The I_max controller can be disabled by setting the frequency controller integral time P1341 to zero. This disables both the frequency and voltage controllers. Note that when disabled, the I_max controller will take no action to reduce current but overcurrent warnings will still be generated, and the Drive will trip in excessive overcurrent or overload conditions.

P1341[3]	I_max controller integral time	Min: 0.000	Level:
	CStat: CUT Datatype: Float Unit: s Def: 0.300		3
	P-Group: CONTROL Active: Immediately QuickComm. No Max: 50.000		

Integral time constant of the I_max frequency controller.
P1341 = 0 : I_max frequency and voltage controllers disabled
P1340 = 0 and P1341 > 0 : frequency controller enhanced integral
P1340 > 0 and P1341 > 0 : frequency controller normal PI control

See description in parameter P1340 for further information.

Index:

P1341[0] : 1st. Drive data set (DDS)
P1341[1] : 2nd. Drive data set (DDS)
P1341[2] : 3rd. Drive data set (DDS)

r1343	CO: I_max controller freq. output	Min: -	Level:
	Datatype: Float Unit: Hz Def: -		3
	P-Group: CONTROL Max: -		

Displays effective frequency limitation.

Dependency:

If I_max controller not in operation, parameter normally shows f_max (P1082).

r1344	CO: I_max controller volt. output	Min: -	Level:
	Datatype: Float Unit: V Def: -		3
	P-Group: CONTROL Max: -		

Displays amount by which the I_max controller is reducing the inverter output voltage.

P1345[3]	I_max controller prop. gain	Min: 0.000	Level:
	CStat: CUT Datatype: Float Unit: - Def: 0.250		3
	P-Group: CONTROL Active: Immediately QuickComm. No Max: 5.499		

Proportional gain of the I_max voltage controller. See parameter P1340 for further information.

Index:

P1345[0] : 1st. Drive data set (DDS)
P1345[1] : 2nd. Drive data set (DDS)
P1345[2] : 3rd. Drive data set (DDS)

P1346[3]	I_max controller integral time	Min: 0.000	Level:
	CStat: CUT Datatype: Float Unit: s Def: 0.300		3
	P-Group: CONTROL Active: Immediately QuickComm. No Max: 50.000		

Integral time constant of the I_max voltage controller.
P1341 = 0 : I_max frequency and voltage controllers disabled
P1345 = 0 and P1346 > 0 : I_max voltage controller enhanced integral
P1345 > 0 and P1346 > 0 : I_max voltage controller normal PI control

See description in parameter P1340 for further information.

Index:

P1346[0] : 1st. Drive data set (DDS)
P1346[1] : 2nd. Drive data set (DDS)
P1346[2] : 3rd. Drive data set (DDS)

P1350[3]	Voltage soft start	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Unit: -
	P-Group: CONTROL	Active: first confirm		QuickComm. No

Sets whether voltage is built up smoothly during magnetization time (ON) or whether it simply jumps to boost voltage (OFF)

Settings:

- 0 OFF
- 1 ON

Index:

- P1350[0] : 1st. Drive data set (DDS)
- P1350[1] : 2nd. Drive data set (DDS)
- P1350[2] : 3rd. Drive data set (DDS)

Note:

The settings for this parameter bring benefits and drawbacks:
 0 = OFF (jump to boost voltage)
 Benefit: flux is built up quickly
 Drawback: motor may move
 1 = ON (smooth voltage build-up)
 Benefit: motor less likely to move
 Drawback: flux build-up takes longer

P1400[3]	Configuration of speed control	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Unit: -
	P-Group: CONTROL	Active: Immediately		QuickComm. No

Configuration for speed control.

Bitfields:

- | | | | |
|-------|------------------------|---|-----|
| Bit00 | Automatic Kp adaption | 0 | NO |
| | | 1 | YES |
| Bit01 | Integral freeze (SLVC) | 0 | NO |
| | | 1 | YES |

Index:

- P1400[0] : 1st. Drive data set (DDS)
- P1400[1] : 2nd. Drive data set (DDS)
- P1400[2] : 3rd. Drive data set (DDS)

r1407	CO/BO: Status 2 of motor control	Min: -	Level: 3	
		Datatype: U16		Unit: -
	P-Group: CONTROL			Max: -

Displays status of motor control, which can be used to diagnose inverter status.

Bitfields:

- | | | | |
|-------|------------------------------|---|-----|
| Bit00 | V/f control enable | 0 | NO |
| | | 1 | YES |
| Bit01 | SLVC enable | 0 | NO |
| | | 1 | YES |
| Bit02 | Torque control enable | 0 | NO |
| | | 1 | YES |
| Bit05 | Stop I-comp. speed control | 0 | NO |
| | | 1 | YES |
| Bit06 | Set I-comp. speed controller | 0 | NO |
| | | 1 | YES |
| Bit08 | Upper torque limit active | 0 | NO |
| | | 1 | YES |
| Bit09 | Lower torque limit active | 0 | NO |
| | | 1 | YES |
| Bit10 | Enable droop | 0 | NO |
| | | 1 | YES |
| Bit15 | DDS change active | 0 | NO |
| | | 1 | YES |

Details:

See P052 (CO/BO: Status word 1)

r1438	CO: Freq. setpoint to controller	Min: -	Level: 3	
		Datatype: Float		Unit: Hz
	P-Group: CONTROL			Max: -

Displays setpoint of speed controller.

P1442[3]	Filter time for act. speed	Min: 0	Level: 4	
	CStat: CUT	Datatype: U16		Unit: ms
	P-Group: CONTROL	Active: Immediately		QuickComm. No

Sets time constant of PT1 filter to smooth speed deviation of speed controller.

Index:

- P1442[0] : 1st. Drive data set (DDS)
- P1442[1] : 2nd. Drive data set (DDS)
- P1442[2] : 3rd. Drive data set (DDS)

r1445	CO: Act. filtered frequency	Datatype: Float	Unit: Hz	Min: - Def: - Max: -	Level: 4
	P-Group: CONTROL				
	Displays filtered actual speed at speed controller input.				
P1452[3]	Filter time for act.speed (SLVC)	Datatype: U16	Unit: ms	Min: 0 Def: 4 Max: 32000	Level: 3
	CStat: CUT				
	P-Group: CONTROL				
	Active: Immediately				
	QuickComm. No				
	Sets time constant of PT1 filter to filter the speed deviation of speed controller in operation mode SLVC (sensorless vector control).				
Index:	P1452[0] : 1st. Drive data set (DDS)				
	P1452[1] : 2nd. Drive data set (DDS)				
	P1452[2] : 3rd. Drive data set (DDS)				
P1460[3]	Gain speed controller	Datatype: Float	Unit: -	Min: 0.0 Def: 3.0 Max: 2000.0	Level: 4
	CStat: CUT				
	P-Group: CONTROL				
	Active: Immediately				
	QuickComm. No				
	Enters gain of speed controller.				
Index:	P1460[0] : 1st. Drive data set (DDS)				
	P1460[1] : 2nd. Drive data set (DDS)				
	P1460[2] : 3rd. Drive data set (DDS)				
P1462[3]	Integral time speed controller	Datatype: U16	Unit: ms	Min: 25 Def: 400 Max: 32001	Level: 4
	CStat: CUT				
	P-Group: CONTROL				
	Active: Immediately				
	QuickComm. No				
	Enters integral time of speed controller.				
Index:	P1462[0] : 1st. Drive data set (DDS)				
	P1462[1] : 2nd. Drive data set (DDS)				
	P1462[2] : 3rd. Drive data set (DDS)				
P1470[3]	Gain speed controller (SLVC)	Datatype: Float	Unit: -	Min: 0.0 Def: 3.0 Max: 2000.0	Level: 2
	CStat: CUT				
	P-Group: CONTROL				
	Active: Immediately				
	QuickComm. No				
	Enters gain of speed controller for sensorless vector control (SLVC).				
Index:	P1470[0] : 1st. Drive data set (DDS)				
	P1470[1] : 2nd. Drive data set (DDS)				
	P1470[2] : 3rd. Drive data set (DDS)				
P1472[3]	Integral time n-ctrl. (SLVC)	Datatype: U16	Unit: ms	Min: 25 Def: 400 Max: 32001	Level: 2
	CStat: CUT				
	P-Group: CONTROL				
	Active: Immediately				
	QuickComm. No				
	Enters integral time of speed controller for sensorless vector control (SLVC).				
Index:	P1472[0] : 1st. Drive data set (DDS)				
	P1472[1] : 2nd. Drive data set (DDS)				
	P1472[2] : 3rd. Drive data set (DDS)				
P1477[3]	BI: Set integrator of n-ctrl.	Datatype: U32	Unit: -	Min: 0:0 Def: 0:0 Max: 4000:0	Level: 3
	CStat: CUT				
	P-Group: CONTROL				
	Active: first confirm				
	QuickComm. No				
	Selects source to read in command to enable speed controller.				
Index:	P1477[0] : 1st. Command data set (CDS)				
	P1477[1] : 2nd. Command data set (CDS)				
	P1477[2] : 3rd. Command data set (CDS)				

P1478[3]	CI: Set integrator value n-ctrl.	Min: 0:0	Level: 3
	CStat: UT Datatype: U32 Unit: - Def: 0:0		
	P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0		

Selects source for integral part of speed controller.

Index:

- P1478[0] : 1st. Command data set (CDS)
- P1478[1] : 2nd. Command data set (CDS)
- P1478[2] : 3rd. Command data set (CDS)

Dependency:

In case of sensorless vector control, integrator freezing must be selected (P1400=1) to save the integrator output.

Note:

If the setting command is not connected (P1477=0), a pending value is read in after pulse enable at the end of the excitation time (P0346) and the integral component of the speed controller is set once. If the P1482 (integral component of speed controller) is connected upon pulse enable, the integral component of the controller is set to the last value prior the pulse inhibit.

Notice:

Neither function works after flying start.

r1482	CO: Integral output of n-ctrl.	Min: -	Level: 3
	Datatype: Float Unit: Nm Def: -		
	P-Group: CONTROL Max: -		

Displays integral part of speed controller output.

P1488[3]	Droop input source	Min: 0	Level: 3
	CStat: CUT Datatype: U16 Unit: - Def: 0		
	P-Group: CONTROL Active: first confirm QuickComm. No Max: 3		

Selects source of droop input signal.

Settings:

- 0 Droop input disabled
- 1 Torque setpoint
- 2 Speed controller output
- 3 Speed controller integral output

Index:

- P1488[0] : 1st. Drive data set (DDS)
- P1488[1] : 2nd. Drive data set (DDS)
- P1488[2] : 3rd. Drive data set (DDS)

Dependency:

Droop scaling (P1489) must be > 0 for droop to be effective.

P1489[3]	Droop scaling	Min: 0.0	Level: 3
	CStat: CUT Datatype: Float Unit: - Def: 0.05		
	P-Group: CONTROL Active: Immediately QuickComm. No Max: 0.50		

Defines amount of droop in per unit at full load in [%].

Index:

- P1489[0] : 1st. Drive data set (DDS)
- P1489[1] : 2nd. Drive data set (DDS)
- P1489[2] : 3rd. Drive data set (DDS)

Note:

If 0 is entered as value, no droop is applied.

r1490	CO: Droop frequency	Min: -	Level: 3
	Datatype: Float Unit: Hz Def: -		
	P-Group: CONTROL Max: -		

Displays output signal of droop function.

This result of droop calculation is subtracted from the speed controller setpoint.

P1492[3]	Enable droop	Min: 0	Level: 3
	CStat: CUT Datatype: U16 Unit: - Def: 0		
	P-Group: CONTROL Active: first confirm QuickComm. No Max: 1		

Enables droop.

Settings:

- 0 Disabled
- 1 Enabled

Index:

- P1492[0] : 1st. Drive data set (DDS)
- P1492[1] : 2nd. Drive data set (DDS)
- P1492[2] : 3rd. Drive data set (DDS)

Dependency:

Effective only if droop scaling (P1489) > 0

P1496[3]	Scaling accel. precontrol				Min: 0.0	Level: 3
	CStat: CUT	Datatype: Float	Unit: %	Def: 0.0		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 400.0		

Enters scaling of acceleration in [%].

Index:

P1496[0] : 1st. Drive data set (DDS)
P1496[1] : 2nd. Drive data set (DDS)
P1496[2] : 3rd. Drive data set (DDS)

Note:

P1496 = 100 % = standard setting

P1499[3]	Scaling accel. torque control				Min: 0.0	Level: 3
	CStat: CUT	Datatype: Float	Unit: %	Def: 100.0		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 400.0		

Enters scaling of acceleration in [%] for sensorless torque control (SLVC) at low frequencies.

Index:

P1499[0] : 1st. Drive data set (DDS)
P1499[1] : 2nd. Drive data set (DDS)
P1499[2] : 3rd. Drive data set (DDS)

P1500[3]	Selection of torque setpoint				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: CONTROL	Active: first confirm	QuickComm. Yes	Max: 77		

Selects torque setpoint source. In the table of possible settings below, the main setpoint is selected from the least significant digit (i.e., 0 to 7) and any additional setpoint from the most significant digit (i.e., x0 through to x6).

Example:

Setting 24 selects the main setpoint (4) derived from the USS on BOP link with the additional setpoint (2) derived from the analog input. Single digits are main setpoints only with no additional setpoint.

Settings:

Use table below to select other settings, including an additional setpoint.

- 0 No main setpoint
- 2 Analog setpoint
- 4 USS on BOP link
- 5 USS on COM link
- 6 CB on COM link
- 7 Analog setpoint 2

Settings:

- 0 No main setpoint
- 2 Analog setpoint
- 4 USS on BOP link
- 5 USS on COM link
- 6 CB on COM link
- 7 Analog setpoint 2
- 20 No main setpoint + Analog setpoint
- 22 Analog setpoint + Analog setpoint
- 24 USS on BOP link + Analog setpoint
- 25 USS on COM link + Analog setpoint
- 26 CB on COM link + Analog setpoint
- 27 Analog setpoint 2 + Analog setpoint
- 40 No main setpoint + USS on BOP link
- 42 Analog setpoint + USS on BOP link
- 44 USS on BOP link + USS on BOP link
- 45 USS on COM link + USS on BOP link
- 46 CB on COM link + USS on BOP link
- 47 Analog setpoint 2 + USS on BOP link
- 50 No main setpoint + USS on COM link
- 52 Analog setpoint + USS on COM link
- 54 USS on BOP link + USS on COM link
- 55 USS on COM link + USS on COM link
- 56 CB on COM link + USS on COM link
- 57 Analog setpoint 2 + USS on COM link
- 60 No main setpoint + CB on COM link
- 62 Analog setpoint + CB on COM link
- 64 USS on BOP link + CB on COM link
- 65 USS on COM link + CB on COM link
- 66 CB on COM link + CB on COM link
- 67 Analog setpoint 2 + CB on COM link
- 70 No main setpoint + Analog setpoint 2
- 72 Analog setpoint + Analog setpoint 2
- 74 USS on BOP link + Analog setpoint 2
- 75 USS on COM link + Analog setpoint 2
- 76 CB on COM link + Analog setpoint 2
- 77 Analog setpoint 2 + Analog setpoint 2

Index:

- P1500[0] : 1st. Command data set (CDS)
- P1500[1] : 2nd. Command data set (CDS)
- P1500[2] : 3rd. Command data set (CDS)

P1501[3]	BI: Change to torque control				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0		
	P-Group: CONTROL	Active: first confirm	QuickComm. No	Max: 4000:0		

Selects command source from which it is possible to change between master (speed control) and slave (torque control).

Index:

- P1501[0] : 1st. Command data set (CDS)
- P1501[1] : 2nd. Command data set (CDS)
- P1501[2] : 3rd. Command data set (CDS)

P1503[3]	CI: Torque setpoint	Min: 0:0	Level:
	CStat: T Datatype: U32 Unit: - Def: 0:0 P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0		3
	Selects source of torque setpoint for torque control.		
Index:	P1503[0] : 1st. Command data set (CDS) P1503[1] : 2nd. Command data set (CDS) P1503[2] : 3rd. Command data set (CDS)		
r1508	CO: Torque setpoint	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		2
	Displays torque setpoint before limitation.		
P1511[3]	CI: Additional torque setpoint	Min: 0:0	Level:
	CStat: T Datatype: U32 Unit: - Def: 0:0 P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0		3
	Selects source of additional torque setpoint for torque and speed control.		
Index:	P1511[0] : 1st. Command data set (CDS) P1511[1] : 2nd. Command data set (CDS) P1511[2] : 3rd. Command data set (CDS)		
r1515	CO: Additional torque setpoint	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		2
	Displays additional torque setpoint.		
r1518	CO: Acceleration torque	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		3
	Displays acceleration torque.		
P1520[3]	CO: Upper torque limit	Min: -99999.0	Level:
	CStat: CUT Datatype: Float Unit: Nm Def: 5.13 P-Group: CONTROL Active: Immediately QuickComm. No Max: 99999.0		2
	Specifies fixed value for upper torque limitation.		
Index:	P1520[0] : 1st. Drive data set (DDS) P1520[1] : 2nd. Drive data set (DDS) P1520[2] : 3rd. Drive data set (DDS)		
P1521[3]	CO: Lower torque limit	Min: -99999.0	Level:
	CStat: CUT Datatype: Float Unit: Nm Def: -5.13 P-Group: CONTROL Active: Immediately QuickComm. No Max: 99999.0		2
	Enters fixed value of lower torque limitation.		
Index:	P1521[0] : 1st. Drive data set (DDS) P1521[1] : 2nd. Drive data set (DDS) P1521[2] : 3rd. Drive data set (DDS)		
P1522[3]	CI: Upper torque limit	Min: 0:0	Level:
	CStat: T Datatype: U32 Unit: - Def: 1520:0 P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0		3
	Selects source of upper torque limitation.		
Index:	P1522[0] : 1st. Command data set (CDS) P1522[1] : 2nd. Command data set (CDS) P1522[2] : 3rd. Command data set (CDS)		
P1523[3]	CI: Lower torque limit	Min: 0:0	Level:
	CStat: T Datatype: U32 Unit: - Def: 1521:0 P-Group: CONTROL Active: first confirm QuickComm. No Max: 4000:0		3
	Selects source of lower torque limitation.		
Index:	P1523[0] : 1st. Command data set (CDS) P1523[1] : 2nd. Command data set (CDS) P1523[2] : 3rd. Command data set (CDS)		

P1525[3]	Scaling lower torque limit	Min: -400.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 100.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 400.0		3
Enters scaling of lower torque limitation in [%].			
Index:	P1525[0] : 1st. Drive data set (DDS) P1525[1] : 2nd. Drive data set (DDS) P1525[2] : 3rd. Drive data set (DDS)		
Note:	P1525 = 100 % = standard setting		
r1526	CO: Upper torque limitation	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		3
Displays actual upper torque limitation.			
r1527	CO: Lower torque limitation	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		3
Displays actual lower torque limitation.			
P1530[3]	Motoring power limitation	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: - Def: 0.75 P-Group: CONTROL Active: Immediately QuickComm. No Max: 8000.0		2
Defines fixed value of motoring power limitation.			
Index:	P1530[0] : 1st. Drive data set (DDS) P1530[1] : 2nd. Drive data set (DDS) P1530[2] : 3rd. Drive data set (DDS)		
P1531[3]	Regenerative power limitation	Min: -8000.0	Level:
	CStat: CUT Datatype: Float Unit: - Def: -0.75 P-Group: CONTROL Active: Immediately QuickComm. No Max: 0.0		2
Enters fixed value of regenerative power limitation.			
Index:	P1531[0] : 1st. Drive data set (DDS) P1531[1] : 2nd. Drive data set (DDS) P1531[2] : 3rd. Drive data set (DDS)		
r1536	CO: Max. trq. motoring current	Min: -	Level:
	Datatype: Float Unit: A Def: - P-Group: CONTROL Max: -		4
Displays maximum torque motoring current component.			
r1537	CO: Max trq regenerative current	Min: -	Level:
	Datatype: Float Unit: A Def: - P-Group: CONTROL Max: -		4
Displays maximum torque of the regenerative current component.			
r1538	CO: Upper torque limit (total)	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		2
Displays total upper torque limitation.			
r1539	CO: Lower torque limit (total)	Min: -	Level:
	Datatype: Float Unit: Nm Def: - P-Group: CONTROL Max: -		2
Displays total lower torque limitation.			
P1570[3]	CO: Fixed value flux setpoint	Min: 50.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 100.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 200.0		2
Defines fixed value of flux setpoint in [%] relative to rated motor flux.			
Index:	P1570[0] : 1st. Drive data set (DDS) P1570[1] : 2nd. Drive data set (DDS) P1570[2] : 3rd. Drive data set (DDS)		
Note:	If P1570 > 100%, the flux setpoint rises according to the load from 100 % to the value of P1570 between idling and nominal load.		

