

Profibus Module

For BoosterControl Advanced

Supplementary Operating Manual



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Supplementary Operating Manual Profibus module

Original operating manual

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1 Supplementary Operating Manual

1.1 General

This supplementary operating manual accompanies the installation/operating manual. All information contained in the installation/operating manual must be observed.

Table 1: Relevant operating manuals



Type series	Reference number of the installation/operating manual
BoosterControl Advanced	4042.82

1.2 Description of the Profibus module

General description

The supplementary operating manual contains information on how to use the Profibus module in conjunction with a BoosterControl system. The OFAO.gsd configuration file is delivered together with the module.

1.3 Installing the Profibus module

	 DANGER
	<p>Incorrect electrical installation Risk of fatal injury due to electric shock!</p> <ul style="list-style-type: none"> ▷ Always have the electrical connections installed by specialist personnel. ▷ Observe the technical specifications of the local and national energy supply companies.

Only connect or remove the Profibus module when it has been disconnected from the power supply (de-energised). The Profibus module is located in a sheet metal housing with an assembly base for a 35 mm DIN rail. The assembly base is used to connect the Profibus module to an installed DIN rail. To ensure high-frequency shielding, use shielded cables and install in accordance with EMC¹⁾ requirements. A minimum distance of 200 mm is recommended between such cables and other electric conductors. Conductors carrying different voltages must not be routed in a single cable (e.g. 230 V alert and 24 V start). Comply with the applicable local regulations.

1) Electromagnetic compatibility

1.3.1 Terminal assignment

The Profibus module is equipped with a 10-pin terminal connection (J202).

Table 2: Terminal assignment

Terminal	Signal
1	+24 V
2	GND
3	SB+
4	SB-
5	SBZ+
6	SBZ-
7	+U
8	A
9	B
10	-U

	NOTE
	Power supply is not protected against reverse polarity.

1.3.2 Terminating resistors

The terminating resistors conform to Profibus standard DP DIN 19245, part 3, section 6.3.

The Profibus module contains 2 DIP switches that activate and deactivate the terminating resistors.

Several bus stations can be switched in series. If the Profibus module is the last station, this station must be terminated with a resistance of 150 Ω.

- Switch position ON = Terminating resistors active
- Switch position OFF = Terminating resistors inactive



Fig. 1: DIP switches, terminating resistors

	NOTE
	<p>If both DIP switches are in the OFF position, the terminating resistors are only functional if voltage is applied to the Profibus module.</p> <p>If both DIP switches are in the ON position for the last station, a terminating resistor switches in on the bus line. An external terminating resistor does not need to be connected.</p>

1.3.3 LED status

The Profibus module has an LED that flashes as soon as the Profibus module sends data.

