

Supplementary instructions: PROFIBUS® DP DULCOMETER® Multi-parameter controller diaLog DACb

EN



Please carefully read these operating instructions before use. · Do not discard.
The operator shall be liable for any damage caused by installation or operating errors.
The latest version of the operating instructions are available on our homepage.

General non-discriminatory approach

In order to make it easier to read, this document uses the male form in grammatical structures but with an implied neutral sense. It is aimed equally at both men and women. We kindly ask female readers for their understanding in this simplification of the text.

Supplementary information

➔ Please read the supplementary information in its entirety.

Information



This provides important information relating to the correct operation of the unit or is intended to make your work easier.

Warning information

Warning information include detailed descriptions of the hazardous situation.

The following symbols are used to highlight instructions, links, lists, results and other elements in this document:

Tab. 1: More symbols

Symbol	Description
1. ➔	Action, step by step.
⇒	Outcome of an action.
↪	Links to elements or sections of these instructions or other applicable documents.
■	List without set order.
[Button]	Display element (e.g. indicators). Operating element (e.g. button, switch).
'Display /GUI'	Screen elements (e.g. buttons, assignment of function keys).
CODE	Presentation of software elements and/or texts.

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1 Supplementary instructions PROFIBUS® DP

1.1 Requirements

Personnel must be familiar with the contents of the "Assembly and Operating Instructions for DULCOMETER® Multi-parameter Controller diaLog DACb".

The controller must have a PROFIBUS® DP module.

Validity of the supplementary instructions

These supplementary instructions are only valid when used in conjunction with the operating instructions for the multi-parameter controller diaLog DACb.

1.2 Adjusting the controller

1.2.1 General

The controller with PROFIBUS® DP functionality is adjusted in the same way as the standard controller, with the addition of the bus functionality.



Adjustment process cancelled

In the event of a pause longer than 60 s, the adjustment process is cancelled.


1.2.2 Configuring the PROFIBUS® DP

In order to control the controller using the PROFIBUS® DP, you must activate the PROFIBUS® DP in the controller operating menu (see the controller operating instructions).

While the PROFIBUS® DP is active, all external inputs will function. The external inputs lead to the expected reactions as in the case of the controller without PROFIBUS® DP functionality (see controller operating instructions). The controller sends corresponding information over the PROFIBUS® DP to the master (PLC, PC etc.).

Even if the fieldbus is set to inactive, the master is able to read-access the controller data defined in its GSD file.

If the PROFIBUS® DP is inactive or set to inactive, the settings for the operating mode selected prior to "inactive" status are reloaded in the controller.

If the controller is switched to another operating mode, it stops and can only be restarted using the  [Stop/Start] key.

1. ➤ To access the 'Menu': press the [Menu] key
2. ➤ Use the cursor keys to select the menu item 'Setup' and confirm with the [OK] key
 - ⇒ The menu 'Device setup' appears.

3. ➤ Use the cursor keys to select the menu item 'Bus Configuration' and confirm with the [OK] key
 - ⇒ The 'Configuration' menu appears.
4. ➤ In the 'Configuration' menu, you can:
 - 'Remote configuration'
 - Activating/deactivating remote configuration.
 - 'Address'
 - Here you can set the address at which the controller in the bus can be accessed.
 - 'Termination'
 - Here you can set whether the controller is the last device in the bus and whether or not the terminating resistance is activated.


1.3 Special features in active PROFIBUS® DP operation

1.3.1 General



Setting and programming

In PROFIBUS® DP operation, the controller cannot be manually set or programmed. To set or programme the controller, set the PROFIBUS® DP to 'inactive'.

- When PROFIBUS® DP operation is selected, the settings from the last operating mode without PROFIBUS® DP are applied. By contrast, the settings made via the PROFIBUS® DP are not saved. These only apply as long as the controller is linked to the PROFIBUS® DP.
- If the controller is set to PROFIBUS® DP operation, it stops. The controller can be controlled again by pressing the  [Stop/Start] key. The start command is given via the PROFIBUS® DP module.