P1574[3]	Dynamic voltage headroom	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: V Def: 10 P-Group: CONTROL Active: Immediately QuickComm. No Max: 150		3
	Sets dynamic voltage headroom for vector control.		
Index:	P1574[0] : 1st. Drive data set (DDS) P1574[1] : 2nd. Drive data set (DDS) P1574[2] : 3rd. Drive data set (DDS)		
P1580[3]	Efficiency optimization	Min: 0	Level:
	CStat: CUT Datatype: U16 Unit: % Def: 0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 100		2
	Enters degree of efficiency optimization in [%].		
Index:	P1580[0] : 1st. Drive data set (DDS) P1580[1] : 2nd. Drive data set (DDS) P1580[2] : 3rd. Drive data set (DDS)		
Note:	If P1580 > 0, the dynamics for speed control (P1470, P1472) are restricted to prevent vibration. When no load is applied, a value of 100 % produces full flux reduction (i.e. to 50 % of rated motor flux). When using optimization, it is necessary to increase the smoothing time of the flux setpoint (P1582).		
P1582[3]	Smooth time for flux setpoint	Min: 4	Level:
	CStat: CUT Datatype: U16 Unit: ms Def: 15 P-Group: CONTROL Active: Immediately QuickComm. No Max: 500		3
	Sets time constant of PT1 filter to smooth flux setpoint.		
Index:	P1582[0] : 1st. Drive data set (DDS) P1582[1] : 2nd. Drive data set (DDS) P1582[2] : 3rd. Drive data set (DDS)		
r1583	CO: Flux setpoint (smoothed)	Min: -	Level:
	Datatype: Float Unit: % Def: - P-Group: CONTROL Max: -		4
	Displays smoothed flux setpoint in [%] relative to rated motor flux.		
P1596[3]	Int. time field weak. controller	Min: 20	Level:
	CStat: CUT Datatype: U16 Unit: ms Def: 50 P-Group: CONTROL Active: Immediately QuickComm. No Max: 32001		3
	Sets integral time for field weakening controller.		
Index:	P1596[0] : 1st. Drive data set (DDS) P1596[1] : 2nd. Drive data set (DDS) P1596[2] : 3rd. Drive data set (DDS)		
r1597	CO: Outp. field weak. controller	Min: -	Level:
	Datatype: Float Unit: % Def: - P-Group: CONTROL Max: -		4
	Displays output signal of field weakening controller in [%] relative to rated motor flux.		
r1598	CO: Flux setpoint (total)	Min: -	Level:
	Datatype: Float Unit: % Def: - P-Group: CONTROL Max: -		3
	Displays total flux setpoint in [%] relative to the rated motor flux.		
P1610[3]	Continuous torque boost (SLVC)	Min: 0.0	Level:
	CStat: CUT Datatype: Float Unit: % Def: 50.0 P-Group: CONTROL Active: Immediately QuickComm. No Max: 200.0		2
	Sets continuous torque boost in lower speed range of SLVC (sensorless vector control). Value is entered in [%] relative to rated motor load.		
Index:	P1610[0] : 1st. Drive data set (DDS) P1610[1] : 2nd. Drive data set (DDS) P1610[2] : 3rd. Drive data set (DDS)		
Note:	P1610 = 100 % corresponds to rated motor load		

P1611[3]	Acc. torque boost (SLVC)	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: %	Def: 0.0
P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 200.0
			2
Sets acceleration torque boost in lower speed range of SLVC (sensorless vector control).			
Value is entered in [%] relative to rated motor load.			
Index:	P1611[0] : 1st. Drive data set (DDS)		
	P1611[1] : 2nd. Drive data set (DDS)		
	P1611[2] : 3rd. Drive data set (DDS)		
Note:	P1611 = 100 % corresponds to rated motor load		
P1654[3]	Smooth time for Isq setpoint	Min: 2.0	Level:
CStat: CUT	Datatype: Float	Unit: ms	Def: 6.0
P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 20.0
			4
Sets time constant of PT1 filter to filter setpoint of torque generating current component in field weakening range.			
Index:	P1654[0] : 1st. Drive data set (DDS)		
	P1654[1] : 2nd. Drive data set (DDS)		
	P1654[2] : 3rd. Drive data set (DDS)		
P1715[3]	Gain current controller	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: -	Def: 0.25
P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 5.0
			4
Enters gain of current controller.			
Index:	P1715[0] : 1st. Drive data set (DDS)		
	P1715[1] : 2nd. Drive data set (DDS)		
	P1715[2] : 3rd. Drive data set (DDS)		
P1717[3]	Integral time current controller	Min: 1.0	Level:
CStat: CUT	Datatype: Float	Unit: ms	Def: 4.1
P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 50.0
			4
Enters integral time of current controller.			
Index:	P1717[0] : 1st. Drive data set (DDS)		
	P1717[1] : 2nd. Drive data set (DDS)		
	P1717[2] : 3rd. Drive data set (DDS)		
r1718	CO: Output of Isq controller	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays actual output of Isq current (torque current) controller (PI controller). It contains the proportional and integral part of the PI controller.			
r1719	CO: Integral output of Isq ctrl.	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays integral output of Isq current (torque current) controller (PI controller).			
r1723	CO: Output of Isd controller	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays actual output of Isd current (flux current) controller (PI controller). It contains the proportional and integral part of the PI controller.			
r1724	CO: Integral output of Isd ctrl.	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays integral output of Isd current (flux current) controller (PI controller).			
r1725	CO: Integral limit of Isd ctrl.	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays limit of integral output voltage setpoint of Isd current controller.			
r1728	CO: Decoupling voltage	Min: -	Level:
	Datatype: Float	Unit: V	Def: -
P-Group: CONTROL			Max: -
			4
Displays actual output voltage setpoint of cross channel decoupling.			

P1740	Gain for oscillation damping				Min: 0.000	Level: 3
	CStat: CUT	Datatype: Float	Unit: -	Def: 0.000		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 10.000		

Sets oscillation damping gain for sensorless vector control at low frequencies.

P1750[3]	Control word of motor model				Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: -	Def: 1		
	P-Group: CONTROL	Active: first confirm	QuickComm. No	Max: 3		

Control word of motor model.

Bitfields:

Bit00	Start open loop	0	NO
		1	YES
Bit01	Zero crossing open loop	0	NO
		1	YES

Index:

P1750[0] : 1st. Drive data set (DDS)
P1750[1] : 2nd. Drive data set (DDS)
P1750[2] : 3rd. Drive data set (DDS)

r1751	Status word of motor model				Min: -	Level: 3
		Datatype: U16	Unit: -	Def: -		
	P-Group: CONTROL			Max: -		

Displays status of transition from feed-forward to observer-control and vice versa.

Bitfields:

Bit00	Transit to open loop	0	NO
		1	YES
Bit01	N-adaption enabled	0	NO
		1	YES
Bit02	Switch freq. to observer	0	NO
		1	YES
Bit03	Speed controller enabled	0	NO
		1	YES
Bit04	Current injection	0	NO
		1	YES
Bit05	Start flux decrease	0	NO
		1	YES
Bit14	Rs adapted	0	NO
		1	YES
Bit15	Xh adapted	0	NO
		1	YES

P1755[3]	Start-freq. motor model (SLVC)				Min: 0.1	Level: 4
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 5.0		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 250.0		

Enters start frequency of sensorless vector control (SLVC).

Index:

P1755[0] : 1st. Drive data set (DDS)
P1755[1] : 2nd. Drive data set (DDS)
P1755[2] : 3rd. Drive data set (DDS)

P1756[3]	Hyst.-freq. motor model (SLVC)				Min: 10.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: %	Def: 50.0		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 100.0		

Enters hysteresis frequency (in percent of start-frequency) to switch back from sensorless-vector-control (SLVC) to current model.

Value is entered in the range 0 % to 50 % relative to P1755 (SLVC stop frequency).

Index:

P1756[0] : 1st. Drive data set (DDS)
P1756[1] : 2nd. Drive data set (DDS)
P1756[2] : 3rd. Drive data set (DDS)

P1758[3]	T(wait) transit to feed-fwd-mode				Min: 100	Level: 4
	CStat: CUT	Datatype: U16	Unit: ms	Def: 1500		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 2000		

Sets waiting time for change from observer-mode to feed-forward-mode

Index:

P1758[0] : 1st. Drive data set (DDS)
P1758[1] : 2nd. Drive data set (DDS)
P1758[2] : 3rd. Drive data set (DDS)

P1759[3]	T(wait) for n-adaption to settle				Min: 50	Level: 4
	CStat: CUT	Datatype: U16	Unit: ms	Def: 100		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 2000		

Sets waiting time while transition is done from open-loop to close-loop operation

Index:

- P1759[0] : 1st. Drive data set (DDS)
- P1759[1] : 2nd. Drive data set (DDS)
- P1759[2] : 3rd. Drive data set (DDS)

P1764[3]	Kp of n-adaption (SLVC)				Min: 0.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: -	Def: 0.2		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 2.5		

Enters gain of speed adaptation controller for sensorless vector control.

Index:

- P1764[0] : 1st. Drive data set (DDS)
- P1764[1] : 2nd. Drive data set (DDS)
- P1764[2] : 3rd. Drive data set (DDS)

P1767[3]	Tn of n-adaption (SLVC)				Min: 1.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: ms	Def: 4.0		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 200.0		

Enters speed adaptation controller integral time.

Index:

- P1767[0] : 1st. Drive data set (DDS)
- P1767[1] : 2nd. Drive data set (DDS)
- P1767[2] : 3rd. Drive data set (DDS)

r1770	CO: Prop. output of n-adaption				Min: -	Level: 3
	Datatype: Float	Unit: Hz	Def: -	Max: -		
	P-Group: CONTROL					

Displays integral part of speed adaptation controller.

r1771	CO: Int. output of n-adaption				Min: -	Level: 3
	Datatype: Float	Unit: Hz	Def: -	Max: -		
	P-Group: CONTROL					

Displays integral part of speed adaptation controller.

r1778	CO: Flux angle difference				Min: -	Level: 4
	Datatype: Float	Unit: °	Def: -	Max: -		
	P-Group: CONTROL					

Displays flux angle difference between motor model and current transformation before motor model is active.

P1780[3]	Control word of Rs/Rr-adaption				Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: -	Def: 3		
	P-Group: CONTROL	Active: first confirm	QuickComm. No	Max: 3		

Enables thermal adaptation of stator and rotor resistance to reduce torque errors in speed/torque regulation with speed sensor, or speed errors in speed/torque regulation without speed sensor.

Bitfields:

Bit00	Enable thermal Rs/Rr-adapt.	0	NO
		1	YES
Bit01	Enable observer Rs/Xm-adapt.	0	NO
		1	YES

Index:

- P1780[0] : 1st. Drive data set (DDS)
- P1780[1] : 2nd. Drive data set (DDS)
- P1780[2] : 3rd. Drive data set (DDS)

Note:

Only stator resistance adaptation is carried out for synchronous motors.

P1781[3]	Tn of Rs-adaption				Min: 10	Level: 4
	CStat: CUT	Datatype: U16	Unit: ms	Def: 100		
	P-Group: CONTROL	Active: Immediately	QuickComm. No	Max: 2000		

Enters Rs-adaption controller integral time.

Index:

- P1781[0] : 1st. Drive data set (DDS)
- P1781[1] : 2nd. Drive data set (DDS)
- P1781[2] : 3rd. Drive data set (DDS)

r1782	Output of Rs-adaptation	Datatype: Float	Unit: %	Min: -	Level: 3
	P-Group: CONTROL			Def: - Max: -	

Displays stator resistance adaptation from controller in [%] relative to rated motor resistance.

Note:

The rated motor resistance is given by the formula:

$$\text{Rated motor resistance} = P0304 * \sqrt{3} * P0305$$

P1786[3]	Tn of Xm-adaption	Datatype: U16	Unit: ms	Min: 10	Level: 4
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 100	
	P-Group: CONTROL			Max: 2000	

Enters Xm-adaptation controller integral time.

Index:

P1786[0] : 1st. Drive data set (DDS)
P1786[1] : 2nd. Drive data set (DDS)
P1786[2] : 3rd. Drive data set (DDS)

r1787	Output of Xm-adaption	Datatype: Float	Unit: %	Min: -	Level: 3
	P-Group: CONTROL			Def: - Max: -	

Displays main reactance adaptation from controller in [%] relative to rated impedance.

Note:

The rated motor resistance is given by the formula:

$$\text{Rated motor resistance} = P0304 * \sqrt{3} * P0305$$

P1800	Pulse frequency	Datatype: U16	Unit: kHz	Min: 2	Level: 2
	CStat: CUT	Active: Immediately	QuickComm. No	Def: 4	
	P-Group: INVERTER			Max: 16	

Sets pulse frequency of power switches in inverter. The frequency can be changed in steps of 2 kHz.

Pulse frequencies > 4 kHz selected on 380-480 V units reduce the maximum continuous motor current.

Dependency:

Minimum pulse frequency depends on P1082 (maximum frequency) and P0310 (rated motor frequency).

Note:

At 4 kHz, full output current is obtained up to 50 degrees C (CT mode);
over 50 degrees C, full output may be obtained at 8 kHz

If silent operation is not absolutely necessary, lower pulse frequencies may be selected to reduce inverter losses and radio-frequency emissions.

Under certain circumstances, the inverter may reduce the switching frequency to provide protection against over-temperature (see P0290, Level 3).

r1801	CO: Act. switching frequency	Datatype: U16	Unit: kHz	Min: -	Level: 3
	P-Group: INVERTER			Def: - Max: -	

Actual pulse frequency of power switches in inverter.

Notice:

Under certain conditions (inverter overtemperature, see P0290), this can differ from the values selected in P1800 (pulse frequency).

P1802	Modulator mode	Datatype: U16	Unit: -	Min: 0	Level: 3
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 0	
	P-Group: INVERTER			Max: 2	

Selects inverter modulator mode.

Settings:

0 SVM/ASVM automatic mode
1 Asymmetric SVM
2 Space vector modulation

Notice:

Asymmetric space vector modulation (ASVM) produces lower switching losses than space vector modulation (SVM), but may cause irregular rotation at very low speeds.

Space vector modulation (SVM) with over-modulation may produce current waveform distortion at high output voltages.

Space vector modulation (SVM) without over-modulation will reduce maximum output voltage available to motor.

P1803[3]	Max. modulation			Min: 20.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: %	Def: 106.0	
	P-Group: INVERTER	Active: Immediately	QuickComm. No	Max: 150.0	

Sets maximum modulation index.

Index:

- P1803[0] : 1st. Drive data set (DDS)
- P1803[1] : 2nd. Drive data set (DDS)
- P1803[2] : 3rd. Drive data set (DDS)

Note:

P1803 = 100 % = limit for over-control (for ideal inverter without switching delay). For vector control the modulation limit will be reduced automatically with 4 %.

P1820[3]	Reverse output phase sequence			Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0	
	P-Group: INVERTER	Active: first confirm	QuickComm. No	Max: 1	

Changes direction of motor rotation without changing setpoint polarity.

Settings:

- 0 OFF
- 1 ON

Index:

- P1820[0] : 1st. Drive data set (DDS)
- P1820[1] : 2nd. Drive data set (DDS)
- P1820[2] : 3rd. Drive data set (DDS)

Dependency:

If positive and negative revolution is enabled, frequency setpoint is directly used.
If both positive and negative revolution are disabled, reference value is set to zero.

Details:

See P1000 (select frequency setpoint)

P1825	On-state voltage of IGBT			Min: 0.0	Level: 4
	CStat: CUT	Datatype: Float	Unit: V	Def: 1.4	
	P-Group: INVERTER	Active: Immediately	QuickComm. No	Max: 20.0	

Corrects on-state voltage of the IGBTs.

P1828	Gating unit dead time			Min: 0.00	Level: 4
	CStat: CUT	Datatype: Float	Unit: us	Def: 0.50	
	P-Group: INVERTER	Active: first confirm	QuickComm. No	Max: 3.50	

Sets compensation time of gating unit interlock.

P1909[3]	Ctrl. word of motor data ident.			Min: 0	Level: 4
	CStat: CUT	Datatype: U16	Unit: -	Def: 1	
	P-Group: CONTROL	Active: first confirm	QuickComm. No	Max: 1	

Control word of motor data identification.

Bitfields:

- Bit00 Estimation of Xs 0 NO
- 1 YES

Index:

- P1909[0] : 1st. Drive data set (DDS)
- P1909[1] : 2nd. Drive data set (DDS)
- P1909[2] : 3rd. Drive data set (DDS)

P1910	Select motor data identification				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: MOTOR	Active: first confirm	QuickComm. Yes	Max: 20		

Performs a motor data identification.

Settings:

P1910 = 1: All motor data
 * P0350 stator resistance,
 * P0354 rotor resistance,
 * P0356 stator leakage reactance,
 * P0358 rotor leakage reactance,
 * P0360 main reactance
 will be identified and parameter will be changed.

P1910 = 3: Saturation curve
 * P0362 ... P0365 magnetizing curve flux 1 .. 4
 * P0366 ... P0369 magnetizing curve imag 1 .. 4
 will be identified and parameter will be changed.

Settings:

0	Disabled
1	Identification of all parameters with parameter change
2	Identification of all parameters without parameter change
3	Identification of saturation curve with parameter change
4	Identification of saturation curve without parameter change
5	Identification of XsigDyn (r1920) without parameter change
6	Identification of Tdead (r1926) without parameter change
7	Identification of Rs (r1912) without parameter change
8	Identification of Xs (r1915) without parameter change
9	Identification of Tr (r1913) without parameter change
10	Identification of Xsigma (r1914) without parameter change
20	Set voltage vector

Note:

Before selecting motor data identification, "Quick commissioning" has to be performed in advance.

Once enabled (P1910 = 1), A0541 generates a warning that the next ON command will initiate measurement of motor parameters.

Notice:

When choosing the setting for measurement, observe the following:
 1. "with parameter change" means that the values are actually adopted as Pxxxx parameter settings (see common settings above) and applied to the controller as well as being shown in the read-only parameters below.
 2. "without parameter change" means that the values are only displayed, i.e. shown for checking purposes in the read-only parameters r1912 (identified stator resistance), r1913 (identified rotor time constant), r1914 (ident. total leakage reactance), r1915/r1916/1917/1918/1919 (identified nominal stator reactance/identified stator reactance 1 to 4) and 1926 (identified gating unit dead time). The values are not applied to the controller.

P1911	No. of phase to be identified				Min: 1	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 3		
	P-Group: INVERTER	Active: Immediately	QuickComm. No	Max: 3		

Selects maximum number of motor phases to be identified.

r1912[3]	Identified stator resistance			Min: -	Level: 2
	Datatype: Float	Unit: Ohm	Def: -		
	P-Group: MOTOR	Max: -			

Displays measured stator resistance value (line-to-line) in [Ohms]

Index:

r1912[0] : U_phase
 r1912[1] : V_phase
 r1912[2] : W_phase

Note:

This value is measured using P1910 = 1 or 2 , i.e., identification of all parameters with/without change.

r1913[3]	Identified rotor time constant			Min: -	Level: 2
	Datatype: Float	Unit: ms	Def: -		
	P-Group: MOTOR	Max: -			

Displays identified rotor time constant.

Index:

r1913[0] : U_phase
 r1913[1] : V_phase
 r1913[2] : W_phase

r1914[3]	Ident. total leakage inductance	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified total leakage inductance.				
Index:	r1914[0] : U_phase r1914[1] : V_phase r1914[2] : W_phase				
r1915[3]	Ident. nom. stator inductance	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified stator inductance.				
Index:	r1915[0] : U_phase r1915[1] : V_phase r1915[2] : W_phase				
Notice:	If the value identified (Ls = stator inductance) does not lie within the range 50 % < Xs [p. u.] < 500 % fault message 41 (motor data identification failure) is issued. P0949 provides further information (fault value = 4 in this case).				
r1916[3]	Identified stator inductance 1	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified stator inductance.				
Index:	r1916[0] : U_phase r1916[1] : V_phase r1916[2] : W_phase				
Details:	See P1915 (identified nominal stator inductance)				
r1917[3]	Identified stator inductance 2	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified stator inductance.				
Index:	r1917[0] : U_phase r1917[1] : V_phase r1917[2] : W_phase				
Details:	See P1915 (identified nominal stator inductance)				
r1918[3]	Identified stator inductance 3	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified stator inductance.				
Index:	r1918[0] : U_phase r1918[1] : V_phase r1918[2] : W_phase				
Details:	See P1915 (identified nominal stator reactance)				
r1919[3]	Identified stator inductance 4	Datatype: Float	Unit: -	Min: - Def: - Max: -	Level: 2
	P-Group: MOTOR				
	Displays identified stator inductance.				
Index:	r1919[0] : U_phase r1919[1] : V_phase r1919[2] : W_phase				
Details:	See P1915 (identified nominal stator inductance)				

r1920[3]	Identified dyn.leak.induct. Datatype: Float Unit: - P-Group: MOTOR	Min: - Def: - Max: -	Level: 2
Index:	Displays identified total dynamic leakage inductance. r1920[0] : U_phase r1920[1] : V_phase r1920[2] : W_phase		
r1925	Identified on-state voltage Datatype: Float Unit: V P-Group: INVERTER	Min: - Def: - Max: -	Level: 2
	Displays identified on-state voltage of IGBT.		
r1926	Ident. gating unit dead time Datatype: Float Unit: us P-Group: INVERTER	Min: - Def: - Max: -	Level: 2
	Displays identified dead time of gating unit interlock.		
P1930	Voltage setpoint for calibration CStat: CUT Datatype: Float Unit: V P-Group: INVERTER Active: Immediately QuickComm. No	Min: 0 Def: 0 Max: 1000	Level: 4
	Specifies reference voltage for generation of a test voltage vector (e.g. used for shunt calibration).		
P1931	Phase CStat: CUT Datatype: U16 Unit: - P-Group: INVERTER Active: Immediately QuickComm. No	Min: 1 Def: 1 Max: 6	Level: 4
	Defines phase of voltage vector		
P2000[3]	Reference frequency CStat: CT Datatype: Float Unit: Hz P-Group: COMM Active: first confirm QuickComm. No	Min: 1.00 Def: 50.00 Max: 650.00	Level: 2
Index:	Full-scale frequency setting used by serial link (corresponds to 4000H), analog I/O and P/D controller. P2000[0] : 1st. Drive data set (DDS) P2000[1] : 2nd. Drive data set (DDS) P2000[2] : 3rd. Drive data set (DDS)		
P2001[3]	Reference voltage CStat: CT Datatype: U16 Unit: V P-Group: COMM Active: first confirm QuickComm. No	Min: 10 Def: 1000 Max: 2000	Level: 3
Example:	Full-scale output voltage (i.e. 100 %) used over serial link (corresponds to 4000H). P2001 = 230 specifies that 4000H received via USS denotes 230 V.		
Index:	P2001[0] : 1st. Drive data set (DDS) P2001[1] : 2nd. Drive data set (DDS) P2001[2] : 3rd. Drive data set (DDS)		
P2002[3]	Reference current CStat: CT Datatype: Float Unit: A P-Group: COMM Active: first confirm QuickComm. No	Min: 0.10 Def: 0.10 Max: 10000.00	Level: 3
Index:	Full-scale output current used over serial link (corresponds to 4000H). P2002[0] : 1st. Drive data set (DDS) P2002[1] : 2nd. Drive data set (DDS) P2002[2] : 3rd. Drive data set (DDS)		
P2003[3]	Reference torque CStat: CT Datatype: Float Unit: Nm P-Group: COMM Active: first confirm QuickComm. No	Min: 0.10 Def: 0.75 Max: 99999.00	Level: 3
Index:	Full-scale reference torque used over the serial link (corresponds to 4000H). P2003[0] : 1st. Drive data set (DDS) P2003[1] : 2nd. Drive data set (DDS) P2003[2] : 3rd. Drive data set (DDS)		

r2004[3]	Reference power	Datatype: Float	Unit: -	Min: -	Level: 3
	P-Group: COMM			Def: - Max: -	

Full-scale reference power used over the serial link (corresponds to 4000H).

Index:

- r2004[0] : 1st. Drive data set (DDS)
- r2004[1] : 2nd. Drive data set (DDS)
- r2004[2] : 3rd. Drive data set (DDS)

P2009[2]	USS normalization	Datatype: U16	Unit: -	Min: 0	Level: 3
	CStat: CT	Active: first confirm	QuickComm. No	Def: 0	
	P-Group: COMM			Max: 1	

Enables special normalization for USS.

Settings:

- 0 Disabled
- 1 Enabled

Index:

- P2009[0] : Serial interface COM link
- P2009[1] : Serial interface BOP link

Note:

If enabled, the main setpoint (word 2 in PZD) is not interpreted as 100 % = 4000H, but as "absolute" instead (e.g. 4000H = 16384 means 163.84 Hz).

P2010[2]	USS baudrate	Datatype: U16	Unit: -	Min: 4	Level: 2
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 6	
	P-Group: COMM			Max: 12	

Sets baud rate for USS communication.

Settings:

- 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

Index:

- P2010[0] : Serial interface COM link
- P2010[1] : Serial interface BOP link

P2011[2]	USS address	Datatype: U16	Unit: -	Min: 0	Level: 2
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 0	
	P-Group: COMM			Max: 31	

Sets unique address for inverter.

Index:

- P2011[0] : Serial interface COM link
- P2011[1] : Serial interface BOP link

Note:

You can connect up to a further 30 inverters via the serial link (i.e. 31 inverters in total) and control them with the USS serial bus protocol.

P2012[2]	USS PZD length	Datatype: U16	Unit: -	Min: 0	Level: 3
	CStat: CUT	Active: first confirm	QuickComm. No	Def: 2	
	P-Group: COMM			Max: 8	

Defines the number of 16-bit words in PZD part of USS telegram. The PZD part of the USS telegram is used for the main setpoint, and to control the inverter.