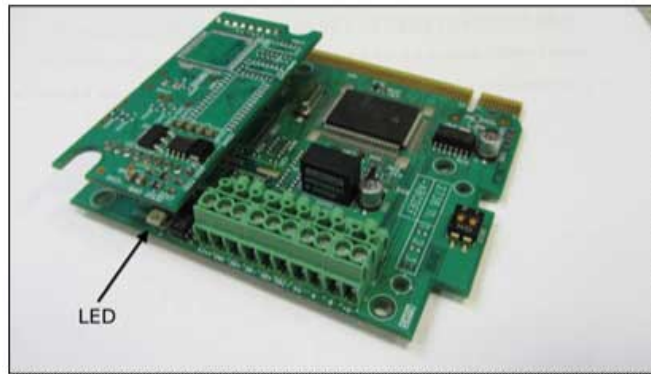


Fig. 2: Status LED

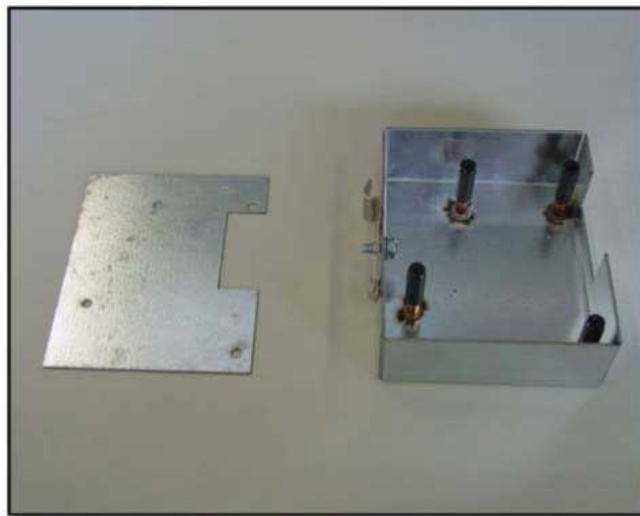


Fig. 3: Housing

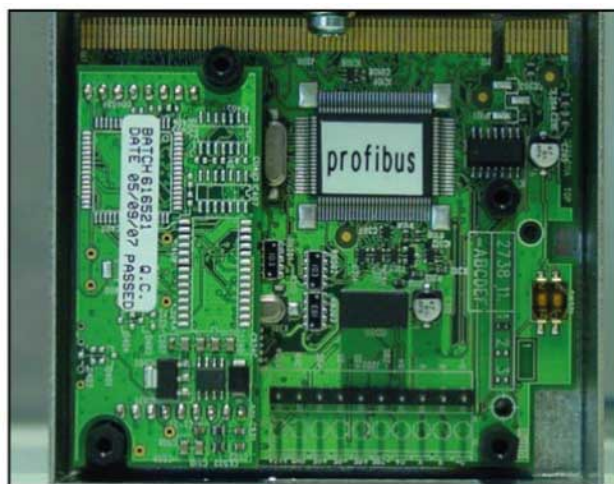


Fig. 4: Printed circuit board without terminals

1.3.4 Slave address

The slave address is specified with parameter 3-15-1-1 in BoosterControl. This parameter can only be viewed at Service access level.

1.3.5 Format of the 14-byte module

The input area and the output area each comprise 14 bytes.

Table 3: Format of the asynchronous Msg mode

Byte	Description	Information
0	dummy1	No function
1	dummy2	No function
2	dummy3	No function
3	dummy4	No function
4	identHighWordHigh	Target
5	identHighWordLow	Target
6	identLowWordHigh	Target
7	identLowWordLow	Target
8	Value4	Value
9	Value3	Value
10	Value2	Value
11	Value1	Value
12	Status	Task code
13	transNumber	TID (transaction ID)

Target Output data:

Enter the address of the parameter to be read. The addresses are listed in the parameter list. (⇒ Section 1.5, Page 11)

Input data:

The address is accepted in the input data if the Profibus module identifies a change to the TID (transaction ID) and submits a new request.

Value Output data:

If the Profibus slave starts a read request, the content of the byte is insignificant. In the case of a write request, the Profibus master saves the value to be written in the byte.

Input data:

In the case of a read request, the value of the parameter read is referenced in the byte.

Task code Output data:

The Profibus master defines with a code whether a parameter is read or written. Valid codes:

- 0b00010000 = 0 × 10 → Read parameter.
- 0b00010001 = 0 × 11 → Write parameter.

Input data:

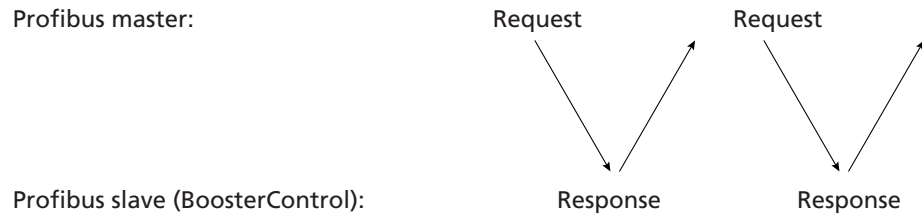
Byte 7 of the input data signals whether an error has occurred or not.

- Byte 7 = 0: No error has occurred. The input data corresponds with the output data.
- Byte7 = 1: An error has occurred. The following errors can occur:
 - 0b10000001 = 0 × 81 → General error
 - 0b10000010 = 0 × 82 → Invalid command
 - 0b10000011 = 0 × 83 → Invalid address

TID (transaction ID) If the Profibus master sends a new message to the Profibus slave (BoosterControl), the TID (transaction ID) is changed. The Profibus module only processes the data in bytes 4 - 11 if the TID has changed. The Profibus slave responds with the same TID that the Profibus master sends. If the content of the input data and output data is not identical, the request from the Profibus master has not been fully processed.

1.3.6 Guidelines for processing requests (responses)


The Profibus master sends requests to the Profibus slave (BoosterControl), which responds with a correct reply. For each Profibus master request, there is exactly one Profibus slave response. The Profibus slave does not send any messages to the Profibus master by itself.



The Profibus master may not send a new request as long as no reply (response) to the previous request has been received.