1.3.2 Display

In running PROFIBUS® DP operation there are further identifiers in the operating indicator.



Common identifiers

The common identifiers are described in the controller operating instructions.

1.3.3 LEDs on the PROFIBUS® DP module

LED 1 (left) - module operating status

Signal	Cause
Off	The module has no supply voltage or connection.
Green	The module and the master are exchanging information.
Green flashing	The module has been initialised.
Red flashing	Error in pump parametrisation
Red flashing, double	Error in PROFIBUS configuration

LED 2 (right) - module status

Signal	Cause
Off	The module has not been initialised.
Green	The module has been initialised.
Green flashing	The module has been initialised and there are diagnostic messages.
Red	Serious exception error

1.4 Installation

Bus installation

All devices that are members of the bus system must be connected in a line. There are up to 32 possible stations (master, slaves, repeaters).

At both the beginning and end of the cable, the bus must be terminated with a terminating resistance.

Plugs and cables

For the PROFIBUS® DP cable, use a screened, twisted-pair cable conforming to EN 50170 (cable type A).



Earthed shielding

Using shielding which is earthed at one end prevents low-frequency ground loops. Shielding earthed at one end is not effective in countering HF magnetic pick-up. Shielding earthed at both ends as well as twisted conductors are effective in countering magnetic HF pick-up but are not effective against electrical HF pick-up.

For PROFIBUS®, we would recommend establishing a bilateral, low-inductance (i.e. large area and low-impedance) connection with the protective earth.

Tab. 2: The maximum overall length of the bus cabling without repeaters varies according to the desired data transmission rate:

Maximum length of bus cabling	Data transmission rate
m	kBit/s
100	12000
100	6000
100	3000
200	1500
400	500
1000	187.5
1200	93.75
1200	19.2
1200	9.6

The PROFIBUS® DP cable is fitted directly on the terminals of the PROFIBUS® DP module.

Note for achieving IP 67 degree of protection

An installation conforming to IP 67 is possible because the cabling is carried out using the appropriate assembly accessories (cable passages etc.) directly on the controller terminal.



CAUTION!

Degree of protection IP 67

- IP 67 degree of protection only applies if the appropriate assembly accessories (cable passages etc.) have been correctly installed (see controller assembly and operating instructions).

If the controller is the last bus device connected to the PROFIBUS® DP cable, it must be connected as a termination using the PROFIBUS® DP module (see EN 50170). The terminating resistance required for this can be activated internally using the 'Termination' operating menu (network termination). No external terminating resistance is required.

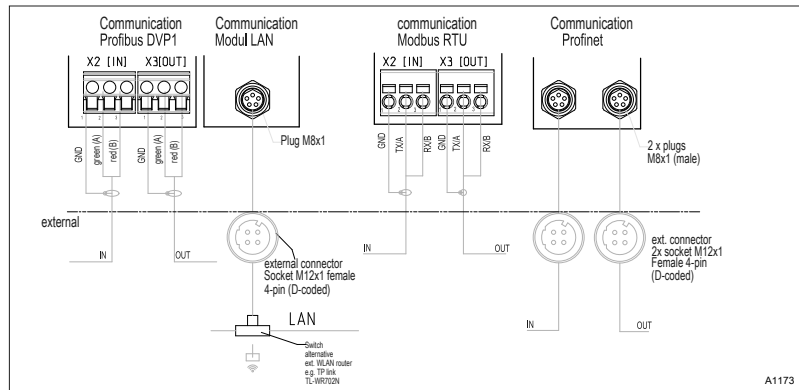


Fig. 1: Terminal diagram of the communication modules

1.5 Operation

1.5.1 General

Using the connected PROFIBUS® DP module, the PROFIBUS® DP controller represents a device with slave functionality in conformity with DP V1. This means that the payload is transferred both cyclically and acyclically.