Index:

- P2012[0] : Serial interface COM link
- P2012[1] : Serial interface BOP link

P2013[2]	USS PKW length			Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: -	Def: 127	
	P-Group: COMM	Active: first confirm	QuickComm. No	Max: 127	

Defines the number of 16-bit words in PKW part of USS telegram. The PKW part of the USS telegram is used to read and write individual parameter values

Settings:

0 No words
3 3 words
4 4 words
27 Variable

Index:

P2013[0] : Serial interface COM link
P2013[1] : Serial interface BOP link

Notice:

Setting P2013 has implications for the PKW word order, please refer to the Reference Manual for details

P2014[2]	USS telegram off time			Min: 0	Level: 3
	CStat: CT	Datatype: U16	Unit: ms	Def: 0	
	P-Group: COMM	Active: Immediately	QuickComm. No	Max: 65535	

Defines a time T_off after which a fault will be generated (F0070) if no telegram is received via the USS channels.

Index:

P2014[0] : Serial interface COM link
P2014[1] : Serial interface BOP link

Notice:

By default (time set to 0), no fault is generated (i.e. watchdog disabled).

r2015[8]	CO: PZD from BOP link (USS)			Min: -	Level: 3
		Datatype: U16	Unit: -	Def: -	
	P-Group: COMM			Max: -	

Displays process data received via USS on BOP link (RS232 USS).

Index:

r2015[0] : Received word 0
r2015[1] : Received word 1
r2015[2] : Received word 2
r2015[3] : Received word 3
r2015[4] : Received word 4
r2015[5] : Received word 5
r2015[6] : Received word 6
r2015[7] : Received word 7

Note:

The control words can be viewed as bit parameters r2032 and r2033.

P2016[8]	CI: PZD to BOP link (USS)			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 52:0	
	P-Group: COMM	Active: Immediately	QuickComm. No	Max: 4000:0	

Selects signals to be transmitted to serial interface via BOP link

Example:

P2016[0] = 52.0 (default). In this case, the value of r0052[0] (CO/BO: Status word) is transmitted as 1st PZD to the BOP link.

Index:

P2016[0] : Transmitted word 0
P2016[1] : Transmitted word 1
P2016[2] : Transmitted word 2
P2016[3] : Transmitted word 3
P2016[4] : Transmitted word 4
P2016[5] : Transmitted word 5
P2016[6] : Transmitted word 6
P2016[7] : Transmitted word 7

Note:

If r0052 not indexed, display does not show an index (".0").

r2018[8]	CO: PZD from COM link (USS)	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays process data received via USS on COM link

Index:

- r2018[0] : Received word 0
- r2018[1] : Received word 1
- r2018[2] : Received word 2
- r2018[3] : Received word 3
- r2018[4] : Received word 4
- r2018[5] : Received word 5
- r2018[6] : Received word 6
- r2018[7] : Received word 7

Note:

The control words can be viewed as bit parameters r2032 and r2033.

P2019[8]	CI: PZD to COM link (USS)	Datatype: U32	Unit: -	Min: 0:0 Def: 52:0 Max: 4000:0	Level: 3
	CStat: CT	Active: Immediately	QuickComm. No		
	P-Group: COMM				

Index:

- P2019[0] : Transmitted word 0
- P2019[1] : Transmitted word 1
- P2019[2] : Transmitted word 2
- P2019[3] : Transmitted word 3
- P2019[4] : Transmitted word 4
- P2019[5] : Transmitted word 5
- P2019[6] : Transmitted word 6
- P2019[7] : Transmitted word 7

Details:

See r2016 (PZD to BOP link)

r2024[2]	USS error-free telegrams	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays number of error-free USS telegrams received.

Index:

- r2024[0] : Serial interface COM link
- r2024[1] : Serial interface BOP link

r2025[2]	USS rejected telegrams	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays number of USS telegrams rejected.

Index:

- r2025[0] : Serial interface COM link
- r2025[1] : Serial interface BOP link

r2026[2]	USS character frame error	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays number of USS character frame errors.

Index:

- r2026[0] : Serial interface COM link
- r2026[1] : Serial interface BOP link

r2027[2]	USS overrun error	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays number of USS telegrams with overrun error.

Index:

- r2027[0] : Serial interface COM link
- r2027[1] : Serial interface BOP link

r2028[2]	USS parity error	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays number of USS telegrams with parity error.

Index:

- r2028[0] : Serial interface COM link
- r2028[1] : Serial interface BOP link

r2029[2]	USS start not identified	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				
	Displays number of USS telegrams with unidentified start.				
Index:	r2029[0] : Serial interface COM link r2029[1] : Serial interface BOP link				
r2030[2]	USS BCC error	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				
	Displays number of USS telegrams with BCC error.				
Index:	r2030[0] : Serial interface COM link r2030[1] : Serial interface BOP link				
r2031[2]	USS length error	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				
	Displays number of USS telegrams with incorrect length.				
Index:	r2031[0] : Serial interface COM link r2031[1] : Serial interface BOP link				
r2032	BO: CtrlWrd1 from BOP link (USS)	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				
	Displays control word 1 from BOP link (word 1 within USS).				
Bitfields:					
Bit00	ON/OFF1	0	NO	1	YES
Bit01	OFF2: Electrical stop	0	YES	1	NO
Bit02	OFF3: Fast stop	0	YES	1	NO
Bit03	Pulse enable	0	NO	1	YES
Bit04	RFG enable	0	NO	1	YES
Bit05	RFG start	0	NO	1	YES
Bit06	Setpoint enable	0	NO	1	YES
Bit07	Fault acknowledge	0	NO	1	YES
Bit08	JOG right	0	NO	1	YES
Bit09	JOG left	0	NO	1	YES
Bit10	Control from PLC	0	NO	1	YES
Bit11	Reverse (setpoint inversion)	0	NO	1	YES
Bit13	Motor potentiometer MOP up	0	NO	1	YES
Bit14	Motor potentiometer MOP down	0	NO	1	YES
Bit15	CDS Bit 0 (Local/Remote)	0	NO	1	YES

r2033	BO: CtrlWrd2 from BOP link (USS)	Min: -	Level: 3
	Datatype: U16 Unit: -	Def: -	
	P-Group: COMM	Max: -	

Displays control word 2 from BOP link (i.e. word 4 within USS)

Bitfields:

Bit00	Fixed frequency Bit 0	0	NO
		1	YES
Bit01	Fixed frequency Bit 1	0	NO
		1	YES
Bit02	Fixed frequency Bit 2	0	NO
		1	YES
Bit03	Fixed frequency Bit 3	0	NO
		1	YES
Bit04	Drive data set (DDS) Bit 0	0	NO
		1	YES
Bit05	Drive data set (DDS) Bit 1	0	NO
		1	YES
Bit08	PID enabled	0	NO
		1	YES
Bit09	DC brake enabled	0	NO
		1	YES
Bit11	Droop	0	NO
		1	YES
Bit12	Torque control	0	NO
		1	YES
Bit13	External fault 1	0	YES
		1	NO
Bit15	Command data set (CDS) Bit 1	0	NO
		1	YES

Dependency:

P0700 = 5 (USS on COM link) and P0719 = 0 (Cmd / Setpoint = BICO parameter).

r2036	BO: CtrlWrd1 from COM link (USS)	Min: -	Level: 3
	Datatype: U16 Unit: -	Def: -	
	P-Group: COMM	Max: -	

Displays control word 1 from COM link (i.e. word 1 within USS)

Bitfields:

Bit00	ON/OFF1	0	NO
		1	YES
Bit01	OFF2: Electrical stop	0	YES
		1	NO
Bit02	OFF3: Fast stop	0	YES
		1	NO
Bit03	Pulse enable	0	NO
		1	YES
Bit04	RFG enable	0	NO
		1	YES
Bit05	RFG start	0	NO
		1	YES
Bit06	Setpoint enable	0	NO
		1	YES
Bit07	Fault acknowledge	0	NO
		1	YES
Bit08	JOG right	0	NO
		1	YES
Bit09	JOG left	0	NO
		1	YES
Bit10	Control from PLC	0	NO
		1	YES
Bit11	Reverse (setpoint inversion)	0	NO
		1	YES
Bit13	Motor potentiometer MOP up	0	NO
		1	YES
Bit14	Motor potentiometer MOP down	0	NO
		1	YES
Bit15	CDS Bit 0 (Local/Remote)	0	NO
		1	YES

Details:

See r2033 (control word 2 from BOP link)

r2037	BO: CtrlWrd2 from COM link (USS)	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays control word 2 from COM link (i.e. word 4 within USS)

Bitfields:

Bit00	Fixed frequency Bit 0	0	NO
		1	YES
Bit01	Fixed frequency Bit 1	0	NO
		1	YES
Bit02	Fixed frequency Bit 2	0	NO
		1	YES
Bit03	Fixed frequency Bit 3	0	NO
		1	YES
Bit04	Drive data set (DDS) Bit 0	0	NO
		1	YES
Bit05	Drive data set (DDS) Bit 1	0	NO
		1	YES
Bit08	PID enabled	0	NO
		1	YES
Bit09	DC brake enabled	0	NO
		1	YES
Bit11	Droop	0	NO
		1	YES
Bit12	Torque control	0	NO
		1	YES
Bit13	External fault 1	0	YES
		1	NO
Bit15	Command data set (CDS) Bit 1	0	NO
		1	YES

Details:

See r2033 (control word 2 from BOP link)

P2040	CB telegram off time	Datatype: U16	Unit: ms	Min: 0 Def: 20 Max: 65535	Level: 3
	CStat: CT	Active: Immediately	QuickComm. No		
	P-Group: COMM				

Defines time after which a fault will be generated (F0070) if no telegram is received via the link (SOL).

Dependency:

Setting 0 = watchdog disabled

P2041[5]	CB parameter	Datatype: U16	Unit: -	Min: 0 Def: 0 Max: 65535	Level: 3
	CStat: CT	Active: first confirm	QuickComm. No		
	P-Group: COMM				

Configures a communication board (CB).

Index:

P2041[0] : CB parameter 0
P2041[1] : CB parameter 1
P2041[2] : CB parameter 2
P2041[3] : CB parameter 3
P2041[4] : CB parameter 4

Details:

See relevant communication board manual for protocol definition and appropriate settings

r2050[8]	CO: PZD from CB	Datatype: U16	Unit: -	Min: - Def: - Max: -	Level: 3
	P-Group: COMM				

Displays PZD received from communication board (CB).

Index:

r2050[0] : Received word 0
r2050[1] : Received word 1
r2050[2] : Received word 2
r2050[3] : Received word 3
r2050[4] : Received word 4
r2050[5] : Received word 5
r2050[6] : Received word 6
r2050[7] : Received word 7

Note:

The control words can be viewed as bit parameters r2032 and r2033.

P2051[8]	CI: PZD to CB			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 52:0	
	P-Group: COMM	Active: Immediately	QuickComm. No	Max: 4000:0	

Connects PZD to CB.

This parameter allows the user to define the source of status words and actual values for the reply PZD.

Settings:

Status word 1 = 52
CO/BO: Act. status word 1 (see r0052)
Actual value 1 = 21 inverter output frequency (see r0021)

Other BICO settings are possible

Index:

P2051[0] : Transmitted word 0
P2051[1] : Transmitted word 1
P2051[2] : Transmitted word 2
P2051[3] : Transmitted word 3
P2051[4] : Transmitted word 4
P2051[5] : Transmitted word 5
P2051[6] : Transmitted word 6
P2051[7] : Transmitted word 7

r2053[5]	CB identification			Min: -	Level: 3
		Datatype: U16	Unit: -	Def: -	
	P-Group: COMM			Max: -	

Displays identification data of the communication board (CB). The different CB types (r2035[0]) are given in the Enum declaration.

Settings:

0 No CB option board
1 PROFIBUS DP
2 DeviceNet
56 not defined

Index:

r2053[0] : CB type (PROFIBUS = 1)
r2053[1] : Firmware version
r2053[2] : Firmware version detail
r2053[3] : Firmware date (year)
r2053[4] : Firmware date (day/month)

r2054[7]	CB diagnosis			Min: -	Level: 3
		Datatype: U16	Unit: -	Def: -	
	P-Group: COMM			Max: -	

Displays diagnostic information of communication board (CB).

Index:

r2054[0] : CB diagnosis 0
r2054[1] : CB diagnosis 1
r2054[2] : CB diagnosis 2
r2054[3] : CB diagnosis 3
r2054[4] : CB diagnosis 4
r2054[5] : CB diagnosis 5
r2054[6] : CB diagnosis 6

Details:

See relevant communications board manual.

r2090	BO: Control word 1 from CB	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMM			Def: - Max: -	

Displays control word 1 received from communication board (CB).

Bitfields:

Bit00	ON/OFF1	0	NO
		1	YES
Bit01	OFF2: Electrical stop	0	YES
		1	NO
Bit02	OFF3: Fast stop	0	YES
		1	NO
Bit03	Pulse enable	0	NO
		1	YES
Bit04	RFG enable	0	NO
		1	YES
Bit05	RFG start	0	NO
		1	YES
Bit06	Setpoint enable	0	NO
		1	YES
Bit07	Fault acknowledge	0	NO
		1	YES
Bit08	JOG right	0	NO
		1	YES
Bit09	JOG left	0	NO
		1	YES
Bit10	Control from PLC	0	NO
		1	YES
Bit11	Reverse (setpoint inversion)	0	NO
		1	YES
Bit13	Motor potentiometer MOP up	0	NO
		1	YES
Bit14	Motor potentiometer MOP down	0	NO
		1	YES
Bit15	CDS Bit 0 (Local/Remote)	0	NO
		1	YES

Details:

See relevant communication board manual for protocol definition and appropriate settings

r2091	BO: Control word 2 from CB	Datatype: U16	Unit: -	Min: -	Level: 3
	P-Group: COMM			Def: - Max: -	

Displays control word 2 received from communication board (CB).

Bitfields:

Bit00	Fixed frequency Bit 0	0	NO
		1	YES
Bit01	Fixed frequency Bit 1	0	NO
		1	YES
Bit02	Fixed frequency Bit 2	0	NO
		1	YES
Bit03	Fixed frequency Bit 3	0	NO
		1	YES
Bit04	Drive data set (DDS) Bit 0	0	NO
		1	YES
Bit05	Drive data set (DDS) Bit 1	0	NO
		1	YES
Bit08	PID enabled	0	NO
		1	YES
Bit09	DC brake enabled	0	NO
		1	YES
Bit11	Droop	0	NO
		1	YES
Bit12	Torque control	0	NO
		1	YES
Bit13	External fault 1	0	YES
		1	NO
Bit15	Command data set (CDS) Bit 1	0	NO
		1	YES

Details:

See relevant communication board manual for protocol definition and appropriate settings

P2100[3]	Alarm number selection	Min: 0	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: ALARMS	Active: first confirm		QuickComm. No

Selects up to 3 faults or warnings for non-default reactions.

Example:

If you want F0005 to perform an OFF3 instead of an OFF2, set P2100[0] = 5, then select the desired reaction in P2101[0] (in this case, set P2101[0] = 3).

Note:

All fault codes have a default reaction to OFF2. Some fault codes caused by hardware trips (e.g. overcurrent) cannot be changed from the default reactions.

P2101[3]	Stop reaction value	Min: 0	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: ALARMS	Active: first confirm		QuickComm. No

Sets drive stop reaction values for fault selected by P2100 (alarm number stop reaction).

This indexed parameter specifies the special reaction to the faults/warnings defined in P2100 indices 0 to 2.

Settings:

- 0 No reaction, no display
- 1 OFF1 stop reaction
- 2 OFF2 stop reaction
- 3 OFF3 stop reaction
- 4 No reaction warning only

Note:

Settings 0 - 3 only are available for fault codes

Settings 0 and 4 only are available for warnings

Index 0 (P2101) refers to fault/warning in index 0 (P2100)

P2103[3]	BI: 1. Faults acknowledgement	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Defines source of fault acknowledgement, e.g. keypad/DIN, etc. (depending on setting).

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

Index:

- P2103[0] : 1st. Command data set (CDS)
- P2103[1] : 2nd. Command data set (CDS)
- P2103[2] : 3rd. Command data set (CDS)

P2104[3]	BI: 2. Faults acknowledgement	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Unit: -
	P-Group: COMMANDS	Active: first confirm		QuickComm. No

Selects second source of fault acknowledgement.

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

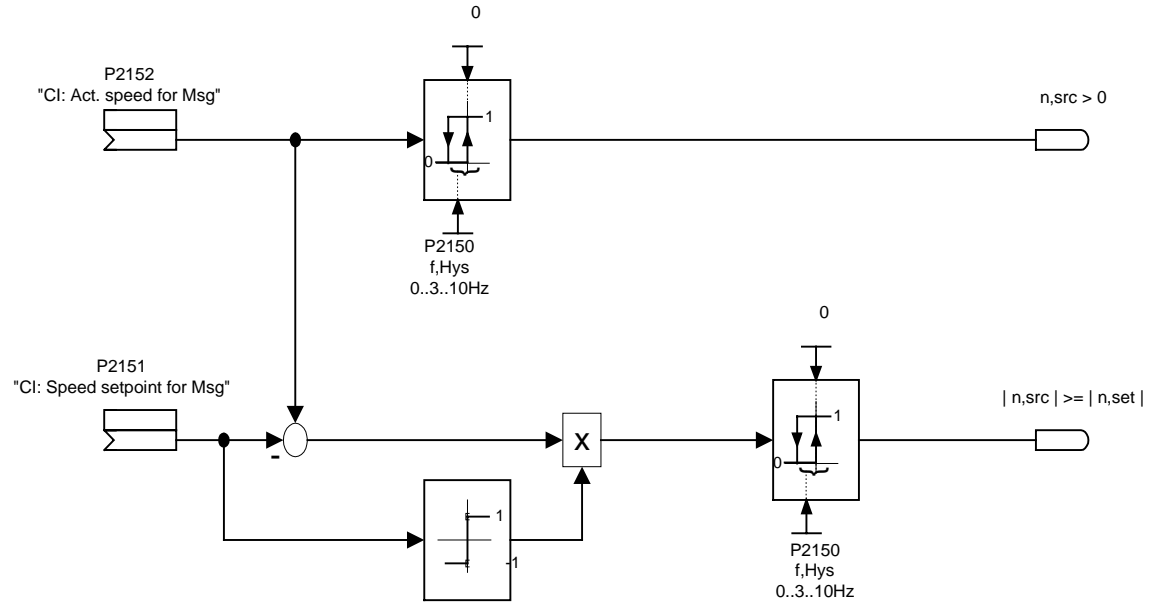
Index:

- P2104[0] : 1st. Command data set (CDS)
- P2104[1] : 2nd. Command data set (CDS)
- P2104[2] : 3rd. Command data set (CDS)

P2106[3]	BI: External fault			Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 1:0	
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0	
	Selects source of external faults.				
	Settings:				
	722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)				
	722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)				
	722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)				
	722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)				
	722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)				
	722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)				
	722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)				
	722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)				
	Index:				
	P2106[0] : 1st. Command data set (CDS)				
	P2106[1] : 2nd. Command data set (CDS)				
	P2106[2] : 3rd. Command data set (CDS)				
r2110[4]	Warning number			Min: -	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: -	
	P-Group: ALARMS			Max: -	
	Displays warning information.				
	A maximum of 2 active warnings (indices 0 and 1) and 2 historical warnings (indices 2 and 3) may be viewed.				
	Index:				
	r2110[0] : Recent Warnings --, warning 1				
	r2110[1] : Recent Warnings --, warning 2				
	r2110[2] : Recent Warnings -1, warning 3				
	r2110[3] : Recent Warnings -1, warning 4				
	Note:				
	The keypad will flash while a warning is active. The LEDs indicate the warning status in this case.				
	If an AOP is in use, the display will show number and text of the active warning.				
	Notice:				
	Indices 0 and 1 are not stored.				
P2111	Total number of warnings			Min: 0	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: 0	
	P-Group: ALARMS	Active: first confirm	QuickComm. No	Max: 4	
	Displays number of warning (up to 4) since last reset. Set to 0 to reset the warning history.				
r2114[2]	Run time counter			Min: -	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: -	
	P-Group: ALARMS			Max: -	
	Displays run time counter				
	Details:				
	See P0948 (fault time)				
P2115[3]	AOP real time clock			Min: 0	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: 0	
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 65535	
	Displays AOP real time.				
	Details:				
	See P0948 (fault time)				
P2120	Indication counter			Min: 0	Level: 4
	CStat: CUT	Datatype: U16	Unit: -	Def: 0	
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 65535	
	Indicates total number of alarm events. This parameter is incremented whenever an alarm event occurs.				

P2150[3]	Hysteresis frequency f_hys	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Def: 3.00
	P-Group: ALARMS	Active: Immediately	QuickComm. No Max: 10.00

Defines hysteresis level applied for comparing frequency and speed to threshold as illustrated in the diagram below

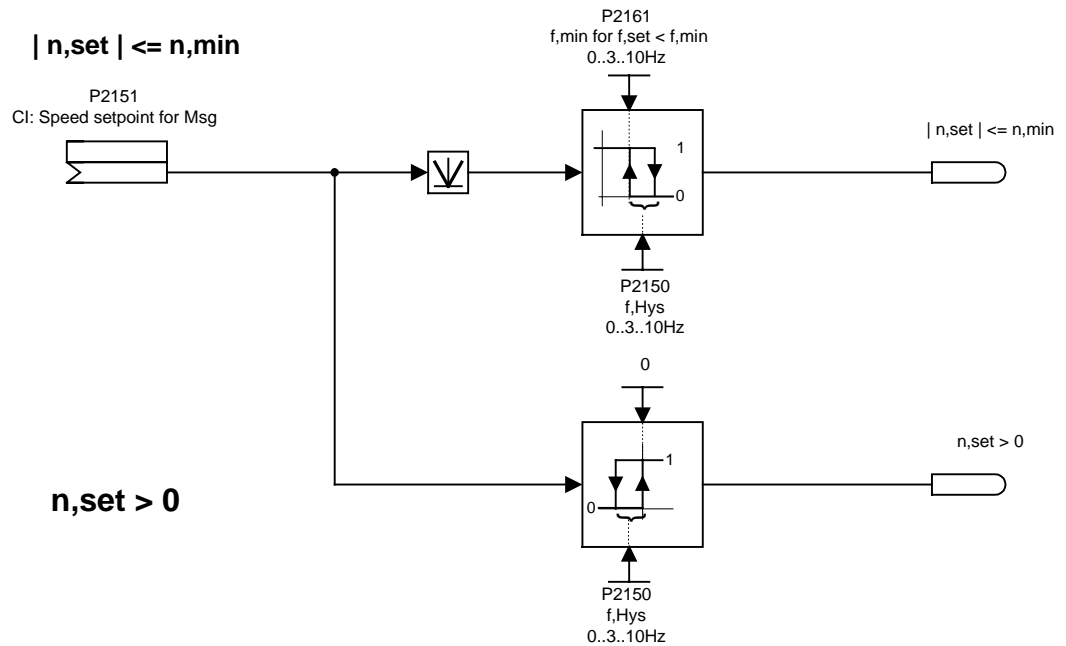


Index:

- P2150[0] : 1st. Drive data set (DDS)
- P2150[1] : 2nd. Drive data set (DDS)
- P2150[2] : 3rd. Drive data set (DDS)

P2151[3]	CI: Monitoring speed setpoint	Min: 0:0	Level:
	CStat: CUT	Datatype: U32	Def: 0:0
	P-Group: ALARMS	Active: Immediately	QuickComm. No Max: 4000:0
3			

Selects (speed) setpoint signal to be compared to threshold as illustrated in the diagram below.