Procedure:

- To send a request, the Profibus master creates the data in the output area and increases the TID (transaction ID). As long as the Profibus slave has not finished processing, the Profibus master reads the response to the previous request in the input area.
- If the TID (transaction ID) of the response is identical to the request sent, the Profibus master recognises that the response is available in the input area.

	NOTE
	The asynchronous service can access the entire database of system variables in read mode and in write mode.

1.3.7 Loading the device description file

The OAFO.gsd file must be imported using the available configuration program for the Profibus network. The BoosterControl control unit with Profibus module is then recognised as a slave device in the Profibus network. The following program modules can be subsequently loaded with the configuration program:

- **14-byte module**
 - Facilitates the exchange of I/O cycle data between the Profibus master and Profibus module

Information is exchanged using the cyclic data exchange (MS0 connection). During cyclic data exchange, the master sends its output data to the slave and receives the input data as a response. To read or write values from the Profibus module, the connection is used in asynchronous fashion.

The Profibus master sends asynchronous requests to the BoosterControl Profibus connection by writing to the output memory (request). The device reacts with a response in the input memory.

1.4 Application examples

1.4.1 Reading the System Pressure parameter (address: 0 × 2009)

Output data

Example value of system pressure = 4.43 bar.

Table 4: Input data

Byte	Description	Value	Additional information
0	Dummy1	0 × 00	
1	Dummy2	0 × 00	
2	Dummy3	0 × 00	
3	Dummy4	0 × 00	
4	identHighWordHigh	0 × 00	
5	identHighWordLow	0 × 00	
6	identLowWordHigh	0 × 20	Address
7	identLowWordLow	0 × 09	Address
8	Value4	0 × 00	
9	Value3	0 × 00	
10	Value2	0 × 00	
11	Value1	0 × 00	
12	Status	0 × 10	Read
13	transNumber	0 × 01	Value must be changed for every transaction.

Input data

Table 5: Output values

Byte	Description	Value	Additional information
0	Dummy1	0 × 00	
1	Dummy2	0 × 00	
2	Dummy3	0 × 00	
3	Dummy4	0 × 00	
4	identHighWordHigh	0 × 00	
5	identHighWordLow	0 × 00	
6	identLowWordHigh	0 × 20	Echo of output data
7	identLowWordLow	0 × 09	Echo of output data
8	Value4	0 × 00	
9	Value3	0 × 00	
10	Value2	0 × 01	System pressure value
11	Value1	0 × BB	System pressure value
12	Status	0 × 10	Echo of output data
13	transNumber	0 × 01	Echo of output data

The required system pressure is transferred in values 1 and 2:

0 × 01BB = 443 (base unit kPa).

To convert into bar, divide the value by 100 (443 : 100 = 4.43 bar).

1.4.2 Writing the Setpoint parameter (address: 0 × 2100)

Example value of system pressure = 5 bar. The parameter unit is defined in kPa. 5 bar corresponds to 500 kPa. Value 500 must be transmitted.

Example:

Output data

Byte	Description	Value	Additional information
0	Dummy1	0 × 00	
1	Dummy2	0 × 00	
2	Dummy3	0 × 00	
3	Dummy4	0 × 00	
4	identHighWordHigh	0 × 00	
5	identHighWordLow	0 × 00	
6	identLowWordHigh	0 × 21	Address
7	identLowWordLow	0 × 00	Address
8	Value4	0 × 00	
9	Value3	0 × 00	
10	Value2	0 × 01	Value for setpoint
11	Value1	0 × F4	Value for setpoint
12	Status	0 × 11	Write
13	transNumber	0 × 01	Value must be changed for every transaction.

Input data

Byte	Description	Value	Additional information
0	Dummy1	0 × 00	
1	Dummy2	0 × 00	
2	Dummy3	0 × 00	
3	Dummy4	0 × 00	
4	identHighWordHigh	0 × 00	
5	identHighWordLow	0 × 00	
6	identLowWordHigh	0 × 21	Echo of output data
7	identLowWordLow	0 × 00	Echo of output data
8	Value4	0 × 00	
9	Value3	0 × 00	
10	Value2	0 × 01	Setpoint value
11	Value1	0 × F4	Setpoint value
12	Status	0 × 11	Echo of output data
13	transNumber	0 × 01	Echo of output data

The required setpoint is transferred in values 1 and 2:

0 × 01F4 = 500 (base unit kPa).

To convert into bar, divide the value by 100 (500 : 100 = 5 bar).