1.5.2 GSD file

The GSD file must be used for configuring the master. The GSD file describes all of the features of the pump in PROFIBUS® DP operation (keywords, diagnosis, modules, slots). The GSD file can be downloaded from the PROFIBUS® website and from the ProMinent website. The file name is clearly indicated: DACB101C.gsd.

1.5.2.1 Description of the DACb data objects

Tab. 3: Output data

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
Output data								
Channel 1 'Channel 1' 0xC0.0x80.0xC7								
1	2				Measured value	FLOAT	4	
1	3				Controller control variable	INT16	2	
1	4				Temperature	INT16	2	0.1 °C
1	5				Setpoint	FLOAT	4	
1	6				Channel status	UINT16	2	☞ Chapter 1.6.1 'Status of the channel' on page 16
1	7				Warnings	UINT16	2	☞ Chapter 1.6.3 'Warning of the channel' on page 19
Channel 2 'Channel 2' 0xC0.0x80.0xC7								
2	2				Measured value	FLOAT	4	
2	3				Controller control variable	INT16	2	
2	4				Temperature	INT16	2	0.1 °C
2	5				Setpoint	FLOAT	4	
2	6				Channel status	UINT16	2	☞ Chapter 1.6.1 'Status of the channel' on page 16
2	7				Warnings	UINT16	2	☞ Chapter 1.6.3 'Warning of the channel' on page 19

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
		Channel 3	'Channel 3'	0xC0.0x80 .0xC7				
3	2				Measured value	FLOAT	4	
3	3				Controller control variable	INT16	2	
3	4				Temperature	INT16	2	0.1 °C
3	5				Setpoint	FLOAT	4	
3	6				Channel status	UINT16	2	↪ Chapter 1.6.1 'Status of the channel' on page 16
3	7				Warnings	UINT16	2	↪ Chapter 1.6.3 'Warning of the channel' on page 19
		Channel 4 (differential channel)	'Channel 4'	0x40.0xC3				
4	1				Measured value	FLOAT	4	
4	2				Channel status	UINT16	2	↪ Chapter 1.6.1 'Status of the channel' on page 16
4	3				Warnings	UINT16	2	↪ Chapter 1.6.3 'Warning of the channel' on page 19
		Digital outputs	'Digital output'	0x40.0xC4				
5	1				Relay	UINT16	2	↪ Chapter 1.6.4 'Potential-free relay' on page 20
5	2				MosFET 1	UINT16	2	Frequency
5	3				MosFET 2	UINT16	2	Frequency

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
5	4				MosFET 3	UINT16	2	Frequency
5	5				MosFET 4	UINT16	2	Frequency
		Errors	'Errors'	0x40 . 0xC6				
6	1				Error channel 1	UINT32	4	☞ Chapter 1.6.2 'Error of the channel' on page 18
6	2				Error channel 2	UINT32	4	☞ Chapter 1.6.2 'Error of the channel' on page 18
6	3				Error channel 3	UINT16	4	☞ Chapter 1.6.2 'Error of the channel' on page 18
6	4				Error channel 4	UINT16	2	☞ Chapter 1.6.2 'Error of the channel' on page 18

Tab. 4: Input data

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
		Input data						
		Stop / Pause (belongs to the 'Channel1/ Channel2/ Channel3' module)						
1	1		'Channel 1'		Stop / Pause channel 1	UINT8	1	Bit 7 = Stop Bit 1 = Pause/ HOLD Bit 0 = Pause
2	1		'Channel 2'		Stop / Pause channel 2	UINT8	1	Bit 7 = Stop Bit 1 = Pause/ HOLD Bit 0 = Pause
3	1		'Channel 3'		Stop / Pause channel 3	UINT8	1	Bit 7 = Stop Bit 1 = Pause/ HOLD Bit 0 = Pause
		Controller channel 1	'Controller channel 1'	0x80.0xC8				
7	1				Configura- tion	UINT16	2	☞ Chapter 1.6.5 'Set- tings of the channel configura- tion' on page 21 (Parameter via bus, mode, limit value direc- tion, control time)
7	2				Limit value 1 value	FLOAT	4	
7	3				Limit value 2 value	FLOAT	4	
7	4				Remote setpoint 1	FLOAT	4	