**Index:**

P2151[0] : 1st. Command data set (CDS)
P2151[1] : 2nd. Command data set (CDS)
P2151[2] : 3rd. Command data set (CDS)

Details:

See also diagram in P2150 (hysteresis frequency f_{hys})

P2152[3]	CI: Act. monitoring speed	Min: 0:0	Level:
	CStat: CUT	Datatype: U32	Def: 0:0
	P-Group: ALARMS	Active: Immediately	QuickComm. No Max: 4000:0
3			

Selects (speed) signal to be compared to threshold.

Index:

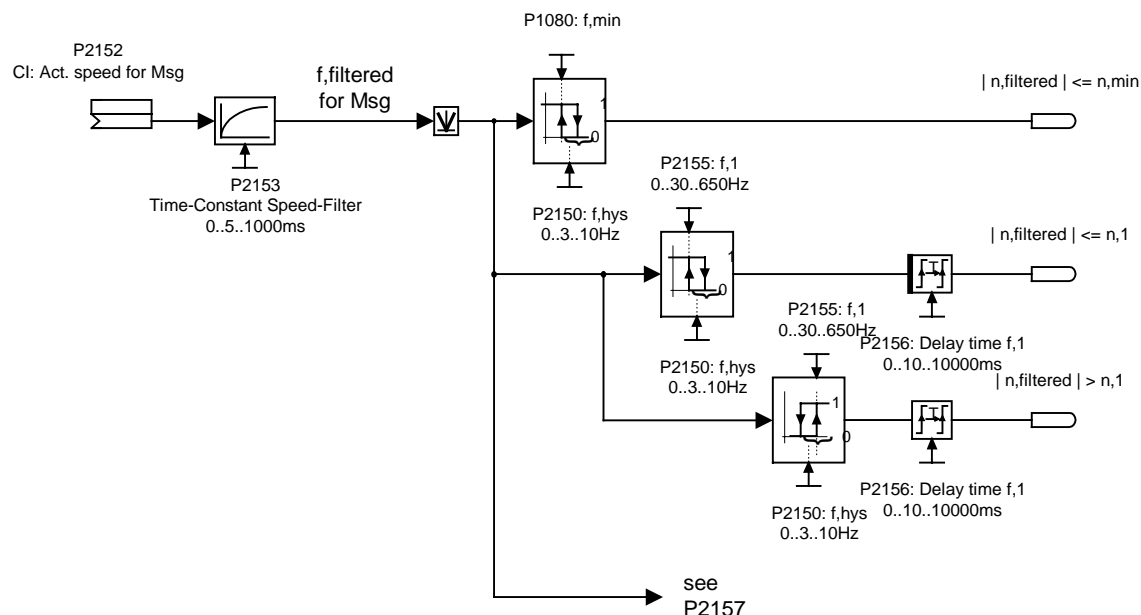
P2152[0] : 1st. Command data set (CDS)
P2152[1] : 2nd. Command data set (CDS)
P2152[2] : 3rd. Command data set (CDS)

Details:

See diagrams in P2150 (hysteresis frequency f_{hys}) and P2151 (speed setpoint for monitoring)

P2153[3]	Time-constant speed filter	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No Def: 5 Max: 1000

Specifies time constant of first-order speed filter. The filtered speed is then compared to the thresholds as illustrated in the diagram below.



Index:

- P2153[0] : 1st. Drive data set (DDS)
- P2153[1] : 2nd. Drive data set (DDS)
- P2153[2] : 3rd. Drive data set (DDS)

Details:

See also diagram in P2157 (threshold frequency f_2)

P2155[3]	Threshold frequency f_1	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Unit: Hz
	P-Group: ALARMS	Active: Immediately	QuickComm. No Def: 30.00 Max: 650.00

Sets a threshold for comparing actual speed or frequency to threshold values f_1. This threshold controls status bits 4 and 5 in status word 2 (r0053).

Index:

- P2155[0] : 1st. Drive data set (DDS)
- P2155[1] : 2nd. Drive data set (DDS)
- P2155[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2153 (time-constant speed filter)

P2156[3]	Delay time of threshold freq f_1	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No Def: 10 Max: 10000

Sets delay time prior to threshold frequency f_1 comparison (P2155).

Index:

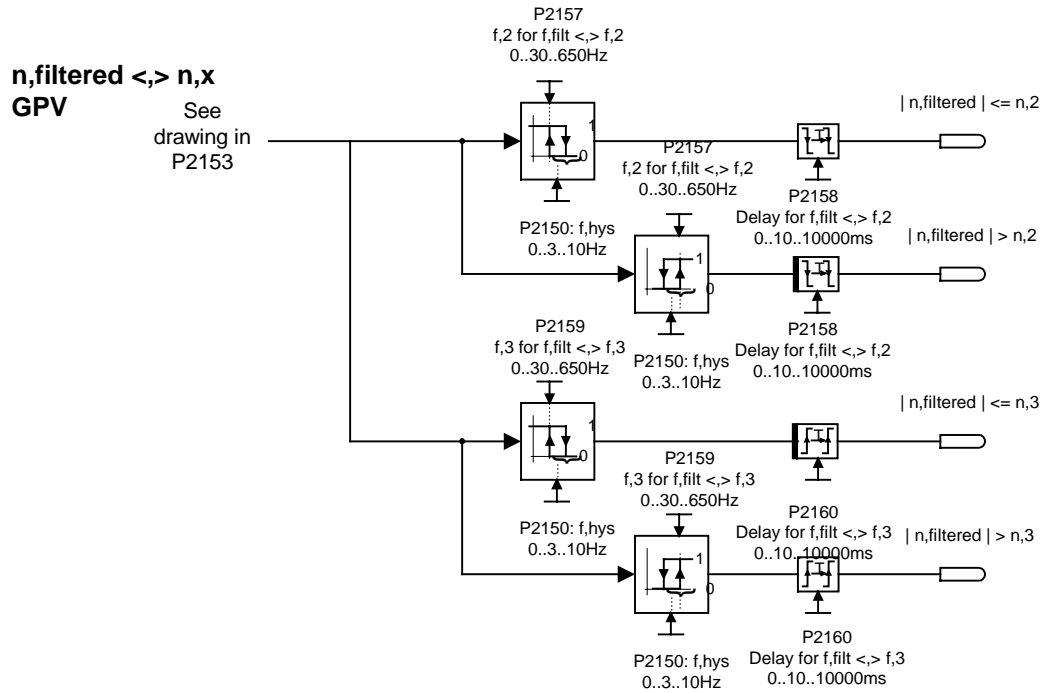
- P2156[0] : 1st. Drive data set (DDS)
- P2156[1] : 2nd. Drive data set (DDS)
- P2156[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2153 (time-constant speed filter)

P2157[3]	Threshold frequency f_2	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Unit: Hz
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 30.00	2
		Max: 650.00	

Threshold_2 for comparing speed or frequency to thresholds as illustrated in the diagram below.



Index:

- P2157[0] : 1st. Drive data set (DDS)
- P2157[1] : 2nd. Drive data set (DDS)
- P2157[2] : 3rd. Drive data set (DDS)

Details:

See also diagram in P2153 (time-constant speed filter)

P2158[3]	Delay time of threshold freq f_2	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 10	2
		Max: 10000	

Delay time for comparing speed or frequency to threshold f_2 (P2157).

Index:

- P2158[0] : 1st. Drive data set (DDS)
- P2158[1] : 2nd. Drive data set (DDS)
- P2158[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2157 (threshold frequency f_2)

P2159[3]	Threshold frequency f_3	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Unit: Hz
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 30.00	2
		Max: 650.00	

Threshold_3 for comparing speed or frequency to thresholds.

Index:

- P2159[0] : 1st. Drive data set (DDS)
- P2159[1] : 2nd. Drive data set (DDS)
- P2159[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2157 (threshold frequency f_2)

P2160[3]	Delay time of threshold freq f_3	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 10	2
		Max: 10000	

Delay time for comparing speed or frequency to threshold f_3 (P2159).

Index:

- P2160[0] : 1st. Drive data set (DDS)
- P2160[1] : 2nd. Drive data set (DDS)
- P2160[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2157 (threshold frequency f_2)

P2161[3]	Min. threshold for freq. setp.	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 3.00 Max: 10.00

Minimum threshold value for comparing speed or frequency setpoint.

Index:

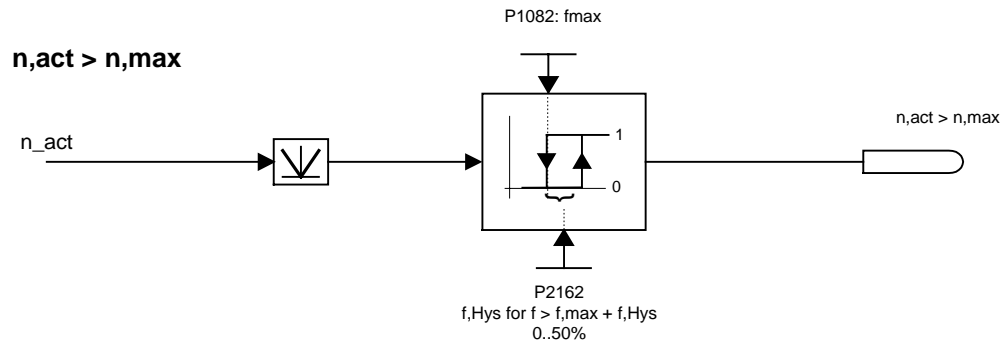
- P2161[0] : 1st. Drive data set (DDS)
- P2161[1] : 2nd. Drive data set (DDS)
- P2161[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2151 (speed setpoint for monitoring)

P2162[3]	Hysteresis freq. for overspeed	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 20.00 Max: 650.00

Hysteresis speed (or frequency) for overspeed-detection as illustrated in the diagram below.

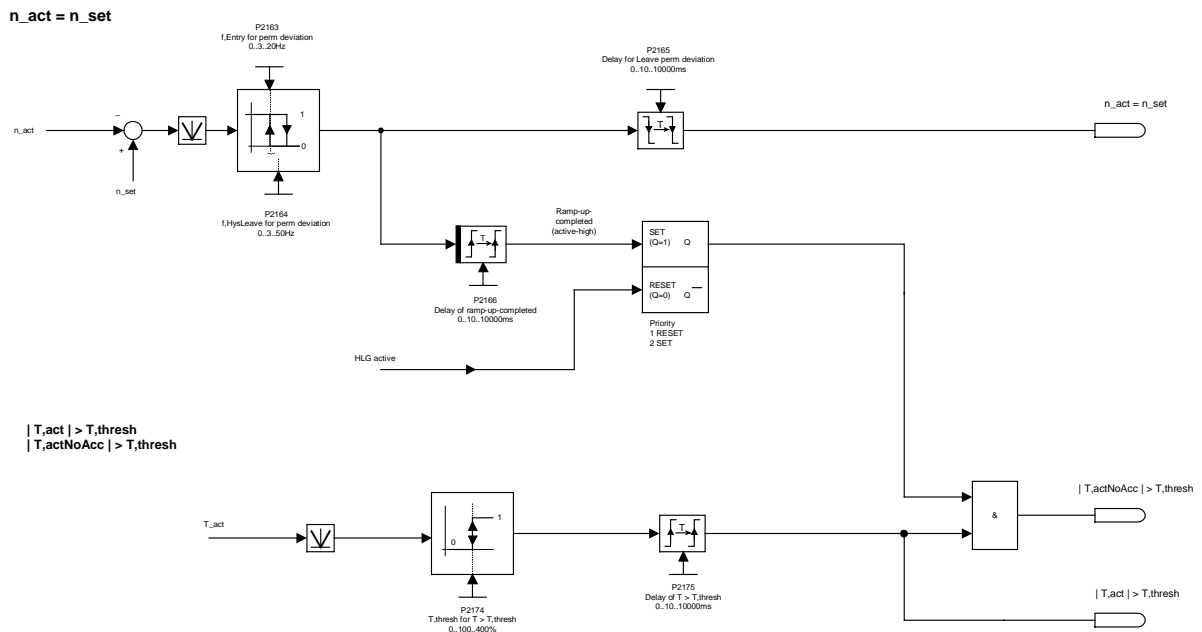


Index:

- P2162[0] : 1st. Drive data set (DDS)
- P2162[1] : 2nd. Drive data set (DDS)
- P2162[2] : 3rd. Drive data set (DDS)

P2163[3]	Entry freq. for perm. deviation	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Hz
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 3.00 Max: 20.00

Threshold for detecting speed deviation from setpoint as illustrated in the diagram below.



Index:

- P2163[0] : 1st. Drive data set (DDS)
- P2163[1] : 2nd. Drive data set (DDS)
- P2163[2] : 3rd. Drive data set (DDS)

P2164[3]	Hysteresis frequency deviation	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Unit: Hz
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 3.00	3
		Max: 10.00	

Hysteresis frequency for detecting permitted deviation (from setpoint) or frequency or speed. This frequency controls bit 8 in status word 1 (P0052) and bit 6 in status word 2 (P0053)

Index:

P2164[0] : 1st. Drive data set (DDS)
P2164[1] : 2nd. Drive data set (DDS)
P2164[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2163 (entry frequency for permissible deviation)

P2165[3]	Delay time permitted deviation	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 10	2
		Max: 10000	

Delay time for detecting permitted deviation of speed or frequency from setpoint.

Index:

P2165[0] : 1st. Drive data set (DDS)
P2165[1] : 2nd. Drive data set (DDS)
P2165[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2163 (entry frequency for permissible deviation)

P2166[3]	Delay time ramp up completed	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 10	2
		Max: 10000	

Delay time for signal that indicates completion of ramp-up.

Index:

P2166[0] : 1st. Drive data set (DDS)
P2166[1] : 2nd. Drive data set (DDS)
P2166[2] : 3rd. Drive data set (DDS)

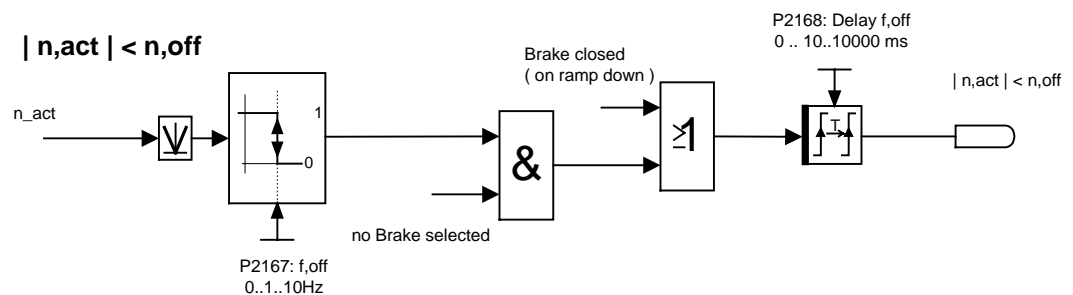
Details:

See diagram in P2163 (entry frequency for permissible deviation)

P2167[3]	Switch-off frequency f_{off}	Min: 0.00	Level:
	CStat: CUT	Datatype: Float	Unit: Hz
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 1.00	3
		Max: 10.00	

Sets frequency threshold below which inverter switches off.

If the frequency falls below this threshold, bit 1 in status word 2 (r0053) is set.

**Index:**

P2167[0] : 1st. Drive data set (DDS)
P2167[1] : 2nd. Drive data set (DDS)
P2167[2] : 3rd. Drive data set (DDS)

Dependency:

Switched off only if OFF1 or OFF3 active.

P2168[3]	Delay time T_{off}	Min: 0	Level:
	CStat: CUT	Datatype: U16	Unit: ms
	P-Group: ALARMS	Active: Immediately	QuickComm. No
		Def: 10	3
		Max: 10000	

Defines time for which the inverter may operate below switch-off frequency (P2167) before switch off occurs.

Index:

P2168[0] : 1st. Drive data set (DDS)
P2168[1] : 2nd. Drive data set (DDS)
P2168[2] : 3rd. Drive data set (DDS)

Dependency:

Active if holding brake (P1215) not parameterized.

Details:

See diagram in P2167 (switch-off frequency)

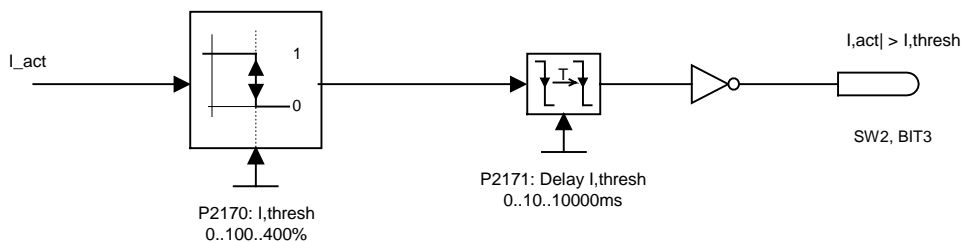
r2169	CO: Act. filtered frequency	Datatype: Float	Unit: Hz	Min: -	Def: -	Max: -	Level:
	P-Group: ALARMS						2

Filtered speed (or frequency) for monitoring behind first-order lowpass filter.

P2170[3]	Threshold current I_thresh	Datatype: Float	Unit: %	Min: 0.0	Def: 100.0	Max: 400.0	Level:
	CStat: CUT	Active: Immediately	QuickComm. No				3

Defines threshold current in [%] relative to P0305 (rated motor current) to be used in comparisons of I_act and I_Thresh as illustrated in the diagram below.

$$|I_{act}| > I_{thresh}$$



Index:

- P2170[0] : 1st. Drive data set (DDS)
- P2170[1] : 2nd. Drive data set (DDS)
- P2170[2] : 3rd. Drive data set (DDS)

Note:

This threshold controls bit 3 in status word 3 (P0053).

P2171[3]	Delay time current	Datatype: U16	Unit: ms	Min: 0	Def: 10	Max: 10000	Level:
	CStat: CUT	Active: Immediately	QuickComm. No				3

Defines delay time prior to activation of current comparison.

Index:

- P2171[0] : 1st. Drive data set (DDS)
- P2171[1] : 2nd. Drive data set (DDS)
- P2171[2] : 3rd. Drive data set (DDS)

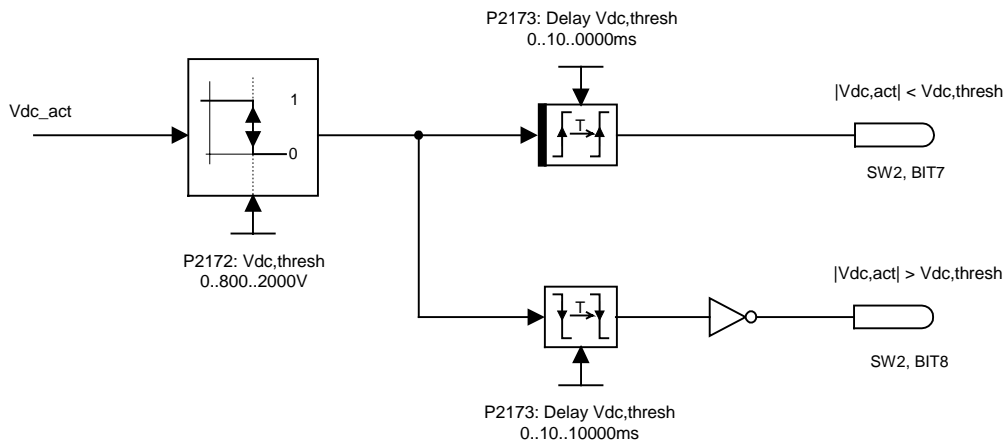
Details:

See diagram in P2170 (threshold current I_thresh)

P2172[3]	Threshold DC-link voltage	Datatype: U16	Unit: V	Min: 0	Def: 800	Max: 2000	Level:
	CStat: CUT	Active: Immediately	QuickComm. No				3

Defines DC link voltage to be compared to actual voltage as illustrated in the diagram below.

$$|V_{dc,act}| <,> V_{dc,thresh}$$



Index:

- P2172[0] : 1st. Drive data set (DDS)
- P2172[1] : 2nd. Drive data set (DDS)
- P2172[2] : 3rd. Drive data set (DDS)

Note:

This voltage controls bits 7 and 8 in status word 3 (P0053).

P2173[3]	Delay time DC-link voltage	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Unit: ms
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 10 Max: 10000

Defines delay time prior to activation of threshold comparison.

Index:

P2173[0] : 1st. Drive data set (DDS)
P2173[1] : 2nd. Drive data set (DDS)
P2173[2] : 3rd. Drive data set (DDS)

Details:

See diagram in P2172 (threshold DC-link voltage)

P2174[3]	Torque threshold T_thresh	Min: 0.0	Level: 2	
	CStat: CUT	Datatype: Float		Unit: Nm
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 5.13 Max: 99999.0

Defines torque threshold for comparing actual torque.

Index:

P2174[0] : 1st. Drive data set (DDS)
P2174[1] : 2nd. Drive data set (DDS)
P2174[2] : 3rd. Drive data set (DDS)

P2176[3]	Delay time for torque threshold	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: ms
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 10 Max: 10000

Delay time for comparing actual torque to threshold.

Index:

P2176[0] : 1st. Drive data set (DDS)
P2176[1] : 2nd. Drive data set (DDS)
P2176[2] : 3rd. Drive data set (DDS)

P2177[3]	Delay time for motor is blocked	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: ms
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 10 Max: 10000

Delay time for identification that motor is blocked.

Index:

P2177[0] : 1st. Drive data set (DDS)
P2177[1] : 2nd. Drive data set (DDS)
P2177[2] : 3rd. Drive data set (DDS)

P2178[3]	Delay time for motor pulled out	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: ms
	P-Group: ALARMS	Active: Immediately		QuickComm. No Def: 10 Max: 10000

Delay time for identification that motor is pulled out.

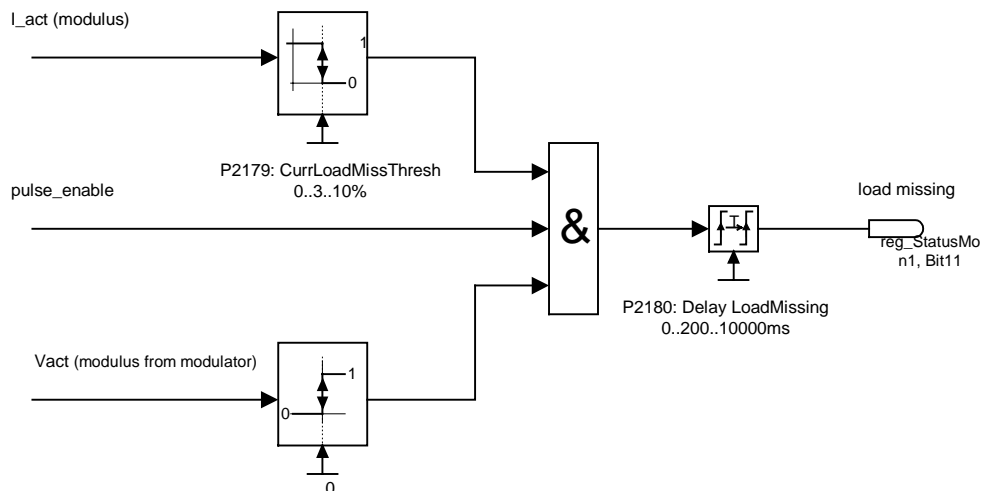
Index:

P2178[0] : 1st. Drive data set (DDS)
P2178[1] : 2nd. Drive data set (DDS)
P2178[2] : 3rd. Drive data set (DDS)

P2179	Current limit for no load ident.				Min: 0.0	Level: 3
	CStat: CUT	Datatype: Float	Unit: %	Def: 3.0		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 10.0		

Threshold current for A0922 (load missing) in [%] relative to P0305 (rated motor current) as illustrated in the diagram below.

load missing



Note:

It may be that the motor is not connected (load missing) or a phase could be missing.