1.5 Parameter lists

Table 6: Read parameter overview

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
1	Status of BC IO Board	Operating status of input/output control PCB	0 × 2000	2 (UINT16)	-
2	Messages 1 (Bits 0 - 31)	-	0 × 2001	4 (UINT32)	-
3	Messages 2 (Bits 0 - 31)	-	0 × 2003	4 (UINT32)	-
4	Messages 3 (Bits 0 - 31)	-	0 × 2005	4 (UINT32)	-
5	Messages 4 (Bits 0 - 31)	-	0 × 2007	4 (UINT32)	-
6	1-1-1 Systemdruck	-	0 × 2009	2 (UINT16)	kPa
7	1-1-2 Pumpenauslastung %	Pump load in percent	0 × 200a	2 (UINT16)	-
8	1-1-3 Trockenlaufschutz	-	0 × 200b	2 (UINT16)	0 = Inactive 1 = Active
9	1-1-4 saugseitiger Druck	-	0 × 200c	2 (UINT16)	kPa
10	1-1-5 Niveau Vorbehälter %	-	0 × 200d	2 (INT16)	-
11	1-1-6 Niveau Vorbehälter	-	0 × 200e	2 (UINT16)	-
12	1-1-7 Umgebungstemperatur	-	0 × 200f	2 (UINT16)	-
13	1-1-9-2 Pos. Speicherventil	Position of supply valve	0 × 2010	2 (UINT16)	-
14	1-1-9-1 Pos. Speicherventil	Position of supply valve	0 × 2011	2 (UINT16)	-
15	1-1-12 Setpoint Used	-	0 × 2012	2 (UINT16)	kPa
16	1-1-13 NTC Temperature	Negative temperature coefficient	0 × 2013	2 (UINT16)	-
17	1-3-1 Betriebsstunden	-	0 × 2014	4 (UINT32)	Seconds
18	1-3-2 Serviceintervall	-	0 × 2016	4 (UINT32)	
19	1-3-3 akt. min Pumpenlaufz	Current minimum pump runtime	0 × 2018	2 (UINT16)	Seconds
20	3-3-1 Anzahl Pumpen	-	0 × 2019	2 (UINT16)	-
21	Number of Pumps Running	-	0 × 201a	2 (UINT16)	Bit 0 = P1 ... Bit 5 = P6
22	Display Thermal Protection	-	0 × 201b	2 (UINT16)	Bit 0 = P1 ... Bit 5 = P6
23	Digital Inputs	-	0 × 201c	2 (UINT16)	-
24	Pump Load Pump 1 [%]	Load of first pump in percent	0 × 201d	2 (UINT16)	-
25	Operating Hours Pump 1	-	0 × 201e	4 (UINT32)	Seconds
26	Operating Hours Following Pump 1 Service	-	0 × 2020	4 (UINT32)	Seconds

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
27	Starts, Pump 1	Number of starts of pump 1	0 × 2022	4 (UINT32)	-
28	Pump Fault Counter Pump 1	Number of faults for pump 1	0 × 2024	4 (UINT32)	-
29	Pump Status Pump 1	Operating status of first pump	0 × 2026	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault
30	Pump Load Pump 2 [%]	Load of second pump in percent	0 × 2027	2 (UINT16)	-
31	Operating Hours Pump 2	-	0 × 2028	4 (UINT32)	Seconds
32	Operating Hours Following Pump 2 Service	-	0 × 202a	4 (UINT32)	Seconds
33	Starts, Pump 2	Number of starts of pump 2	0 × 202c	4 (UINT32)	-
34	Pump Fault Counter Pump 2	Number of faults for pump 2	0 × 202e	4 (UINT32)	-
35	Pump Status Pump 2	Operating status of second pump	0 × 2030	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault
36	Pump Load Pump 3 [%]	Load of third pump in percent	0 × 2031	2 (UINT16)	-
37	Operating Hours Pump 3	-	0 × 2032	4 (UINT32)	Seconds
38	Operating Hours Following Pump 3 Service	-	0 × 2034	4 (UINT32)	Seconds
39	Starts, Pump 3	Number of starts of pump 3	0 × 2036	4 (UINT32)	-
40	Pump Fault Counter Pump 3	Number of faults for pump 3	0 × 2038	4 (UINT32)	-
41	Pump Status Pump 3	Operating status of third pump	0 × 203a	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
42	Pump Load Pump 4 [%]	Load of fourth pump in percent	0 × 203b	2 (UINT16)	-
43	Operating Hours Pump 4	-	0 × 203c	4 (UINT32)	Seconds
44	Operating Hours Following Pump 4 Service	-	0 × 203e	4 (UINT32)	Seconds
45	Starts, Pump 4	Number of starts of pump 4	0 × 2040	4 (UINT32)	-
46	Pump Fault Counter Pump 4	Number of faults for pump 4	0 × 2042	4 (UINT32)	-
47	Pump Status Pump 4	Operating status of fourth pump	0 × 2044	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault
48	Pump Load Pump 5 [%]	Load of fifth pump in percent	0 × 2045	2 (UINT16)	-
49	Operating Hours Pump 5	-	0 × 2046	4 (UINT32)	Seconds
50	Operating Hours Following Pump 5 Service	-	0 × 2048	4 (UINT32)	Seconds
51	Starts, Pump 5	Number of starts of pump 5	0 × 204a	4 (UINT32)	-
52	Pump Fault Counter Pump 5	Number of faults for pump 5	0 × 204c	4 (UINT32)	-
53	Pump Status Pump 5	Operating status of fifth pump	0 × 204e	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault
54	Pump Load Pump 6 [%]	Load of sixth pump in percent	0 × 204f	2 (UINT16)	-
55	Operating Hours Pump 6	-	0 × 2050	4 (UINT32)	Seconds
56	Operating Hours Following Pump 6 Service	-	0 × 2052	4 (UINT32)	Seconds
57	Starts, Pump 6	Number of starts of pump 6	0 × 2054	4 (UINT32)	-
58	Pump Fault Counter Pump 6	Number of faults for pump 6	0 × 2056	4 (UINT32)	-