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
7	5				Xp	FLOAT	4	
		Controller channel 2	<i>'Controller channel 2'</i>	0x80.0xC8				
8	1				Configura- tion	UINT16	2	☞ Chapter 1.6.5 'Settings of the channel configuration' on page 21 (Parameter via bus, mode, limit value direction, control time)
8	2				Limit value 1 value	FLOAT	4	
8	3				Limit value 2 value	FLOAT	4	
8	4				Remote setpoint 1	FLOAT	4	
8	5				Xp	FLOAT	4	
		Controller channel 3	<i>'Controller channel 3'</i>	0x80.0xC8				
9	1				Configura- tion	UINT16	2	☞ Chapter 1.6.5 'Settings of the channel configuration' on page 21 (Parameter via bus, mode, limit value direction, control time)
9	2				Limit value 1 value	FLOAT	4	
9	3				Limit value 2 value	FLOAT	4	
9	4				Remote setpoint 1	FLOAT	4	
9	5				Xp	FLOAT	4	
		Error confirmation	<i>'Error confirmation'</i>	0x80.0xC6				

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
10	1				Error channel 1	UINT32	4	0xFFFFFFFF * => all pending errors have been confirmed ☞ Chapter 1.6.2 'Error of the channel' on page 18
10	2				Error channel 2	UINT32	4	0xFFFFFFFF * => all pending errors have been confirmed ☞ Chapter 1.6.2 'Error of the channel' on page 18
10	3				Error channel 3	UINT32	4	0xFFFFFFFF * => all pending errors have been confirmed ☞ Chapter 1.6.2 'Error of the channel' on page 18
10	4				Error channel 4	UINT16	2	0xFFFF * => all pending errors have been confirmed ☞ Chapter 1.6.2 'Error of the channel' on page 18

* These errors can also be deleted/acknowledged individually.

Acyclic data

		Controller parameter channel 1	'Controller parameter ch1'	0x80.0xC5				
--	--	--------------------------------	----------------------------	-----------	--	--	--	--

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
11	1				Additive basic load	INT16	2	
11	2				Control variable limit	UINT16	2	
11	3				Delay after stop	UINT16	2	
11	4				Delay after restart	UINT16	2	
11	5				Remote setpoint 2	FLOAT	4	Only with neutral zone control
		Controller parameter channel 2	<i>'Controller parameter ch2'</i>	0x80.0xC5				
12	1				Additive basic load	INT16	2	
12	2				Control variable limit	UINT16	2	
12	3				Delay after stop	UINT16	2	
12	4				Delay after restart	UINT16	2	
12	5				Remote setpoint 2	FLOAT	4	Only with neutral zone control
		Controller parameter channel 3	<i>'Controller parameter ch3'</i>	0x80.0xC5				
13	1				Additive basic load	INT16	2	
13	2				Control variable limit	UINT16	2	
13	3				Delay after stop	UINT16	2	
13	4				Delay after restart	UINT16	2	
13	5				Remote setpoint 2	FLOAT	4	Only with neutral zone control
		Device information	<i>'Device information'</i>	0x40.0xC7				

Slot	Index	Name	Module name	Identifier		Data type	Byte count	Total:
14	1				Firmware	UINT32	4	In hexadecimal format
14	2				Firmware IOS	UINT32	4	In hexadecimal format
14	3				Device serial number	UINT32	4	In hexadecimal format
14	4				Revision	UINT16	2	In hexadecimal format
14	5				Revision IOS	UINT16	2	In hexadecimal format
		Identity code	<i>'Identity code'</i>	0x40 . 0xCB				
15	1				Identity code 0-3	UINT32	4	
15	2				Identity code 4-7	UINT32	4	
15	3				Identity code 8-11	UINT32	4	
15	4				Identity code 12-15	UINT32	4	
15	5				Identity code 16-20	UINT32	4	
15	6				Identity code 21-24	UINT32	4	