Notice:

If a motor setpoint cannot be entered and the current limit (P2179) is not exceeded, Alarm A0922 (no load applied) is issued when delay time (P2180) expires.

P2180	Delay time for no load ident.				Min: 0	Level: 3
	CStat: CUT	Datatype: U16	Unit: ms	Def: 2000		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 10000		

Delay time load missing

Note:

It may be that the motor is not connected (load missing) or a phase could be missing.

Notice:

If a motor setpoint cannot be entered and the current limit (P2179) is not exceeded, Alarm A0922 (no load applied) is issued when delay time (P2180) expires.

Details:

See diagram in P2179 (current limit for no load identification)

P2181[3]	Belt failure detection mode				Min: 0	Level: 2
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: ALARMS	Active: first confirm	QuickComm. No	Max: 6		

Sets belt failure detection mode. This function allows detection of mechanical failure of the drive train, e.g. a broken drive belt. It can also detect conditions which cause an overload, such as a jam.

Two methods are provided of detecting the failure.

The first is achieved by comparing the actual frequency/torque curve with a programmed envelope (see P2182 - P2190). If the curve falls outside the envelope, a warning or trip is generated.

The second uses a pulse train from a simple sensor on the driven machine connected to the encoder circuit within the drive ASIC via a digital input. The pulse train, normally detecting one pulse per revolution of the drive machine, is converted to a frequency reference and compared with the actual inverter output frequency.

Settings:

- 0 Belt failure detection disabled
- 1 Warn low torque/speed
- 2 Warn high torque/speed
- 3 Warn high/low torque/speed
- 4 Trip low torque/speed
- 5 Trip high torque/speed
- 6 Trip high/low torque/speed

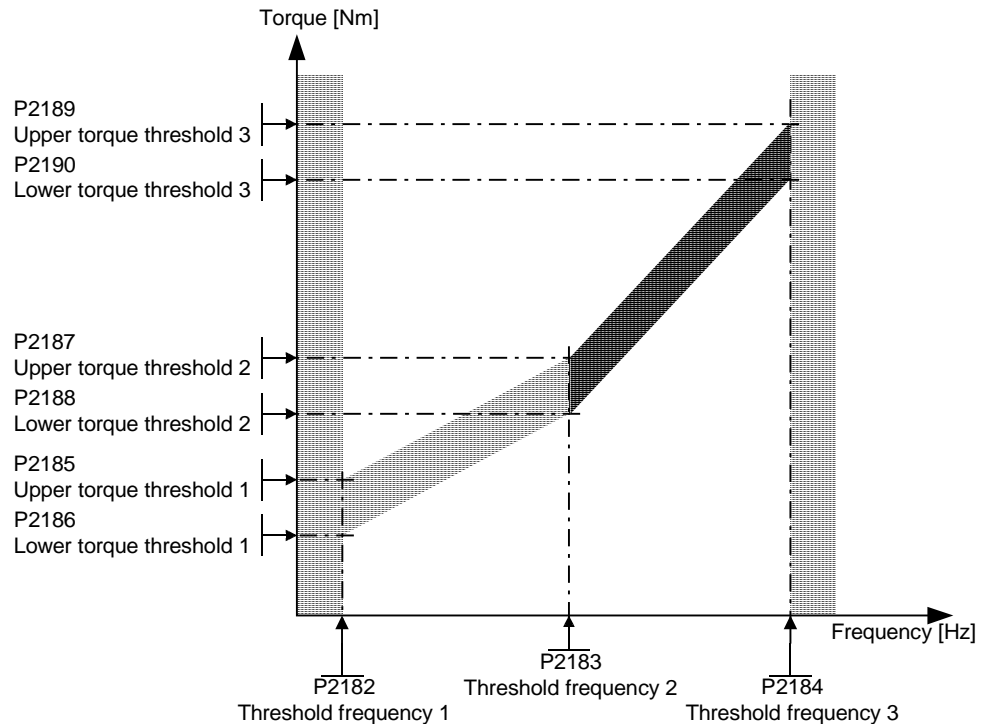
Index:

- P2181[0] : 1st. Command data set (CDS)
- P2181[1] : 2nd. Command data set (CDS)
- P2181[2] : 3rd. Command data set (CDS)

P2182[3]	Belt threshold frequency 1				Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 5.00		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 650.00		

Sets a frequency threshold 1 for comparing actual torque to torque the envelope for belt failure detection.

The frequency torque envelope is defined by 9 parameters - 3 are frequency parameters (P2182 - P2184), and the other 6 define the low and high torque limits (P2185 - P2190) for each frequency (see diagram below).



The allowed frequency/torque region is defined by the shaded area. When the torque falls outside the area shown, a trip or warning occurs (see parameter P2181).

Index:

P2182[0] : 1st. Drive data set (DDS)
P2182[1] : 2nd. Drive data set (DDS)
P2182[2] : 3rd. Drive data set (DDS)

Note:

The torque is unlimited below P2182, and above P2184. Normally P2182
<= lower torque limit (P1521), and P2184 >
= upper torque limit (P1520).

P2183[3]	Belt threshold frequency 2				Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 30.00		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 650.00		

Sets a threshold F2 for comparing actual torque to torque the envelope for belt failure detection.

Index:

P2183[0] : 1st. Drive data set (DDS)
P2183[1] : 2nd. Drive data set (DDS)
P2183[2] : 3rd. Drive data set (DDS)

Details:

See P2182 (belt threshold frequency 1).

P2184[3]	Belt threshold frequency 3				Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 50.00		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 650.00		

Sets a threshold F3 for comparing actual torque to torque the envelope for belt failure detection.

Index:

P2184[0] : 1st. Drive data set (DDS)
P2184[1] : 2nd. Drive data set (DDS)
P2184[2] : 3rd. Drive data set (DDS)

Details:

See P2182 (belt threshold frequency 1).

P2185[3]	Upper torque threshold 1	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 99999.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Upper limit threshold value 1 for comparing actual torque.		2
Index:	P2185[0] : 1st. Drive data set (DDS) P2185[1] : 2nd. Drive data set (DDS) P2185[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		
P2186[3]	Lower torque threshold 1	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 0.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Lower limit threshold value 1 for comparing actual torque.		2
Index:	P2186[0] : 1st. Drive data set (DDS) P2186[1] : 2nd. Drive data set (DDS) P2186[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		
P2187[3]	Upper torque threshold 2	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 99999.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Upper limit threshold value 2 for comparing actual torque.		2
Index:	P2187[0] : 1st. Drive data set (DDS) P2187[1] : 2nd. Drive data set (DDS) P2187[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		
P2188[3]	Lower torque threshold 2	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 0.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Lower limit threshold value 2 for comparing actual torque.		2
Index:	P2188[0] : 1st. Drive data set (DDS) P2188[1] : 2nd. Drive data set (DDS) P2188[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		
P2189[3]	Upper torque threshold 3	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 99999.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Upper limit threshold value 3 for comparing actual torque.		2
Index:	P2189[0] : 1st. Drive data set (DDS) P2189[1] : 2nd. Drive data set (DDS) P2189[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		
P2190[3]	Lower torque threshold 3	Min: 0.0	Level:
CStat: CUT	Datatype: Float	Unit: Nm	Def: 0.0
P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 99999.0
	Lower limit threshold value 3 for comparing actual torque.		2
Index:	P2190[0] : 1st. Drive data set (DDS) P2190[1] : 2nd. Drive data set (DDS) P2190[2] : 3rd. Drive data set (DDS)		
Details:	See P2182 (belt threshold frequency 1).		

P2191[3]	Belt failure speed tolerance				Min: 0.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: Hz	Def: 3.00		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 20.00		

P2191 defines the allowed speed variation bandwidth between the inverter frequency, and the speed reference from the pulse train. When the speed of the driven machine varies by more than this amount, a trip or warning is given.

Index:

P2191[0] : 1st. Drive data set (DDS)
P2191[1] : 2nd. Drive data set (DDS)
P2191[2] : 3rd. Drive data set (DDS)

P2192[3]	Time delay for belt failure				Min: 0	Level: 2
	CStat: CUT	Datatype: U16	Unit: s	Def: 10		
	P-Group: ALARMS	Active: Immediately	QuickComm. No	Max: 65		

P2192 defines a delay before warning/trip becomes active. It is used to eliminate events caused by transient conditions. It is used for both methods of fault detection.

Index:

P2192[0] : 1st. Drive data set (DDS)
P2192[1] : 2nd. Drive data set (DDS)
P2192[2] : 3rd. Drive data set (DDS)

r2197	CO/BO: Monitoring word 1				Min: -	Level: 2
		Datatype: U16	Unit: -	Def: -		
	P-Group: ALARMS			Max: -		

Monitoring word 1 which indicates the state of monitor functions. Each bit represents one monitor function.

Bitfields:

Bit00	Act. freq. r0024 <= P1080	0	NO
		1	YES
Bit01	Act. freq. r0024 <= P2155	0	NO
		1	YES
Bit02	Act. freq. r0024 > P2155	0	NO
		1	YES
Bit03	Act. freq. r0024 > zero	0	NO
		1	YES
Bit04	Act. freq. r0024 >= setp.	0	NO
		1	YES
Bit05	Act. freq. r0024 <= P2167	0	NO
		1	YES
Bit06	Act. freq. r0024 >= P1082	0	NO
		1	YES
Bit07	Act. freq. r0024 == setp.	0	NO
		1	YES
Bit08	Act. current r0068 >= P2170	0	NO
		1	YES
Bit09	Act. unfilt. Vdc < P2172	0	NO
		1	YES
Bit10	Act. unfilt. Vdc > P2172	0	NO
		1	YES
Bit11	No load condition	0	NO
		1	YES

r2198	CO/BO: Monitoring word 2			Min: -	Level: 2
	P-Group: ALARMS	Datatype: U16	Unit: -	Def: - Max: -	

Monitoring word 2 which indicates the state of monitor functions. Each bit represents one monitor function.

Bitfields:

Bit00	n,filtered r2169 < P2157	0	NO
		1	YES
Bit01	n,filtered r2169 > P2157	0	NO
		1	YES
Bit02	n,filtered r2169 < P2159	0	NO
		1	YES
Bit03	n,filtered r2169 > P2159	0	NO
		1	YES
Bit04	n,set < P2161	0	NO
		1	YES
Bit05	n,set > 0	0	NO
		1	YES
Bit06	Motor blocked	0	NO
		1	YES
Bit07	Motor pulled out	0	NO
		1	YES
Bit08	I,act r0068 < P2170	0	NO
		1	YES
Bit09	T,act > P2174 & setpoint reached	0	NO
		1	YES
Bit10	T,act > P2174	0	NO
		1	YES
Bit11	Belt failure warning	0	NO
		1	YES
Bit12	Belt failure trip	0	NO
		1	YES

P2200[3]	BI: Enable PID controller			Min: 0:0	Level: 2
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0	
	P-Group: TECH	Active: first confirm	QuickComm. No	Max: 4000:0	

PID mode Allows user to enable/disable the PID controller. Setting to 1 enables the PID closed-loop controller.

Index:

- P2200[0] : 1st. Command data set (CDS)
- P2200[1] : 2nd. Command data set (CDS)
- P2200[2] : 3rd. Command data set (CDS)

Dependency:

Setting 1 automatically disables normal ramp times set in P1120 and P1121 and the normal frequency setpoints.

Following an OFF1 or OFF3 command, however, the inverter frequency will ramp down to zero using the ramp time set in P1121 (P1135 for OFF3).

Note:

The PID setpoint source is selected using P2253. The PID setpoint and the PID feedback signal are interpreted as [%] values (not [Hz]). The output of the PID controller is displayed as [%] and then normalized into [Hz] through P2000 (reference frequency) when PID is enabled.

In level 3, the PID controller source enable can also come from the digital inputs in settings 722.0 to 722.2 for DIN1 to DIN3 or from any other BiCo source

Notice:

The minimum and maximum motor frequencies (P1080 and P1082) as well as the skip frequencies (P1091 to P1094) remain active on the inverter output. However, enabling skip frequencies with PID control can produce instabilities.

P2201[3]	Fixed PID setpoint 1	Min: -200.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: %
	P-Group: TECH	Active: Immediately		QuickComm. No

Defines Fixed PID Setpoint 1

In addition, you can set any of the digital input parameters to Fixed PID Setpoint via the digital inputs (P0701 - P0706).

There are three selection modes for the PID fixed setpoint:

1 Direct selection (P0701 = 15 or P0702 = 15, etc)

In this mode of operation, 1 digital input selects one PID fixed setpoint.

2 Direct selection with ON command (P0701 = 16 or P0702 = 16, etc.)

Description as for 1), except that this type of selection issues an ON command concurrent with any setpoint selection.

3 Binary Coded Decimal selection (P0701 - P0706 = 17)

Using this method to select the PID Fixed Setpoint allows you to choose up to 16 different PID setpoints.

The setpoints are selected according to the following table:

		DIN4	DIN3	DIN2	DIN1
	OFF	Inactive	Inactive	Inactive	Inactive
P2201	FF1	Inactive	Inactive	Inactive	Active
P2202	FF2	Inactive	Inactive	Active	Inactive
P2203	FF3	Inactive	Inactive	Active	Active
P2204	FF4	Inactive	Active	Inactive	Inactive
P2205	FF5	Inactive	Active	Inactive	Active
P2206	FF6	Inactive	Active	Active	Inactive
P2207	FF7	Inactive	Active	Active	Active
P2208	FF8	Active	Inactive	Inactive	Inactive
P2209	FF9	Active	Inactive	Inactive	Active
P2222	FF10	Active	Inactive	Active	Inactive
P2211	FF11	Active	Inactive	Active	Active
P2212	FF12	Active	Active	Inactive	Inactive
P2213	FF13	Active	Active	Inactive	Active
P2214	FF14	Active	Active	Active	Inactive
P2215	FF15	Active	Active	Active	Active

Index:

P2201[0] : 1st. Drive data set (DDS)

P2201[1] : 2nd. Drive data set (DDS)

P2201[2] : 3rd. Drive data set (DDS)

Dependency:

P2000 = 1 required in user access level 2 to enable setpoint source.

In mode 1 (above):

ON command required to start motor (enable pulses).

In mode 2 (above):

If inputs programmed to PID fixed setpoint and selected together, the selected setpoints are summed.

Note:

You may mix different types of frequencies; however, remember that they will be summed if selected together.

P2201 = 100 % corresponds to 4000 hex

P2202[3]	Fixed PID setpoint 2	Min: -200.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: %
	P-Group: TECH	Active: Immediately		QuickComm. No

Defines Fixed PID Setpoint 2

Index:

P2202[0] : 1st. Drive data set (DDS)

P2202[1] : 2nd. Drive data set (DDS)

P2202[2] : 3rd. Drive data set (DDS)

Details:

See P2201 (Fixed PID Setpoint 1).

P2203[3]	Fixed PID setpoint 3	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 20.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 3		
Index:	P2203[0] : 1st. Drive data set (DDS) P2203[1] : 2nd. Drive data set (DDS) P2203[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2204[3]	Fixed PID setpoint 4	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 30.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 4		
Index:	P2204[0] : 1st. Drive data set (DDS) P2204[1] : 2nd. Drive data set (DDS) P2204[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2205[3]	Fixed PID setpoint 5	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 40.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 5		
Index:	P2205[0] : 1st. Drive data set (DDS) P2205[1] : 2nd. Drive data set (DDS) P2205[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2206[3]	Fixed PID setpoint 6	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 50.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 6		
Index:	P2206[0] : 1st. Drive data set (DDS) P2206[1] : 2nd. Drive data set (DDS) P2206[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2207[3]	Fixed PID setpoint 7	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 60.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 7		
Index:	P2207[0] : 1st. Drive data set (DDS) P2207[1] : 2nd. Drive data set (DDS) P2207[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2208[3]	Fixed PID setpoint 8	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 70.00	Max: 200.00	2
	P-Group: TECH Active: Immediately QuickComm. No		
	Defines Fixed PID Setpoint 8		
Index:	P2208[0] : 1st. Drive data set (DDS) P2208[1] : 2nd. Drive data set (DDS) P2208[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		

P2209[3]	Fixed PID setpoint 9	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 80.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 9		
Index:	P2209[0] : 1st. Drive data set (DDS) P2209[1] : 2nd. Drive data set (DDS) P2209[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2210[3]	Fixed PID setpoint 10	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 90.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 10		
Index:	P2210[0] : 1st. Drive data set (DDS) P2210[1] : 2nd. Drive data set (DDS) P2210[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2211[3]	Fixed PID setpoint 11	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 100.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 11		
Index:	P2211[0] : 1st. Drive data set (DDS) P2211[1] : 2nd. Drive data set (DDS) P2211[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2212[3]	Fixed PID setpoint 12	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 110.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 12		
Index:	P2212[0] : 1st. Drive data set (DDS) P2212[1] : 2nd. Drive data set (DDS) P2212[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2213[3]	Fixed PID setpoint 13	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 120.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 13		
Index:	P2213[0] : 1st. Drive data set (DDS) P2213[1] : 2nd. Drive data set (DDS) P2213[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		
P2214[3]	Fixed PID setpoint 14	Min: -200.00	Level:
	CStat: CUT Datatype: Float Unit: % Def: 130.00 P-Group: TECH Active: Immediately QuickComm. No Max: 200.00		2
	Defines Fixed PID Setpoint 14		
Index:	P2214[0] : 1st. Drive data set (DDS) P2214[1] : 2nd. Drive data set (DDS) P2214[2] : 3rd. Drive data set (DDS)		
Details:	See P2201 (Fixed PID Setpoint 1).		

P2215[3]	Fixed PID setpoint 15	Min: -200.00	Level:
	CStat: CUT	Datatype: Float	Unit: %
	P-Group: TECH	Active: Immediately	QuickComm. No
		Def: 130.00	2
		Max: 200.00	

Defines Fixed PID Setpoint 15

Index:

- P2215[0] : 1st. Drive data set (DDS)
- P2215[1] : 2nd. Drive data set (DDS)
- P2215[2] : 3rd. Drive data set (DDS)

Details:

See P2201 (Fixed PID Setpoint 1).

P2216	Fixed PID setpoint mode - Bit 0	Min: 1	Level:
	CStat: CT	Datatype: U16	Unit: -
	P-Group: TECH	Active: first confirm	QuickComm. No
		Def: 1	3
		Max: 3	

Fixed frequencies for PID setpoint can be selected in three different modes. Parameter P1016 defines the mode of selection Bit 0.

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

P2217	Fixed PID setpoint mode - Bit 1	Min: 1	Level:
	CStat: CT	Datatype: U16	Unit: -
	P-Group: TECH	Active: first confirm	QuickComm. No
		Def: 1	3
		Max: 3	

BCD or direct selection Bit 1 for PID setpoint.

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

P2218	Fixed PID setpoint mode - Bit 2	Min: 1	Level:
	CStat: CT	Datatype: U16	Unit: -
	P-Group: TECH	Active: first confirm	QuickComm. No
		Def: 1	3
		Max: 3	

BCD or direct selection Bit 2 for PID setpoint.

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

P2219	Fixed PID setpoint mode - Bit 3	Min: 1	Level:
	CStat: CT	Datatype: U16	Unit: -
	P-Group: TECH	Active: first confirm	QuickComm. No
		Def: 1	3
		Max: 3	

BCD or direct selection Bit 3 for PID setpoint.

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

P2220[3]	BI: Fixed PID setp. select Bit 0	Min: 0:0	Level:
	CStat: CT	Datatype: U32	Unit: -
	P-Group: COMMANDS	Active: first confirm	QuickComm. No
		Def: 0:0	3
		Max: 4000:0	

Defines command source of fixed PID setpoint selection Bit 0

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
- 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
- 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

Index:

- P2220[0] : 1st. Command data set (CDS)
- P2220[1] : 2nd. Command data set (CDS)
- P2220[2] : 3rd. Command data set (CDS)

P2221[3]	BI: Fixed PID setp. select Bit 1				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines command source of fixed PID setpoint selection Bit 1.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

P2221[0] : 1st. Command data set (CDS)
 P2221[1] : 2nd. Command data set (CDS)
 P2221[2] : 3rd. Command data set (CDS)

P2222[3]	BI: Fixed PID setp. select Bit 2				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 0:0		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines command source of fixed PID setpoint selection Bit 2

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

P2222[0] : 1st. Command data set (CDS)
 P2222[1] : 2nd. Command data set (CDS)
 P2222[2] : 3rd. Command data set (CDS)

P2223[3]	BI: Fixed PID setp. select Bit 3				Min: 0:0	Level: 3
	CStat: CT	Datatype: U32	Unit: -	Def: 722:3		
	P-Group: COMMANDS	Active: first confirm	QuickComm. No	Max: 4000:0		

Defines command source of fixed PID setpoint selection Bit 3

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

P2223[0] : 1st. Command data set (CDS)
 P2223[1] : 2nd. Command data set (CDS)
 P2223[2] : 3rd. Command data set (CDS)

r2224	CO: Act. fixed PID setpoint				Min: -	Level: 2
		Datatype: Float	Unit: %	Def: -		
	P-Group: TECH			Max: -		

Displays total output of PID fixed setpoint selection.

Note:

r2224 = 100 % corresponds to 4000 hex

P2225	Fixed PID setpoint mode - Bit 4				Min: 1	Level: 3
	CStat: CT	Datatype: U16	Unit: -	Def: 1		
	P-Group: TECH	Active: first confirm	QuickComm. No	Max: 3		

Direct selection or direct selection + ON Bit 4 for PID setpoint.

Settings:

1 Direct selection
 2 Direct selection + ON command
 3 Binary coded selection + ON command

P2226[3]	BI: Fixed PID setp. select Bit 4	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 722:4		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines command source of fixed PID setpoint selection Bit 4

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

- P2226[0] : 1st. Command data set (CDS)
- P2226[1] : 2nd. Command data set (CDS)
- P2226[2] : 3rd. Command data set (CDS)

P2227	Fixed PID setpoint mode - Bit 5	Min: 1	Level: 3
	CStat: CT Datatype: U16 Unit: - Def: 1		
	P-Group: TECH Active: first confirm QuickComm. No Max: 3		

Direct selection / direct selection + ON Bit 5 for PID setpoint.

Settings:

- 1 Direct selection
- 2 Direct selection + ON command
- 3 Binary coded selection + ON command

P2228[3]	BI: Fixed PID setp. select Bit 5	Min: 0:0	Level: 3
	CStat: CT Datatype: U32 Unit: - Def: 722:5		
	P-Group: COMMANDS Active: first confirm QuickComm. No Max: 4000:0		

Defines command source of fixed PID setpoint selection Bit 5

Settings:

- 722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
- 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
- 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
- 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
- 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
- 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

Index:

- P2228[0] : 1st. Command data set (CDS)
- P2228[1] : 2nd. Command data set (CDS)
- P2228[2] : 3rd. Command data set (CDS)

P2231[3]	Setpoint memory of PID-MOP	Min: 0	Level: 2
	CStat: CUT Datatype: U16 Unit: - Def: 0		
	P-Group: TECH Active: Immediately QuickComm. No Max: 1		

Setpoint memory

Settings:

- 0 PID-MOP setpoint will not be stored
- 1 PID-MOP setpoint will be stored (P2240 is updated)

Index:

- P2231[0] : 1st. Drive data set (DDS)
- P2231[1] : 2nd. Drive data set (DDS)
- P2231[2] : 3rd. Drive data set (DDS)

Dependency:

If 0 selected, setpoint returns to value set in P2240 (setpoint of PID-MOP) after an OFF command

If 1 is selected, active setpoint is 'remembered' and P2240 updated with current value.

Details:

See P2240 (setpoint of PID-MOP)

P2232	Inhibit rev. direct. of PID-MOP	Min: 0	Level: 2
	CStat: CT Datatype: U16 Unit: - Def: 1		
	P-Group: TECH Active: first confirm QuickComm. No Max: 1		

Inhibits reverse setpoint selection when PID motor potentiometer is chosen either as a main setpoint of additional setpoint (using P1000)

Settings:

- 0 Reserve direction is allowed
- 1 Reserve direction inhibited

Note:

Setting 0 enables a change of motor direction using the motor potentiometer setpoint (increase/decrease frequency either by using digital inputs or motor potentiometer up/down buttons).

P2235[3]	BI: Enable PID-MOP (UP-cmd)	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Def: 19:13
	P-Group: COMMANDS	Active: first confirm		QuickComm. No Max: 4000:0

Defines source of UP command.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)

19.D = Keypad UP cursor

Index:

P2235[0] : 1st. Command data set (CDS)
 P2235[1] : 2nd. Command data set (CDS)
 P2235[2] : 3rd. Command data set (CDS)

P2236[3]	BI: Enable PID-MOP (DOWN-cmd)	Min: 0:0	Level: 3	
	CStat: CT	Datatype: U32		Def: 19:14
	P-Group: COMMANDS	Active: first confirm		QuickComm. No Max: 4000:0

Defines source of DOWN command.

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.E = Keypad DOWN cursor

Index:

P2236[0] : 1st. Command data set (CDS)
 P2236[1] : 2nd. Command data set (CDS)
 P2236[2] : 3rd. Command data set (CDS)

P2240[3]	Setpoint of PID-MOP	Min: -200.00	Level: 2	
	CStat: CUT	Datatype: Float		Def: 10.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 200.00

Setpoint of the motor potentiometer.

Allows user to set a digital PID setpoint in [%].

Settings:

722.0 = Digital input 1 (requires P0701 to be set to 99, BICO)
 722.1 = Digital input 2 (requires P0702 to be set to 99, BICO)
 722.2 = Digital input 3 (requires P0703 to be set to 99, BICO)
 722.3 = Digital input 4 (requires P0704 to be set to 99, BICO)
 722.4 = Digital input 5 (requires P0705 to be set to 99, BICO)
 722.5 = Digital input 6 (requires P0706 to be set to 99, BICO)
 722.6 = Digital input 7 (via analog input 1, requires P0707 to be set to 99)
 722.7 = Digital input 8 (via analog input 2, requires P0708 to be set to 99)

19.D = Keypad UP cursor

Index:

P2240[0] : 1st. Drive data set (DDS)
 P2240[1] : 2nd. Drive data set (DDS)
 P2240[2] : 3rd. Drive data set (DDS)

Dependency:

To change setpoint:
 1. Use UP / DOWN key on BOP or
 2. Set P0702/P0703 = 13/14 (function of digital inputs 2 and 3)

Note:

P2240 = 100 % corresponds to 4000 hex

r2250	CO: Output setpoint of PID-MOP	Min: -	Level: 2	
		Datatype: Float		Def: -
	P-Group: TECH	Unit: %		Max: -

Displays output setpoint of motor potentiometer in [%].

Note:

r2250 = 100 % corresponds to 4000 hex

P2253[3]	CI: PID setpoint	Min: 0:0	Level: 2	
	CStat: CUT	Datatype: U32		Def: 0:0
	P-Group: TECH	Active: first confirm		QuickComm. No Max: 4000:0

Defines setpoint source for PID setpoint input.

This parameter allows the user to select the source of the PID setpoint. Normally, a digital setpoint is selected either using a fixed PID setpoint or an active setpoint.

Settings:

- 755 = Analog input 1
- 2224 = Fixed PI setpoint (see P2201 to P2207)
- 2250 = Active PI setpoint (see P2240)

Index:

- P2253[0] : 1st. Command data set (CDS)
- P2253[1] : 2nd. Command data set (CDS)
- P2253[2] : 3rd. Command data set (CDS)

P2254[3]	CI: PID trim source	Min: 0:0	Level: 3	
	CStat: CUT	Datatype: U32		Def: 0:0
	P-Group: TECH	Active: first confirm		QuickComm. No Max: 4000:0

Selects trim source for PID setpoint. This signal is multiplied by the trim gain and added to the PID setpoint.

Settings:

- 755 = Analog input 1
- 2224 = Fixed PI setpoint (see P2201 to P2207)
- 2250 = Active PI setpoint (see P2240)

Index:

- P2254[0] : 1st. Command data set (CDS)
- P2254[1] : 2nd. Command data set (CDS)
- P2254[2] : 3rd. Command data set (CDS)

P2255	PID setpoint gain factor	Min: 0.00	Level: 3	
	CStat: CUT	Datatype: Float		Def: 100.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 100.00

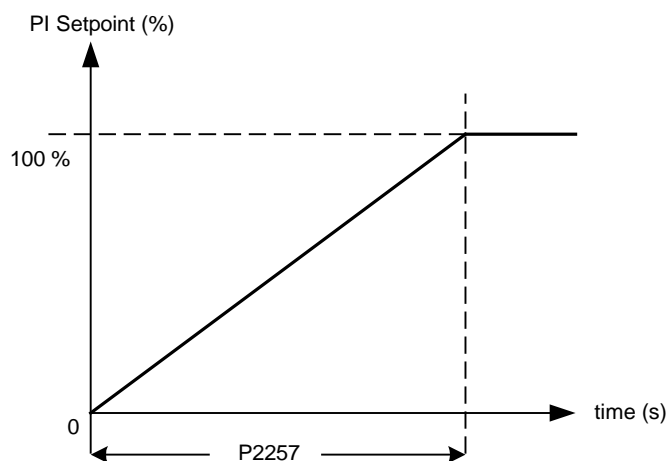
Gain factor for PID setpoint. The trim input is multiplied by this gain factor to produce a suitable ratio between setpoint and trim.

P2256	PID trim gain factor	Min: 0.00	Level: 3	
	CStat: CUT	Datatype: Float		Def: 100.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 100.00

Gain factor for PID trim. This gain factor scales the trim signal, which is added to the main PID setpoint.

P2257	Ramp-up time for PID setpoint	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Def: 1.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 650.00

Sets the ramp-up time for the PID setpoint.



Dependency:

P2200 = 1 (PID control is enabled) disable normal ramp-up time (P1120).

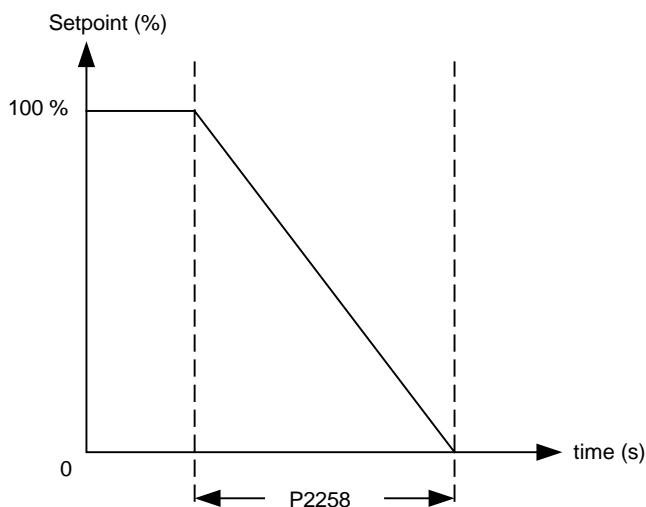
PID ramp time effective only on PID setpoint and only active when PID setpoint is changed or when RUN command is given (when PID uses this ramp to reach its value from 0 %).

Notice:

Setting the ramp-up time too short may cause the inverter to trip, on overcurrent for example.

P2258	Ramp-down time for PID setpoint	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: TECH	Active: Immediately		QuickComm. No
		Def: 1.00		
		Max: 650.00		

Sets ramp-down time for PID setpoint.



Dependency:

P2200 = 1 (PID control is enabled) disables normal ramp-up time (P1120).

PID setpoint ramp effective only on PID setpoint changes.

P1121 (ramp-down time) and P1135 (OFF3 ramp-down time) define the ramp times used after OFF1 and OFF2 respectively.

Notice:

Setting the ramp-down time too short can cause the inverter to trip on overvoltage (F0002) / overcurrent (F0001).

r2260	CO: Act. PID setpoint	Min: -	Level: 2	
		Datatype: Float		Unit: %
	P-Group: TECH	Def: -		Max: -

Displays total active PID setpoint in [%].

Note:

r2260 = 100 % corresponds to 4000 hex

P2261	PID setpoint filter timeconstant	Min: 0.00	Level: 3	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: TECH	Active: Immediately		QuickComm. No
		Def: 0.00		
		Max: 60.00		

Sets a time constant for smoothing the PID setpoint.

Note:

0 = no smoothing

r2262	CO: Act. PID filtered setpoint	Min: -	Level: 3	
		Datatype: Float		Unit: %
	P-Group: TECH	Def: -		Max: -

Displays PID setpoint in [%] after smoothing.

Note:

r2262 = 100 % corresponds to 4000 hex

P2263	PID controller type	Min: 0	Level: 3	
	CStat: CT	Datatype: U16		Unit: -
	P-Group: TECH	Active: Immediately		QuickComm. No
		Def: 0		
		Max: 1		

Sets the PID controller type.

Settings:

- 0 D component on feedback signal
- 1 D component on error signal

P2264[3]	CI: PID feedback	Min: 0:0	Level: 2	
	CStat: CUT	Datatype: U32		Def: 755:0
	P-Group: TECH	Active: first confirm		QuickComm. No Max: 4000:0

Selects the source of the PID feedback signal.

Settings:

- 755 = Analog input 1 setpoint
- 2224 = Fixed PID setpoint
- 2250 = Output setpoint of PID-MOP

Index:

- P2264[0] : 1st. Command data set (CDS)
- P2264[1] : 2nd. Command data set (CDS)
- P2264[2] : 3rd. Command data set (CDS)

Note:

When analog input is selected, offset and gain can be implemented using parameters P0756 to P0760 (ADC scaling).

P2265	PID feedback filter timeconstant	Min: 0.00	Level: 2	
	CStat: CUT	Datatype: Float		Def: 0.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 60.00

Defines time constant for PID feedback filter.

r2266	CO: PID filtered feedback	Min: -	Level: 2	
		Datatype: Float		Def: -
	P-Group: TECH	Unit: %		Max: -

Displays PID feedback signal in [%].

Note:

r2266 = 100 % corresponds to 4000 hex

P2267	Max. value for PID feedback	Min: -200.00	Level: 3	
	CStat: CUT	Datatype: Float		Def: 100.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 200.00

Sets the upper limit for the value of the feedback signal in [%].

Note:

P2267 = 100 % corresponds to 4000 hex

Notice:

When PID is enabled (P2200 = 1) and the signal rises above this value, the inverter will trip with F0222.

P2268	Min. value for PID feedback	Min: -200.00	Level: 3	
	CStat: CUT	Datatype: Float		Def: 0.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 200.00

Sets lower limit for value of feedback signal in [%].

Note:

P2268 = 100 % corresponds to 4000 hex

Notice:

When PID is enabled (P2200 = 1) and the signal rises above this value, the inverter will trip with F0221.

P2269	Gain applied to PID feedback	Min: 0.00	Level: 3	
	CStat: CUT	Datatype: Float		Def: 100.00
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 500.00

Allows the user to scale the PID feedback as a percentage value [%].

A gain of 100.0 % means that feedback signal has not changed from its default value.

P2270	PID feedback function selector	Min: 0	Level: 3	
	CStat: CUT	Datatype: U16		Def: 0
	P-Group: TECH	Active: Immediately		QuickComm. No Max: 3

Applies mathematical functions to the PID feedback signal, allowing multiplication of the result by P2269 (gain applied to PID feedback).

Settings:

- 0 Disabled
- 1 Square root (root(x))
- 2 Square (x*x)
- 3 Cube (x*x*x)

P2271	PID tranducer type	Min: 0	Level: 2	
	CStat: CUT	Datatype: U16		Unit: -
	P-Group: TECH	Active: Immediately		QuickComm. No

Allows the user to select the transducer type for the PID feedback signal.

Value:

0 : [default] If the feedback signal is less than the PID setpoint, the PID controller will increase motor speed to correct this.

1 : If the feedback signal is greater than the PID setpoint, the PID controller will reduce motor speed to correct this.

Settings:

- 0 Disabled
- 1 Inversion of PID feedback signal

Notice:

It is essential that you select the correct tranducer type.

If you are unsure whether 0 or 1 is applicable, you can determine the correct type as follows:

- 1 Disable the PID function (P2200 = 0).
- 2 Increase the motor frequency while measuring the feedback signal.
- 3 If the feedback signal increases with an increase in motor frequency, the PID transducer type should be 0.
- 4 If the feedback signal decreases with an increase in motor frequency the PID transducer type should be set to 1.

r2272	CO: PID scaled feedback	Min: -	Level: 2	
	Datatype: Float	Unit: %		Def: -
	P-Group: TECH	Max: -		

Displays PID scaled feedback signal in [%].

Note:

r2272 = 100 % corresponds to 4000 hex

r2273	CO: PID error	Min: -	Level: 2	
	Datatype: Float	Unit: %		Def: -
	P-Group: TECH	Max: -		

Displays PID error (difference) signal between setpoint and feedback signals in [%].

Note:

r2273 = 100 % corresponds to 4000 hex

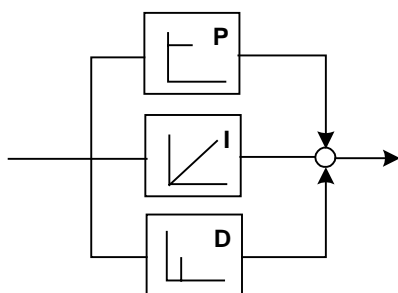
P2274	PID derivative time	Min: 0.000	Level: 2	
	CStat: CUT	Datatype: Float		Unit: s
	P-Group: TECH	Active: Immediately		QuickComm. No

Sets PID derivative time.

P2280	PID proportional gain	Min: 0.000	Level: 2	
	CStat: CUT	Datatype: Float		Unit: -
	P-Group: TECH	Active: Immediately		QuickComm. No

Allows user to set proportional gain for PID controller.

The PID controller is implemented using the standard model.



For best results, enable both P and I terms.

Dependency:

If P term = 0, I term acts on the square of the error signal.

Note:

If the system is prone to sudden step changes in the feedback signal, P term should normally be set to a small value (0.5) with a faster I term for optimum performance.

The D term (P2274) multiplies the difference between the present and previous feedback signal thus accelerating the controller reaction to an error that appears suddenly.

Notice:

The D term should be used carefully, since it can cause the controller output to fluctuate as every change in the feedback signal is amplified by the controller derivative action.

P2285	PID integral time			Min: 0.000	Level: 2
	CStat: CUT	Datatype: Float	Unit: s	Def: 0.000	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 60.000	

Sets integral time constant for PID controller.

Details:

See P2280 (PID proportional gain).

P2291	PID output upper limit			Min: -200.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: %	Def: 100.00	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 200.00	

Sets upper limit for PID controller output in [%].

Dependency:

If F max (P1082) is greater than P2000 (reference frequency), either P2000 or P2291 (PID output upper limit) must be changed to achieve F max.

Note:

P2291 = 100 % corresponds to 4000 hex (as defined by P2000 (reference frequency)).

P2292	PID output lower limit			Min: -200.00	Level: 2
	CStat: CUT	Datatype: Float	Unit: %	Def: 0.00	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 200.00	

Sets lower limit for the PID controller output in [%].

Dependency:

A negative value allows bipolar operation of PID controller.

Note:

P2292 = 100 % corresponds to 4000 hex

P2293	Ramp-up /-down time of PID limit			Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: s	Def: 1.00	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 100.00	

Sets maximum ramp rate on output of PID.

When PI is enabled, the output limits are ramped up from 0 to the limits set in P2291 (PID output upper limit) and P2292 (PID output lower limit). Limits prevent large step changes appearing on the output of the PID when the inverter is started. Once the limits have been reached, the PID controller output is instantaneous.

These ramp times are used whenever a RUN command is issued.

Note:

If an OFF1 or OFF 3 are issued, the inverter output frequency ramps down as set in P1121 (ramp-down time) or P1135 (OFF3 ramp-down time).

r2294	CO: Act. PID output			Min: -	Level: 2
	P-Group: TECH	Datatype: Float	Unit: %	Def: -	
				Max: -	

Displays PID output in [%]

Note:

r2294 = 100 % corresponds to 4000 hex

P2350	PID autotune enable			Min: 0	Level: 2
	CStat: CUT	Datatype: U16	Unit: -	Def: 0	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 4	

Enables autotune function of PID controller.

Settings:

- 0 PID Autotuning Disabled
- 1 PID Autotuning St. ZN
- 2 PID Autotuning Some O/S
- 3 PID Autotuning No O/S
- 4 PID Autotuning PI only

Dependency:

Active when PID loop is enabled (see P2200).

Note:

After autotune this parameter is set to zero (autotune completed).

P2354	PID tuning timeout length			Min: 60	Level: 3
	CStat: CUT	Datatype: U16	Unit: s	Def: 240	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 65000	

Value:

Notice:

This parameter determines the time that the auto tuning code will wait before aborting a tuning run if no oscillation has been obtained

P2355	PID tuning offset			Min: 0.00	Level: 3
	CStat: CUT	Datatype: Float	Unit: %	Def: 5.00	
	P-Group: TECH	Active: Immediately	QuickComm. No	Max: 20.00	

Sets applied offset and deviation for PID autotuning.

Note:

This can be varied depending on plant conditions e.g. a very long system time constant might require a larger value.

P3900	End of quick commissioning			Min: 0	Level: 1
	CStat: C	Datatype: U16	Unit: -	Def: 0	
	P-Group: QUICK	Active: first confirm	QuickComm. Yes	Max: 3	

Performs calculations necessary for optimized motor operation.

After completion of calculation, P3900 and P0010 (parameter groups for commissioning) are automatically reset to their original value 0.

Settings:

- 0 No quick commissioning
- 1 Start quick commissioning with factory reset
- 2 Start quick commissioning
- 3 Start quick commissioning only for motor data

Dependency:

Changeable only when P0010 = 1 (quick commissioning)

Note:

When setting 1 is selected, only the parameter settings carried out via the commissioning menu "Quick commissioning", are retained; all other parameter changes, including the I/O settings, are lost. Motor calculations are also performed.

When setting 2 is selected, only those parameters, which depend on the parameters in the commissioning menu "Quick commissioning" (P0010 = 1) are calculated. The I/O settings are also reset to default and the motor calculations performed.

When setting 3 is selected, only the motor and controller calculations are performed. Exiting quick commissioning with this setting saves time (for example, if only motor rating plate data have been changed).

Calculates a variety of motor parameters, overwriting previous values. These include P0344 (Level 3, motor weight), P0350 (Level 3, demagnetization time), P2000 (reference frequency), P2002 (Level 3, reference current).

P3950	Access of hidden parameter			Min: 0	Level: 4
	CStat: CUT	Datatype: U16	Unit: -	Def: 0	
	P-Group: ALWAYS	Active: first confirm	QuickComm. No	Max: 255	

Accesses special parameters for development (expert only) and factory functionality (calibration parameter).

r3954[13]	CM version and GUI ID			Min: -	Level: 4
		Datatype: U16	Unit: -	Def: -	
	P-Group: -			Max: -	

Used to classify firmware (only for SIEMENS internal purposes).

Index:

- r3954[0] : CM version (major release)
- r3954[1] : CM version (minor release)
- r3954[2] : CM version (baselevel or patch)
- r3954[3] : GUI ID
- r3954[4] : GUI ID
- r3954[5] : GUI ID
- r3954[6] : GUI ID
- r3954[7] : GUI ID
- r3954[8] : GUI ID
- r3954[9] : GUI ID
- r3954[10] : GUI ID
- r3954[11] : GUI ID major release
- r3954[12] : GUI ID minor release

r3955	Version for DriveMonitor			Min: -	Level: H
		Datatype: U16	Unit: -	Def: -	
	P-Group: -			Max: -	

Displays the version for DriveMonitor.

P3980	Commissioning command selection				Min: 0	Level: 4
	CStat: T	Datatype: U16	Unit: -	Def: 0		
	P-Group: -	Active: first confirm	QuickComm. No	Max: 66		

Toggles command and setpoint sources between freely programmable BICO parameters and fixed command/setpoint profiles for commissioning.

The command and setpoint sources can be changed independently. The tens digit selects the command source, the ones digit the setpoint source.

Settings:

0	Cmd = BICO parameter	Setpoint = BICO parameter
1	Cmd = BICO parameter	Setpoint = MOP setpoint
2	Cmd = BICO parameter	Setpoint = Analog setpoint
3	Cmd = BICO parameter	Setpoint = Fixed frequency
4	Cmd = BICO parameter	Setpoint = USS on BOP link
5	Cmd = BICO parameter	Setpoint = USS on COM link
6	Cmd = BICO parameter	Setpoint = CB on COM link
10	Cmd = BOP	Setpoint = BICO parameter
11	Cmd = BOP	Setpoint = MOP setpoint
12	Cmd = BOP	Setpoint = Analog setpoint
13	Cmd = BOP	Setpoint = Fixed frequency
14	Cmd = BOP	Setpoint = USS on BOP link
15	Cmd = BOP	Setpoint = USS on COM link
16	Cmd = BOP	Setpoint = CB on COM link
40	Cmd = USS on BOP link	Setpoint = BICO parameter
41	Cmd = USS on BOP link	Setpoint = MOP setpoint
42	Cmd = USS on BOP link	Setpoint = Analog setpoint
43	Cmd = USS on BOP link	Setpoint = Fixed frequency
44	Cmd = USS on BOP link	Setpoint = USS on BOP link
45	Cmd = USS on BOP link	Setpoint = USS on COM link
46	Cmd = USS on BOP link	Setpoint = CB on COM link
50	Cmd = USS on COM link	Setpoint = BICO parameter
51	Cmd = USS on COM link	Setpoint = MOP setpoint
52	Cmd = USS on COM link	Setpoint = Analog setpoint
53	Cmd = USS on COM link	Setpoint = Fixed frequency
54	Cmd = USS on COM link	Setpoint = USS on BOP link
55	Cmd = USS on COM link	Setpoint = USS on COM link
56	Cmd = USS on COM link	Setpoint = CB on COM link
60	Cmd = CB on COM link	Setpoint = BICO parameter
61	Cmd = CB on COM link	Setpoint = MOP setpoint
62	Cmd = CB on COM link	Setpoint = Analog setpoint
63	Cmd = CB on COM link	Setpoint = Fixed frequency
64	Cmd = CB on COM link	Setpoint = USS on BOP link
65	Cmd = CB on COM link	Setpoint = USS on COM link
66	Cmd = CB on COM link	Setpoint = CB on COM link

P3981	Reset active fault				Min: 0	Level: 4
	CStat: CT	Datatype: U16	Unit: -	Def: 0		
	P-Group: ALARMS	Active: first confirm	QuickComm. No	Max: 1		

Resets active faults when changed from 0 to 1.

Settings:

0	No fault reset
1	Reset fault

Note:

Automatically reset to 0.