1.6 Bit field definitions

1.6.1 Status of the channel

Bit	Description
15	1 = channel uses bus control parameters; 0 = channel uses internal parameters
14	
13	1 = error exists; 0 = no error
12	1 = warning exists; 0 = no warning
11	1 = SD card full; 0 = SD card not full
10	1 = SD card free < 20%; 0 = SD card free ≥ 20%

Bit	Description
9	1 = SD card exists; 0 = no SD card
8	1 = local control rate 2 active; 0 = local control rate 1 active
7	
6	
5	
4	
3	
2	
1	1 = local stop active; 0 = no local stop active
0	1 = channel active; 0 = channel inactive (or cannot be connected)

1.6.2 Error of the channel

Bit	Description
31	Error 99: There is a system error; <i>[A system error exists]</i>
30	
29	
28	
27	
26	
25	
24	
23	
22	
21	
20	Error 88: The connection to the extension module is faulty; <i>[The connection to the expansion module is faulty]</i>
19	Error 34: Incorrect correction variable; <i>[Incorrect correction variable]</i>
18	Error 19: The liquid level in storage tank 3 is too low; <i>[The level in tank 3 is too low]</i>
17	Error 18: The liquid level in storage tank 2 is too low; <i>[The level in tank 2 is too low]</i>
16	Error 17: The liquid level in storage tank 1 is too low; <i>[The level in tank 1 is too low]</i>
15	Error 16: The mA input is overloaded; <i>[The mA input is overloaded]</i>
14	Error 15: The mA input supply is overloaded; <i>[The mA input supply is overloaded]</i>
13	Error 14: The status of the controller is pause / hold <i>[PAUSE / HOLD]</i> ; <i>[The controller is in the state PAUSE / HOLD]</i>
12	Error 13: The status of the controller is pause <i>[PAUSE]</i> ; <i>[The controller is in the state PAUSE]</i>
11	Error 12: There is a sample water fault e.g. no flow; <i>[Error sample water exists, e. g. no flow]</i>
10	Error 11: After elapse of the delay period, a limit value error still exists; <i>[After elapsing of the delay time a limit error still exists]</i>
9	Error 10: The mA input current is less than 4 mA; <i>[The mA input current is less than 4 mA]</i>
8	Error 9: The mA input current is greater than 20 mA; <i>[The mA input current is greater than 20 mA]</i>
7	Error 8: The check time was infringed; <i>[The checkout time was infringed]</i>
6	Error 7: Check the mechanical condition (glass breakage) of the sensor; <i>[Check the mechanical status of the sensor Glass break is possible]</i>
5	Error 6: No sensor available; <i>[No sensor is available]</i>
4	Error 5: Calibration error exists; <i>[A calibration error exists]</i>
3	Error 4: The temperature is too high; <i>[The temperature is too high]</i>
2	Error 3: The temperature is too low; <i>[The temperature is too low]</i>
1	Error 2: The mV input voltage is too high; <i>[The mV input voltage is too high]</i>
0	Error 1: The mV input voltage is too low; <i>[The mV input voltage is too low]</i>

1.6.3 Warning of the channel

Bit	Description
15	
14	
13	
12	
11	
10	
9	
8	
7	
6	Warning 73: The fan has a fault; <i>[The fan has an error]</i>
5	Warning 72 The time must be checked; <i>[The time must be checked]</i>
4	Warning 71 The battery needs to be replaced; <i>[The battery must be replace]</i>
3	Warning 4 The measuring channel is not yet calibrated; <i>[The measuring channel is not yet calibrated]</i>
2	Warning 3 The wash timer has timed out. Maintenance is required; <i>[The wash timer has timed out. Maintenance is necessary]</i>
1	Warning 2 The limit value was exceeded; <i>[The limit was exceeded]</i>
0	Warning 1 The limit value was not reached; <i>[The limit was undershot]</i>

1.6.4 Potential-free relay

If relay output is active, then according bit is used.

Bit	Description
15	
14	
13	
12	
11	
10	
9	
8	
7	
6	
5	
4	
3	
2	Configuring alarm relay (XR3)
1	Relay 2 (XR2)
0	Relay 1 (XR1)

1.6.5 Settings of the channel configuration

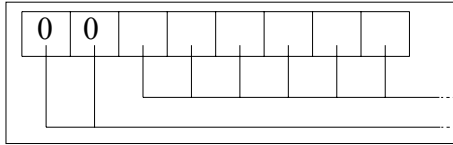
Bit	Description		
15	1 = Channel uses remote control parameters; 0 = Channel uses internal parameters; [1 = Channel uses remote control parameters; 0 = Channel uses internal parameters]		
14	1 = Channel uses internal set 2; 0 = Channel uses internal set 1; [1 = Use internal parameter set 2; 0 = Use internal parameter set 1]		
13			
12			
11			
10			
9			
8	1 = Limit value 2 configuration on; 0 = limit value 2 configuration off [1 = limit 2 configuration on; 0 = limit 2 configuration off]		
7	1 = Limit value 1 configuration on; 0 = limit value 1 configuration off [1 = limit 1 configuration on; 0 = limit1 configuration off]		
6	0 = Control off;	1 = manual	2 = P (1 way, increase)
5	[0 = Control off]	[1 = manual]	[2 = P (1 way, increase)]
4	3 = P (1 way, decrease);	4 = P (2 way, standard)	5 = P (2 way, dead zone)
3	[3 = P (1 way, decrease)]	[4 = P (2 way, standard)]	[5 = P (2 way, deadzone)]
	6 = PID (1 way, increase)	7 = PID (1 way, decrease);	8 = PID (2 way, standard)
	[6 = PID (1 way, increase)]	[7 = PID (1 way, decrease)]	[8 = PID (2way, standard)]
	9 = PID (2 way, dead zone)		
	[9 = PID (2 way, deadzone)]		
2			
1	1 = Limit value 2 configuration high; 0 = limit value 2 configuration low; [1 = limit 2 configuration high; 0 = limit 2 configuration off]		
0	1 = Limit value 1 configuration high; 0 = limit value 1 configuration low; [1 = limit 1 configuration high; 0 = limit 1 configuration off]		

- Bit 14 is only valid if bit 15 = 0
- Bit 3, 4, 5, 6 are only valid if bit 15 = 1
- Bit 3, 4, 5, 6, 14, 15 only exists on channels 1 and 2

1.7 Diagnostic messages

Diagnostic telegrams

In conformity with PROFIBUS® standard, the device provides the Get_SI_Diag service. The diagnostics data comprise standard diagnostics information (6 bytes according to PROFIBUS® standard) and any possible diagnostics data specific to the device. A maximum of 63 bytes can be added for the device-specific diagnostics data. The first 4 bytes in the PROFIBUS® standard are specified from this:



)

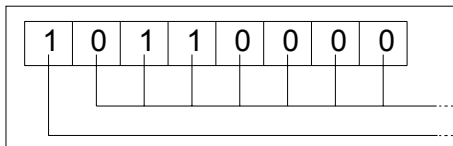
Evaluate the `sign_len` byte as follows:

)

Length of the DU status including the header byte: 04..63

'device-related diagnostics' specification: 00 constant

)



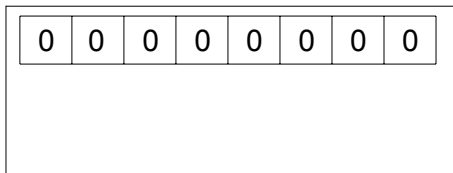
Evaluate the `status_type` byte as follows:

)

Status type: 48 (manufacturer-specific)

'Status' specification: 1 constant

)

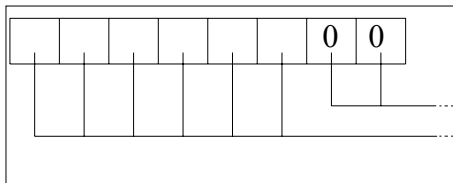


Evaluate the `slot_number` byte as follows:

)

Slot number: 0 (because only slot 0 is being used)

)



Evaluate the `specifier` byte as follows:

)

Status specification: 00 constant

Reserved

)

59 bytes subsequently remain freely available (`user_data`):

`user_data`

Errors are indicated using the `user_data` fields.