Details:

See P0947 (last fault code)

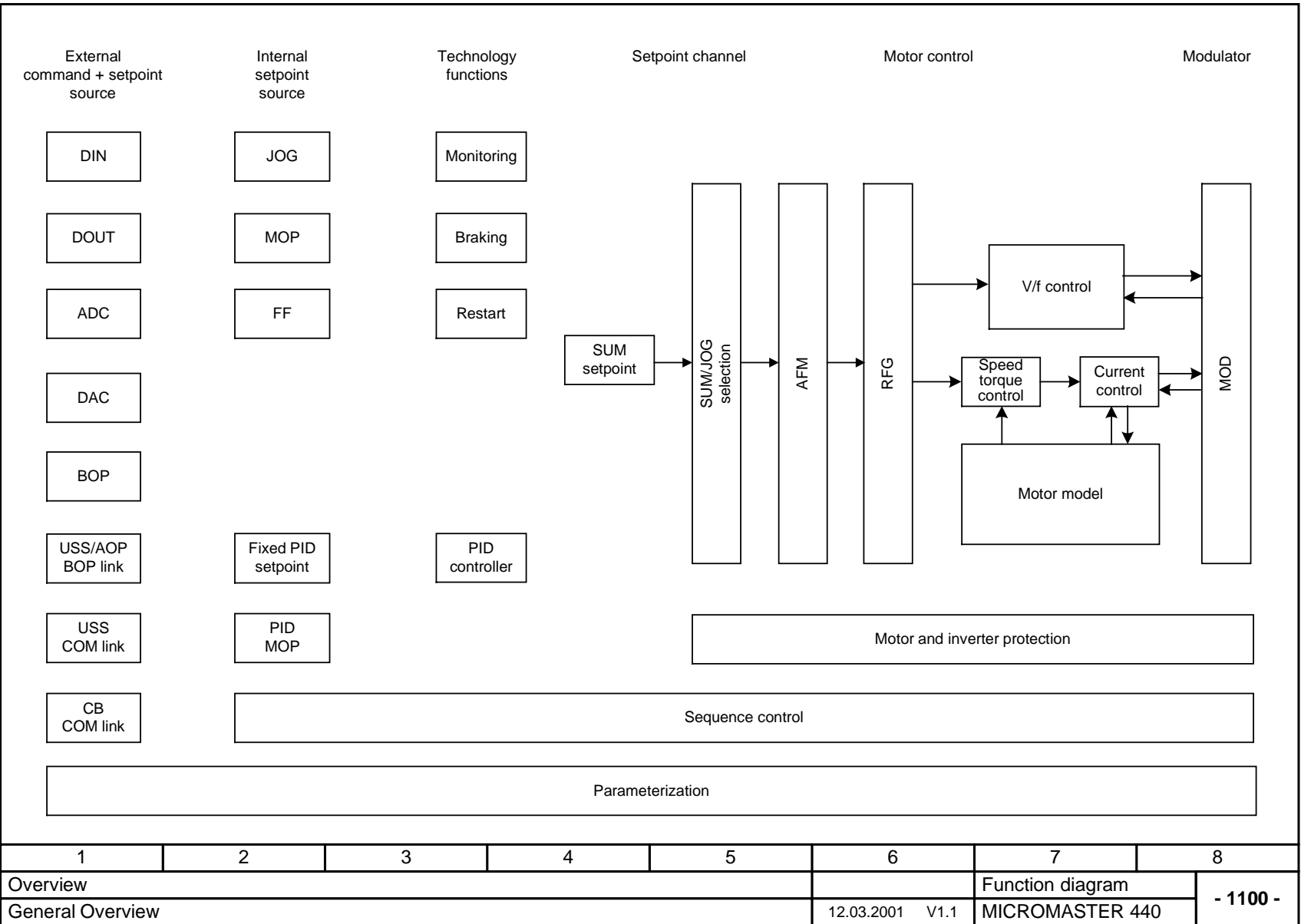
r3986[2]	Number of parameters				Min: -	Level: 4
		Datatype: U16	Unit: -	Def: -		
	P-Group: -			Max: -		

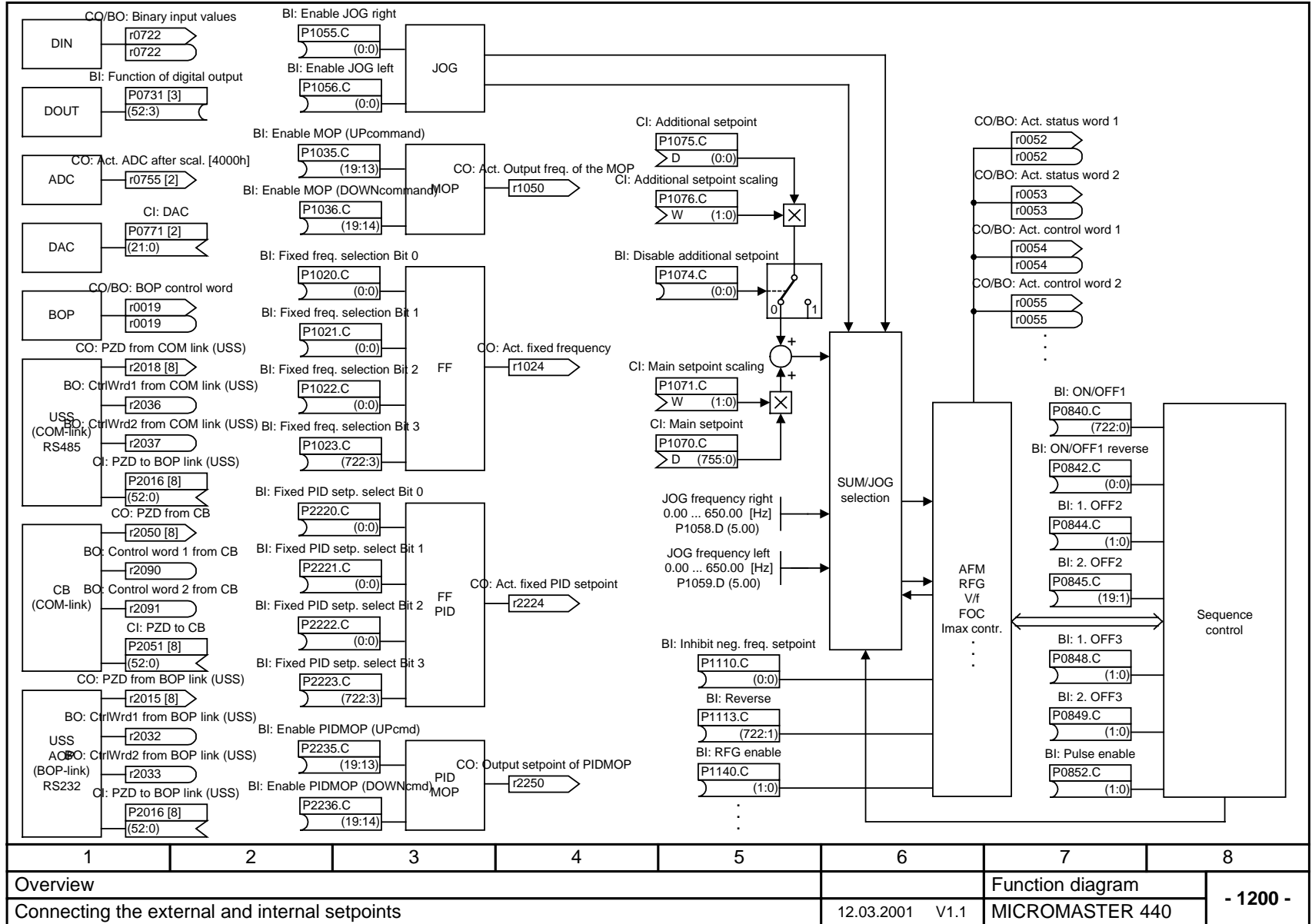
Number of parameters on the drive

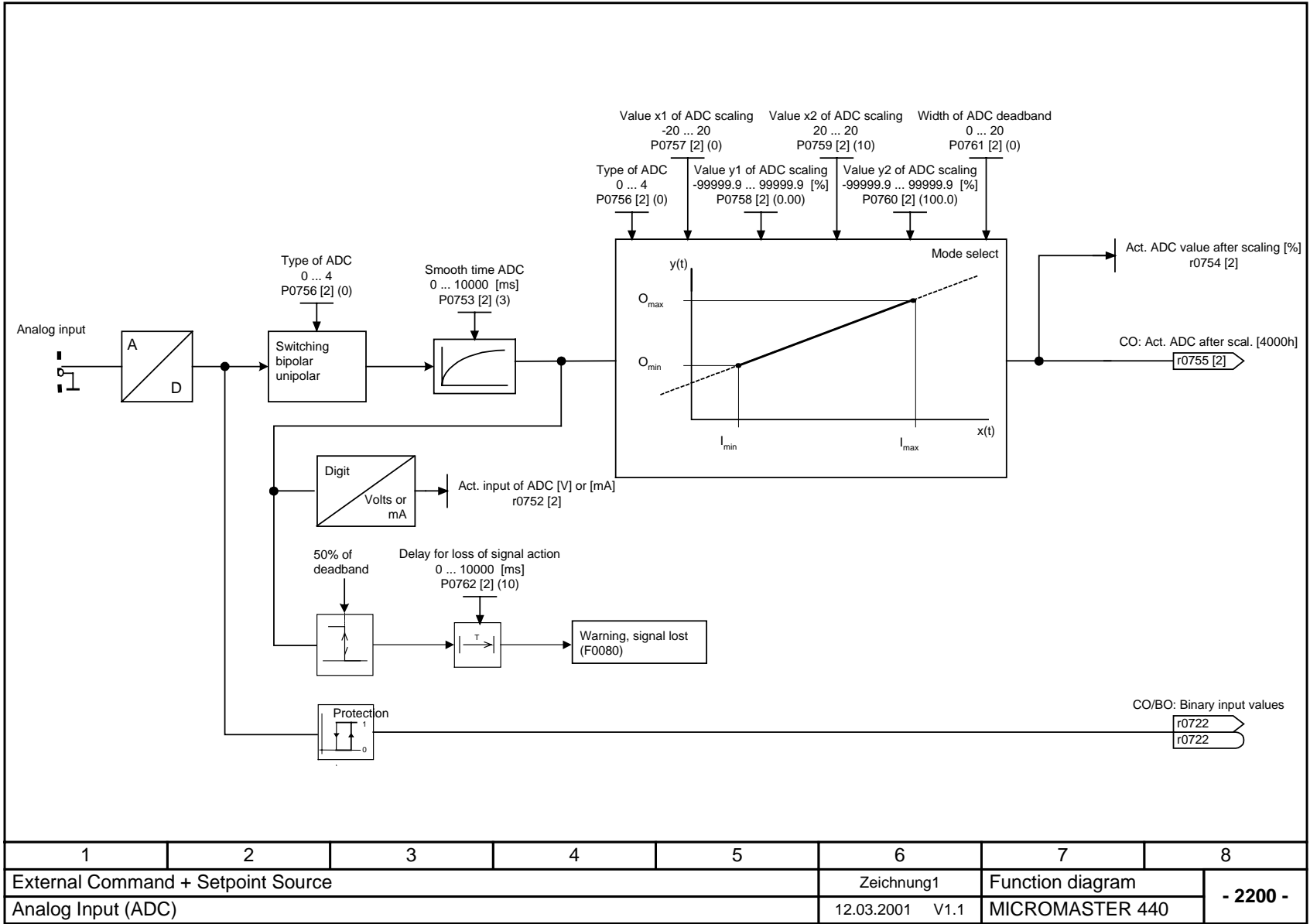
Index:

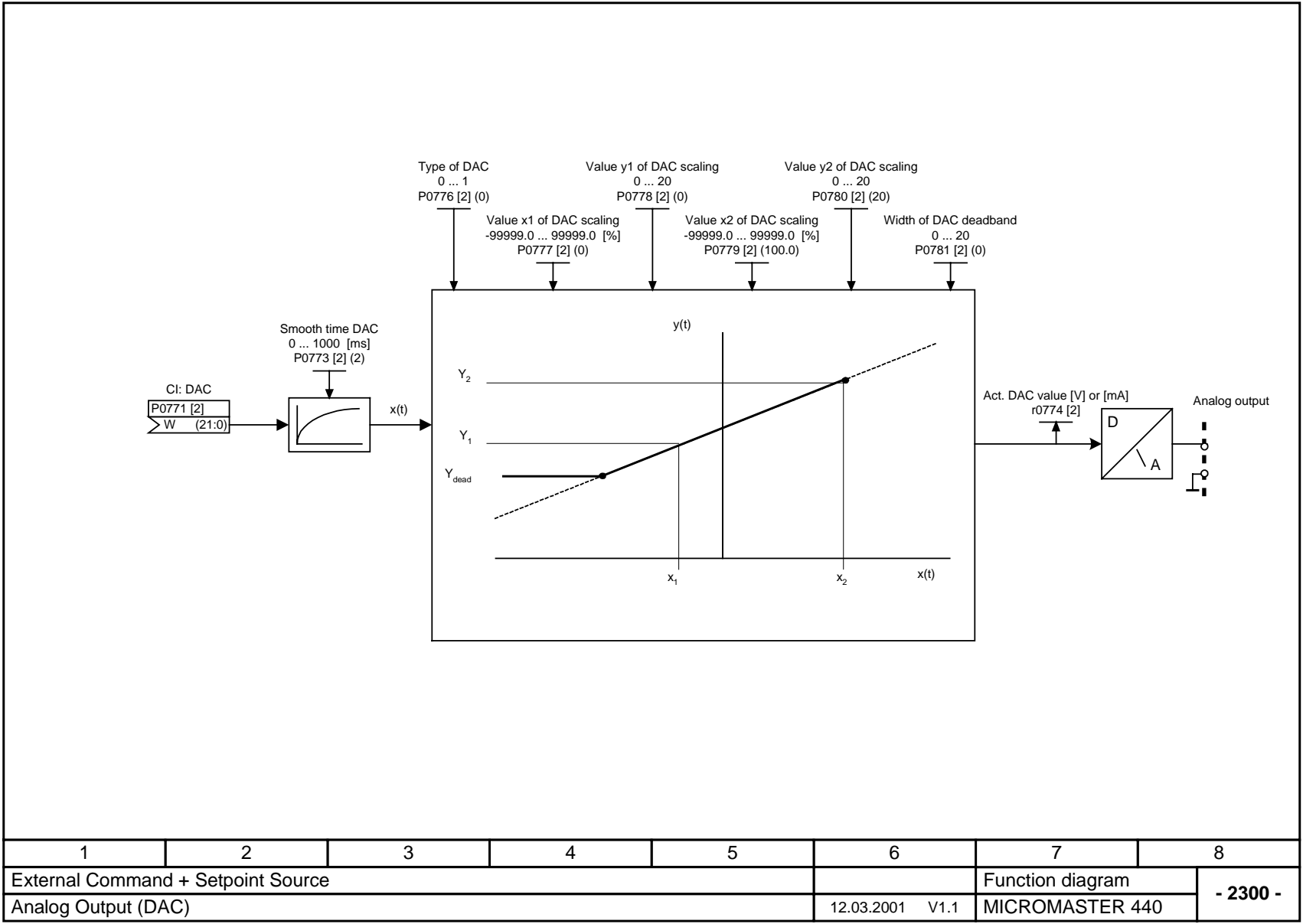
- r3986[0] : Read only
- r3986[1] : Read & write

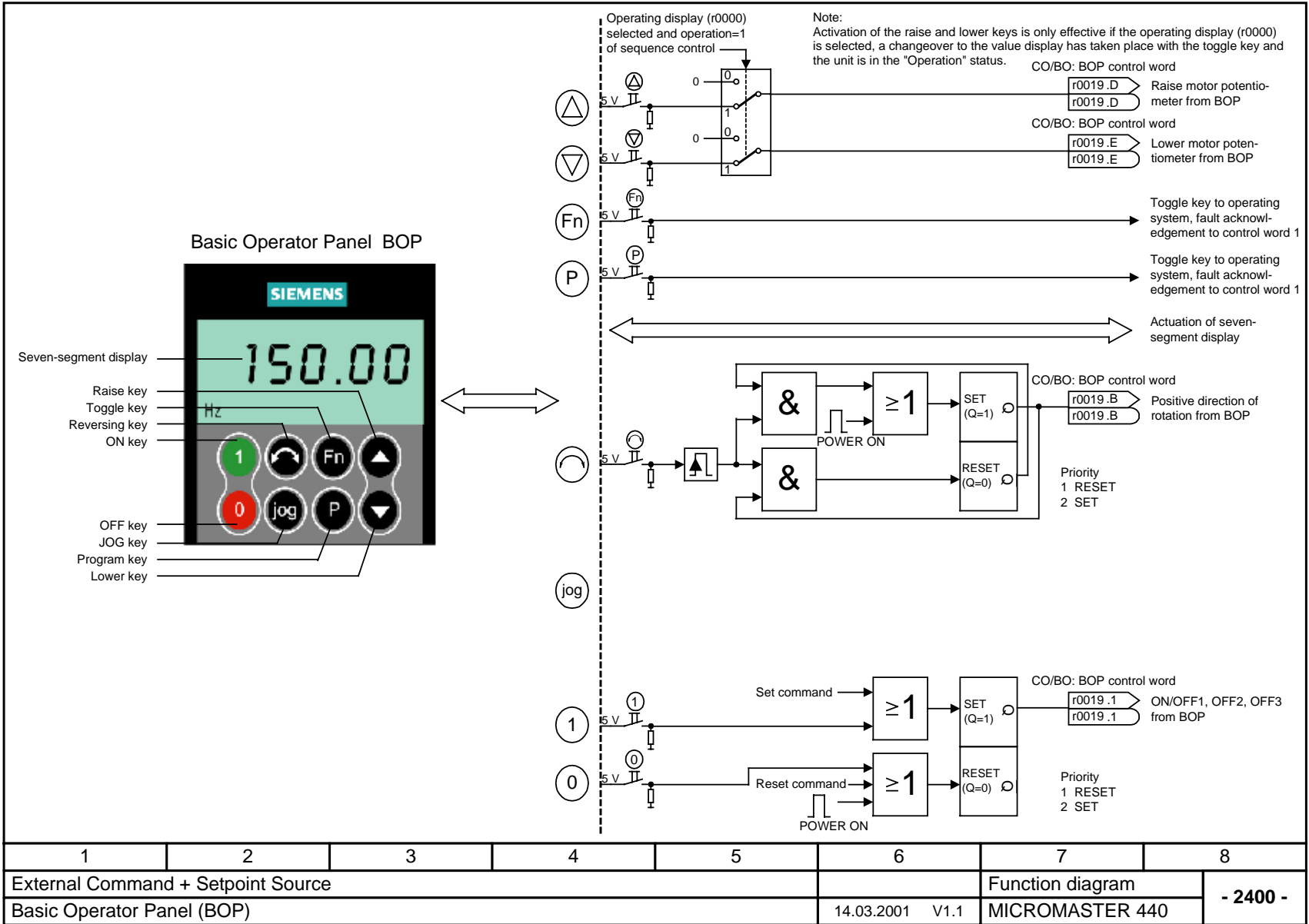
2 Function Diagrams

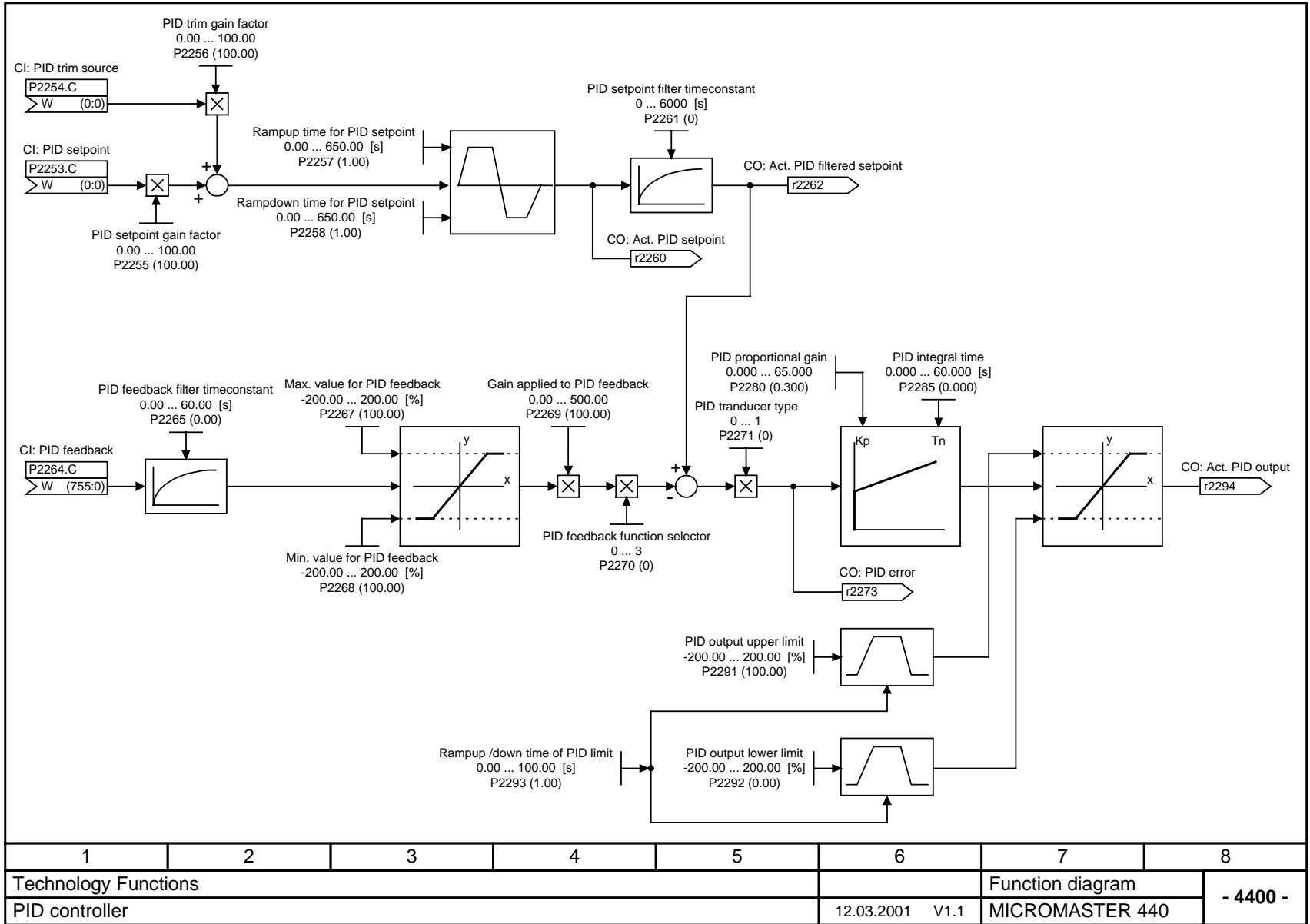


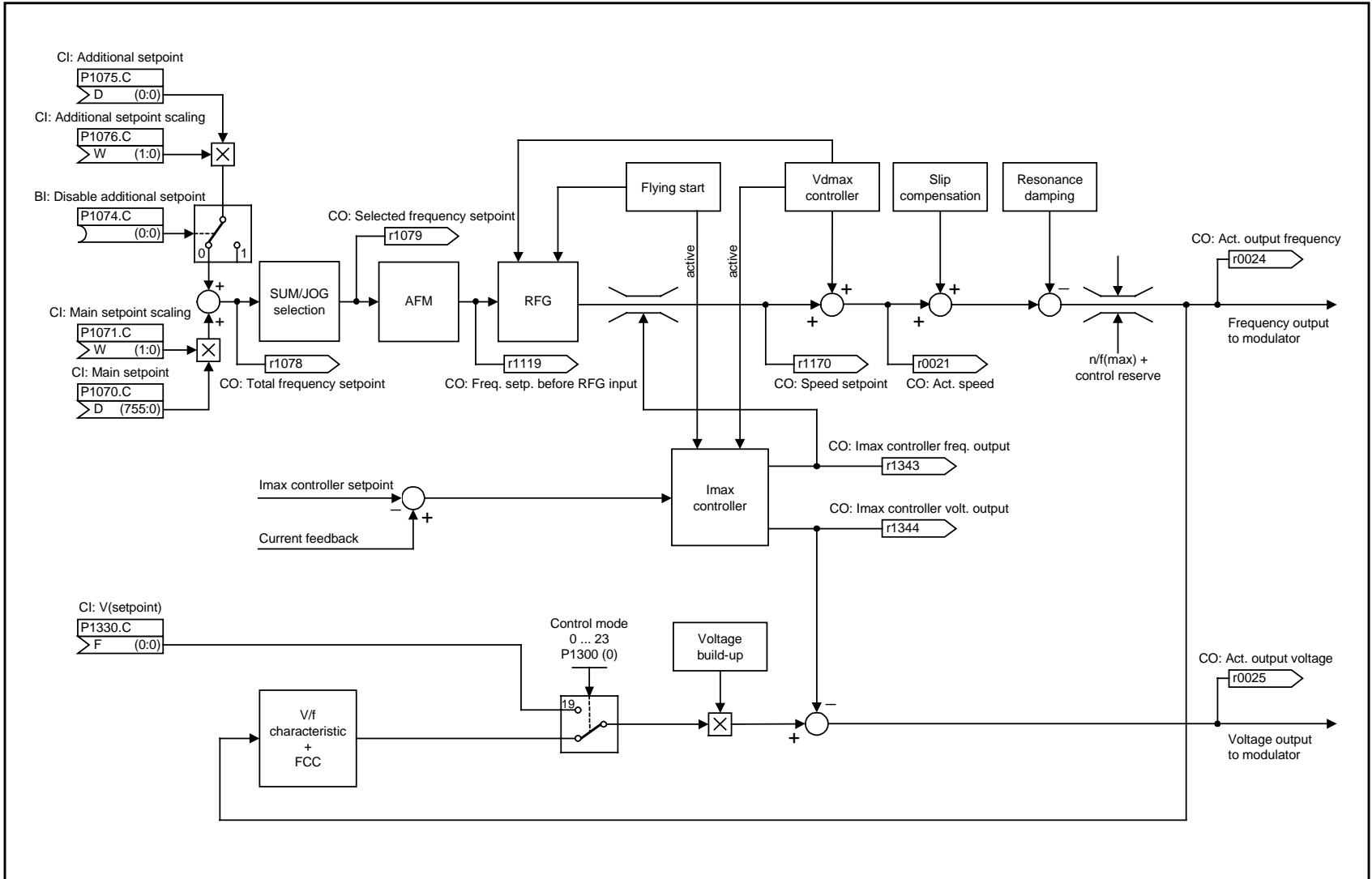




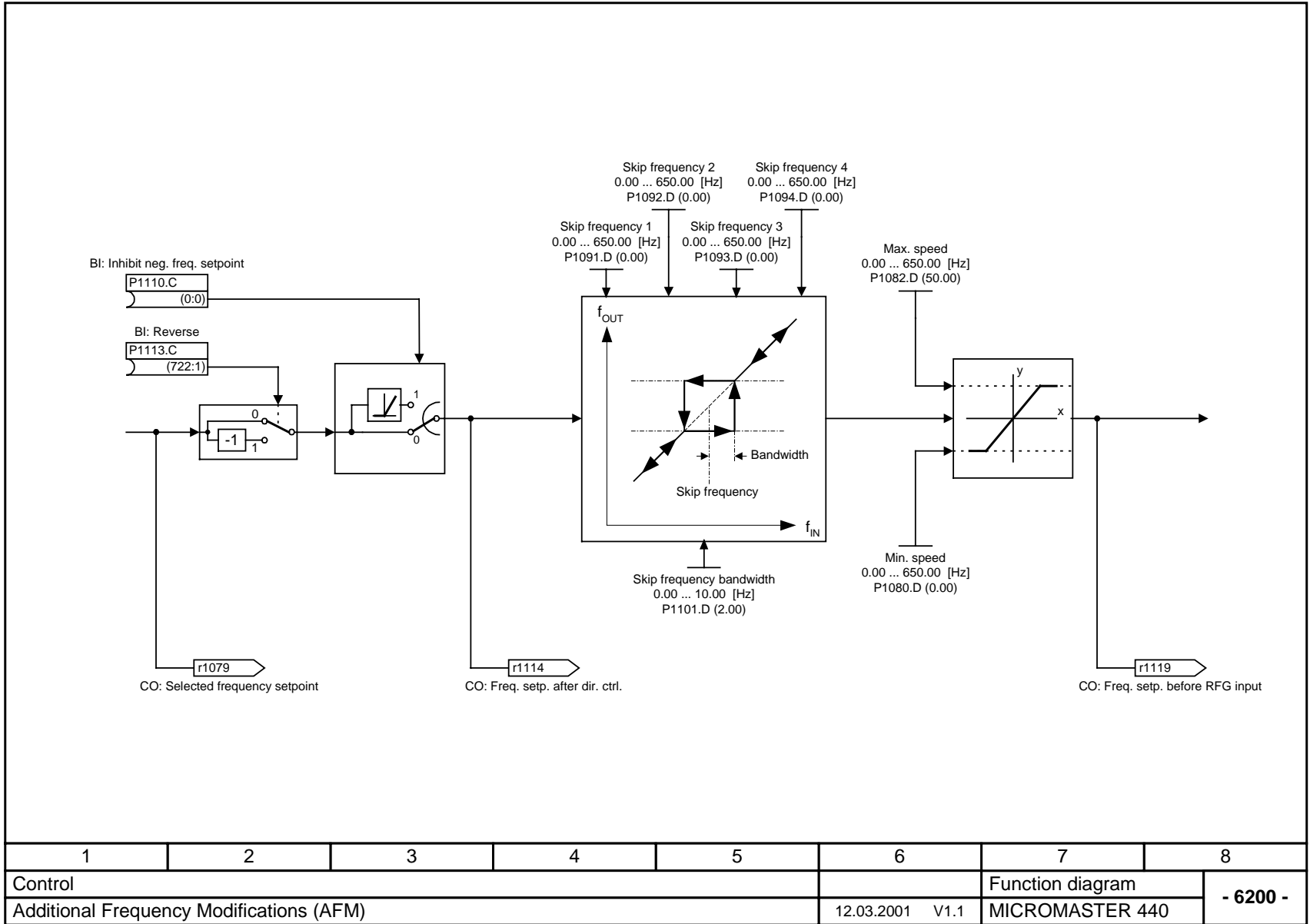








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3 Faults and Alarms

3.1 Fault messages

In the event of a failure, the inverter switches off and a fault code appears on the display.

NOTE

To reset the fault code, one of three methods listed below can be used:

1. Cycle the power to the drive.
2. Press the  button on the BOP or AOP.
3. Via Digital Input 3 (default setting)

Fault	Possible Causes	Diagnose & Remedy	Reaction
F0001 Overcurrent	<ul style="list-style-type: none"> ➤ Motor power (P0307) does not correspond to the inverter power (P0206) ➤ Motor lead short circuit ➤ Earth faults 	Check the following: <ol style="list-style-type: none"> 1. Motor power (P0307) must correspond to inverter power (P0206). 2. Cable length limits must not be exceeded. 3. Motor cable and motor must have no short-circuits or earth faults 4. Motor parameters must match the motor in use 5. Value of stator resistance (P0350) must be correct 6. Motor must not be obstructed or overloaded <ul style="list-style-type: none"> ➤ Increase the ramp time ➤ Reduce the boost level 	OFF2
F0002 Overvoltage	<ul style="list-style-type: none"> ➤ DC-link voltage (r0026) exceeds trip level (P2172) ➤ Overvoltage can be caused either by too high main supply voltage or if motor is in regenerative mode. ➤ Regenerative mode can be cause by fast ramp downs or if the motor is driven from an active load. 	Check the following: <ol style="list-style-type: none"> 1. Supply voltage (P0210) must lie within limits indicated on rating plate . 2. DC-link voltage controller must be enabled (P1240) and parameterized properly. 3. Ramp-down time (P1121) must match inertia of load. 4. Required braking power must lie within specified limits. <p>Note Higher inertia requires longer ramp times; otherwise, apply braking resistor.</p>	OFF2
F0003 Undervoltage	<ul style="list-style-type: none"> ➤ Main supply failed. ➤ Shock load outside specified limits. 	Check the following: <ol style="list-style-type: none"> 1. Supply voltage (P0210) must lie within limits indicated on rating plate. 2. Supply must not be susceptible to temporary failures or voltage reductions. 	OFF2
F0004 Inverter Over-temperature	<ul style="list-style-type: none"> ➤ Ventilation inadequate ➤ Fan inoperative ➤ Ambient temperature is too high. 	Check the following: <ol style="list-style-type: none"> 1. Fan must turn when inverter is running 2. Pulse frequency must be set to default value 3. Obstruction of air inlet and outlet points Ambient temperature could be higher than specified for the inverter.	OFF2
F0005 Inverter I²t	<ul style="list-style-type: none"> ➤ Inverter overloaded. ➤ Duty cycle too demanding. ➤ Motor power (P0307) exceeds inverter power capability (P0206). 	Check the following: <ol style="list-style-type: none"> 1. Load duty cycle must lie within specified limits. 2. Motor power (P0307) must match inverter power (P0206) 	OFF2
F0011 Motor Over-temperature	<ul style="list-style-type: none"> ➤ Motor overloaded ➤ Motor data incorrect ➤ Long time period operating at low speeds 	<ol style="list-style-type: none"> 1. Check motor data 2. Check loading on motor 3. Boost settings too high (P1310, P1311, P1312) 4. Check parameter for motor thermal time constant 5. Check parameter for motor I²t warning level. 	OFF1
F0012 Inverter temp. signal lost	Wire breakage of inverter temperature (heatsink) sensor		OFF1

Fault	Possible Causes	Diagnose & Remedy	Reaction
F0015 Motor temperature signal lost	Open or short circuit of motor temperature sensor. If signal loss is detected, temperature monitoring switches over to monitoring with the motor thermal model		OFF2
F0020 Mains Phase Missing	Fault occurs if one of the three input phases is missed and the pulses are enabled and drive is loaded	Check the input wiring of the mains phases	OFF2
F0021 Earth fault	Fault occurs if the sum of the phase currents is higher than 5 % of the nominal inverter current. Note This fault only occurs on inverters that have 3 current sensors (Frame sizes D to F)		OFF2
F0022 Powerstack fault	Fault caused by the following events: (1) dc-link overcurrent = short circuit of IGBT (2) short circuit of chopper (3) earth fault ➤ Framesizes A to C (1),(2),(3) ➤ Framesizes D to E (1),(2) ➤ Framesize F (2) Since all these faults are assigned to one signal on the power stack, it is not possible to establish which one actually occurred.		OFF2
F0030 Fan has failed	Fan no longer working	Fault cannot be masked while options module (AOP or BOP) is connected. Need a new fan.	OFF2
F0040 Automatic Calibration Failure			OFF2
F0041 Motor Data Identification Failure	<ul style="list-style-type: none"> ➤ Motor data identification failed. ➤ Alarm value =0: Load missing ➤ Alarm value =1: Current limit level reached during identification. ➤ Alarm value =2: Identified stator resistance less than 0.1% or greater than 100%. ➤ Alarm value =3: Identified rotorresistance less than 0.1% or greater than 100%. ➤ Alarm value =4: Identified stator reactance less than 50% and greater than 500% ➤ Alarm value =5: Identified main reactance less than 50% and greater than 500% ➤ Alarm value =6: Identified rotor time constant less than 10ms or greater than 5s ➤ Alarm value =7: Identified total leakage reactance less than 5% and greater than 50% ➤ Alarm value =8: Identified stator leakage reactance less than 25% and greater than 250% ➤ Alarm value =9: Identified rotor leakage inductance less than 25% and greater than 250% ➤ Alarm value = 20: Identified IGBT on-voltage less than 0.5 or greater than 10V ➤ Alarm value = 30: Current controller at voltage limit ➤ Alarm value = 40: Inconsistence of identified data set, at least one identification failed ➤ Percentage values based on the impedance $Z_b = V_{mot,nom} / \sqrt{3} / I_{mot,nom}$ 	<p>0: Check that the motor is connected to the inverter.</p> <p>1-40: Check if motor data in P304-311 are correct.</p> <p>Check what type of motor wiring is required (star, delta).</p>	OFF2

Fault	Possible Causes	Diagnose & Remedy	Reaction
F0051 Parameter EEPROM Fault	Read or write failure while saving non-volatile parameter.	<ul style="list-style-type: none"> ➤ Factory Reset and new parameterization. ➤ Change inverter 	OFF2
F0052 Power Stack Fault	Read failure for power stack information or invalid data.	Change inverter	OFF2
F0053 IO Eeprom Fault	Read failure for IO EEPROM information or invalid data	<ul style="list-style-type: none"> ➤ Check data ➤ Change IO module 	OFF2
F0054 Wrong IO Board	<ul style="list-style-type: none"> ➤ Wrong IO board is connected. ➤ No ID detected on IO board, No data. 	<ol style="list-style-type: none"> 1. Check data 2. Change IO module 	OFF2
F0060 Asic Timeout	Communications failure	<ol style="list-style-type: none"> 1. Acknowledge fault 2. Change inverter if repeated 	OFF2
F0070 CB setpoint fault	No setpoint received from communications board during telegram off time	<ol style="list-style-type: none"> 1. Check connections to the communications board 2. Check the master 	OFF2
F0071 USS (BOP- link) setpoint fault	No response during telegram off time via USS (BOP-link)	<ol style="list-style-type: none"> 1. Check connections to the communications board 2. Check the master 	OFF2
F0072 USS (COMM link) setpoint fault	No response during telegram off time via USS (COMM-link)	<ol style="list-style-type: none"> 1. Check connections to the communications board 2. Check the master 	OFF2
F0080 ADC lost input signal	<ul style="list-style-type: none"> ➤ Broken wire ➤ Signal out of limits 	Check connection to analogue input	OFF2
F0085 External Fault	External fault triggered	Disable input for fault trigger	OFF2
F0101 Stack Overflow	Software error or processor failure	<ol style="list-style-type: none"> 1. Run self test routines 2. Change inverter 	OFF2
F0221 PID Feedback below min. value	PI Feedback below minimum value P2268	<ol style="list-style-type: none"> 1. Change value of P2268 2. Adjust feedback gain 	OFF2
F0222 PID Feedback above max. value	PI Feedback above maximum value P2267	<ol style="list-style-type: none"> 1. Change value of P2267 2. Adjust feedback gain 	OFF2
F0450 BIST Tests Failure (Service mode only)	Fault value: <ol style="list-style-type: none"> 1 Some of the power section tests have failed 2 Some of the control board tests have failed 4 Some of the functional tests have failed 8 Some of the IO module tests have failed 16 The internal RAM has failed its check on power-up 	<ol style="list-style-type: none"> 1. Inverter may run but certain actions will not function correctly 2. Replace inverter 	OFF2
F0452 Belt Failure Detected	Load conditions on motor indicate belt failure or mechanical fault.	Check the following: <ol style="list-style-type: none"> 1. No breakage, seizure or obstruction of drive train. 2. Proper operation of external speed sensor, if in use. 3. P0402 (pulse per min at rated speed), P2164 (hysteresis freq. deviation) and P2165 (delay time for permitted deviation) must have correct values. 4. P2155 (threshold frequency f1), P2157 (threshold frequency f2), P2159 (threshold frequency f3), P2174 (upper torque threshold 1), P2175 (lower torque threshold 1), P2176 (delay T_Torque), P2182 (upper torque threshold 2), P2183 (lower torque threshold 2), P2184 (upper torque threshold 3) and P2185 (lower torque threshold 3) must have correct values. 	OFF2

3.2 Alarm messages

Fault	Possible Causes	Diagnose & Remedy	Reaction
A0501 Current Limit	<ul style="list-style-type: none"> ➤ Motor power does not correspond to the inverter power ➤ Motor leads are too short ➤ Earth faults 	Check the following: <ol style="list-style-type: none"> 1. Motor power (P0307) must correspond to inverter power (P0206). 2. Cable length limits must not be exceeded. 3. Motor cable and motor must have no short-circuits or earth faults 4. Motor parameters must match the motor in use 5. Value of stator resistance (P0350) must be correct 6. Motor must not be obstructed or overloaded <ul style="list-style-type: none"> ➤ Increase the ramp-up-time. ➤ Reduce the boost 	--
A0502 Overvoltage limit	<ul style="list-style-type: none"> ➤ Overvoltage limit is reached. ➤ This warning can occur during ramp down, if the dc-link controller is disabled (P1240 = 0). 	If this warning is displayed permanently, check drive input voltage	--
A0503 Undervoltage Limit	<ul style="list-style-type: none"> ➤ Main supply failed ➤ Main supply (P0210) and consequently DC-link voltage (R0026) below specified limit (P2172). 	Check main supply voltage (P0210)	--
A0504 Inverter Over-temperature	Warning level of inverter heat-sink temperature (P0614) is exceeded, resulting in pulse frequency reduction and/or output frequency reduction (depending on parametrization in (P0610))	Check the following: <ol style="list-style-type: none"> 1. Ambient temperature must lie within specified limits 2. Load conditions and duty cycle must be appropriate 3. Fan must turn when drive is running 	--
A0505 Inverter I²t	Warning level exceeded, current will be reduced if parameterized (P0610 = 1)	Check that duty cycle lies within specified limits	--
A0506 Inverter duty cycle	Difference between heatsink and IGBT junction temperature exceeds warning limits	Check that duty cycle and shock loads lie within specified limits	--
A0510 Motor Over-temperature			--
A0511 Motor Over-temperature I²t	<ul style="list-style-type: none"> ➤ Motor overloaded ➤ Load duty cycle too high 	Check the following: <ol style="list-style-type: none"> 1. P0611 (motor i²t time constant) should be set to appropriate value 2. P0614 (Motor i²t overload warning level) should be set to suitable level 3. Are long periods of operation at low speed occurring 4. Check that boost settings are not too high 	--
A0512 Motor temperature signal lost	Wire break to motor temperature sensor.	If a wire breakage is detected, temperature monitoring switches over to monitoring with the motor thermal model.	--
A0535 Braking Resistor Hot			--
A0541 Motor Data Identification Active	Motor data identification (P1910) selected or running	Wait until motor identification is finished	--
A0700 CB warning 1	CB (communication board) specific	See CB user manual	--
A0701 CB warning 2	CB (communication board) specific	See CB user manual	--
A0702 CB warning 3	CB (communication board) specific	See CB user manual	--
A0703 CB warning 4	CB (communication board) specific	See CB user manual	--
A0704 CB warning 5	CB (communication board) specific	See CB user manual	--
A0705 CB warning 6	CB (communication board) specific	See CB user manual	--

Fault	Possible Causes	Diagnose & Remedy	Reaction
A0706 CB warning 7	CB (communication board) specific	See CB user manual	--
A0707 CB warning 8	CB (communication board) specific	See CB user manual	--
A0708 CB warning 9	CB (communication board) specific	See CB user manual	--
A0709 CB warning 10	CB (communication board) specific	See CB user manual	--
A0710 CB communication error	Communication with CB (communication board) is lost	Check CB hardware	--
A0711 CB configuration error	CB (communication board) reports a configuration error.	Check CB parameters	--
A0910 Vdc-max controller deactivated	Vdc max controller has been deactivated, since controller is not capable of keeping DC-link voltage (r0026) within limits (P2172). <ul style="list-style-type: none"> ➤ Occurs if main supply voltage (P0210) is permanently too high. ➤ Occurs if motor is driven by an active load, causing motor to go into regenerative mode. ➤ Occurs at very high load inertias, when ramping down. 	Check the following: 1. Input voltage (P0756) lies within range? 2. Load must match In certain cases apply braking resistor.	--
A0911 Vdc-max controller active	Vdc max controller is active; so ramp-down times will be increased automatically to keep DC-link voltage (r0026) within limits (P2172).	1. Check parameter inverter input voltage 2. Check ramp-down times	--
A0912 Vdc-min controller active	Vdc min controller will be activated if DC-link voltage (r0026) falls below minimum level (P2172). <ul style="list-style-type: none"> ➤ The kinetic energy of the motor is used to buffer the DC-link voltage, thus causing deceleration of the drive! ➤ So short mains failures do not necessarily lead to an undervoltage trip. 		--
A0920 ADC parameters not set properly	ADC parameters should not be set to identical values, since this would produce illogical results. <ul style="list-style-type: none"> ➤ Index 0: Parameter settings for output identical ➤ Index 1: Parameter settings for input identical ➤ Index 2: Parameter settings for input do not correspond to ADC type 	Analogue input parameters should not be set to the same value as each other	--
A0921 DAC parameters not set properly	DAC parameters should not be set to identical values, since this would produce illogical results. <ul style="list-style-type: none"> ➤ Index 0: Parameter settings for output identical ➤ Index 1: Parameter settings for input identical ➤ Index 2: Parameter settings for output do not correspond to DAC type 	Analogue Output parameters should not be set to the same value as each other	--
A0922 No load applied to inverter	No Load is applied to the inverter. As a result, some functions may not work as under normal load conditions.	1. Check that load is applied to the inverter 2. Check motor parameters correspond to motor attached 3. As a result, some functions may not work correctly, because there is no normal load condition	--
A0923 Both JOG Left and JOG Right are requested	Both JOG right and JOG left (P1055/P1056) have been requested. This freezes the RFG output frequency at its current value.	Make sure that JOG right and JOG left signals are not applied simultaneously	--

Fault	Possible Causes	Diagnose & Remedy	Reaction
A0936 PID Autotuning Active	PID Autotuning (P2350) selected or running		--
A0952 Belt Failure Detected	Load conditions on motor indicate belt failure or mechanical fault	Check the following: <ol style="list-style-type: none"> 1. No breakage, seizure or obstruction of drive train. 2. If using an external speed sensor, check for correct function. 3. Check parameters: <ul style="list-style-type: none"> P0409 (pulse per min at rated speed). P2191 (Belt failure speed tolerance). P2192 (delay time for permitted deviation) 4. If using the torque envelope, check parameters: <ul style="list-style-type: none"> P2182 (threshold frequency f1) P2183 (threshold frequency f2) P2184 (threshold frequency f3) P2185 (upper torque threshold 1) P2186 (lower torque threshold 1) P2187 (upper torque threshold 2) P2188 (lower torque threshold 2) P2189 (upper torque threshold 3) P2190 (lower torque threshold 3) P2192 (delay time for permitted deviation) 	--

Suggestions and/or Corrections

To
Siemens AG
Automation & Drives
Group
SD VM 4
P.O. Box 3269

D-91050 Erlangen
Federal Republic of Germany

[Suggestions for technical documentation](#)

**Suggestions
Corrections**

For Publication/Manual:
MICROMASTER 440
Parameter List

User Documentation

From

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Order number: 6SE6400-5BB00-0BP0

Date of Issue: Issue B1

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Siemens AG
Automation and Drives Group (A&D)
Standard Drives (SD) Division
Postfach 3269, D-91050 Erlangen
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