The `user_data` fields are each combined in blocks of 3 bytes and are interpreted as follows:

- 1 - Services
- 2 - Error type
- 3 - Type of data access (read/write)

Thus up to 19 errors can be signalled.

Encoding user_data

Order number	Name
1	CHANNEL_1 STOP
2	CHANNEL_1 MEASUREMENT_VALUE
3	CHANNEL_1 CONTROLLER_VALUE
4	CHANNEL_1 TEMPERATURE
5	CHANNEL_1 SET_POINT
6	CHANNEL_1 STATES
7	CHANNEL_1 WARNINGS
21	CHANNEL_2 STOP
22	CHANNEL_2 MEASUREMENT_VALUE
23	CHANNEL_2 CONTROLLER_VALUE
24	CHANNEL_2 TEMPERATURE
25	CHANNEL_2 SET_POINT
26	CHANNEL_2 STATES
27	CHANNEL_2 WARNINGS
31	CHANNEL_3 STOP
32	CHANNEL_3 MEASUREMENT_VALUE
33	CHANNEL_3 CONTROLLER_VALUE
34	CHANNEL_3 TEMPERATURE
35	CHANNEL_3 SET_POINT
36	CHANNEL_3 STATES
37	CHANNEL_3 WARNINGS
41	CHANNEL_4 STOP
42	CHANNEL_4 STATES
43	CHANNEL_4 WARNINGS
51	RELAY
52	PUMP_RELAY_1
53	PUMP_RELAY_2
54	PUMP_RELAY_3
55	PUMP_RELAY_4
61	CHANNEL_1 ERRORS_EXISTS
62	CHANNEL_2 ERRORS_EXISTS
63	CHANNEL_3 ERRORS_EXISTS
64	CHANNEL_4 ERRORS_EXISTS
71	CHANNEL_1 REMOTE_CONFIGURATION
72	CHANNEL_1 REMOTE_LIMIT1
73	CHANNEL_1 REMOTE_LIMIT2
74	CHANNEL_1 REMOTE_SET_POINT

Order number	Name
75	CHANNEL_1 REMOTE_XP
81	CHANNEL_2 REMOTE_CONFIGURATION
82	CHANNEL_2 REMOTE_LIMIT1
83	CHANNEL_2 REMOTE_LIMIT2
84	CHANNEL_2 REMOTE_SET_POINT
85	CHANNEL_2 REMOTE_XP
91	CHANNEL_3 REMOTE_CONFIGURATION
92	CHANNEL_3 REMOTE_LIMIT1
93	CHANNEL_3 REMOTE_LIMIT2
94	CHANNEL_2 REMOTE_SET_POINT
95	CHANNEL_2 REMOTE_XP
101	CHANNEL_1 ERROR_CONFIRMATION
102	CHANNEL_2 ERROR_CONFIRMATION
103	CHANNEL_3 ERROR_CONFIRMATION
103	CHANNEL_4 ERROR_CONFIRMATION

Tab. 5: Error type

Value	Meaning	
0x30	OK	-
0x31	Transfer OK	Date outside of permitted range
0x32	Transfer OK	Date protected
0x33	Transfer OK	Date rejected because device is in manual and not in remote operation
0x34	Transfer OK	Date rejected because option is not installed
0x35	Transfer OK	Service not defined
0x36	Transfer OK	Value cannot be read or changed in current device context
0x37	Transfer OK	No further updating
0x55	Transfer OK	Fuse / UART error
0x56	Error in timeout	-

Tab. 6: Type of data access (read/write)

Value	Meaning
0xD3	Write access
0xE5	Read access



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