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
59	Pump Status Pump 6	Operating status of sixth pump	0 × 2058	2 (UINT16)	Bit 0 = Auto Bit 1 = Manual Bit 2 = Off Bit 3 = Pump OK Bit 4 = Pump Running Bit 5 = Pump Thermal Fault Bit 6 = FI Fault
60	4-2-2 IO FW-Version	Firmware version of I/O control PCB	0 × 2059	2 (UINT16)	-
61	4-2-3 IO FW-Revision	Firmware version of I/O control PCB	0 × 205a	4 (UINT32)	-
62	4-2-4 IO HW-Revision	Hardware revision of I/O control PCB	0 × 205c	2 (UINT16)	-
63	4-3-2 HMI FW-Version	Firmware version of display	0 × 205d	2 (UINT16)	-
64	4-3-3 HMI FW-Revision	Firmware revision of display	0 × 205e	4 (UINT32)	-
65	4-3-4 HMI HW-Revision	Hardware revision of display	0 × 2060	2 (UINT16)	-
66	4-4-1 PB FW-Version 4-5-1 MB FW-Version	Firmware version of Profibus module Firmware version of Modbus module	0 × 2061	2 (UINT16)	-
67	4-4-2 PB FW-Revision 4-5-2 MB FW-Revision	Firmware revision of Profibus module Firmware revision of Modbus module	0 × 2062	4 (UINT32)	-
68	4-4-3 PB HW-Revision 4-5-3 MB HW-Revision	Firmware revision of Profibus module Firmware revision of Modbus module	0 × 2064	2 (UINT16)	-
69	3-4-1-4-11-1 Level, RW Pump OFF	Level for stopping rainwater pump	0 × 2065	2 (UINT16)	-
70	3-4-1-4-11-2 Level, RW Pump ON	Level for starting rainwater pump	0 × 2066	2 (UINT16)	-
71	3-4-1-4-11-3 Level DW Valve Open	Level, drinking water valve open	0 × 2067	2 (UINT16)	-
72	3-4-1-7-1 Number of Rainwater Pumps	-	0 × 2068	2 (UINT16)	-
73	1-2-6-3-1 Rainwater Pump 1 Mode	-	0 × 2069	2 (UINT16)	-
74	1-2-6-3-3 Rainwater Pump 1 Operating Period	-	0 × 206A	4 (UINT32)	Seconds
75	1-2-6-3-4 Rainwater Pump 1 Pump Starts	Number of starts for rainwater pump 1	0 × 206C	4 (UINT32)	-
76	1-2-6-3-2 Rainwater Pump Status 1	-	0 × 206E	2 (ENUM)	-
77	1-2-6-4-1 Rainwater Pump 2 Mode	-	0 × 206F	2 (UINT16)	-
78	1-2-6-4-3 Rainwater Pump 2 Operating Period	-	0 × 2070	4 (UINT32)	Seconds
79	1-2-6-4-4 Rainwater Pump 2 Pump Starts	Number of starts for rainwater pump 2	0 × 2072	4 (UINT32)	-
80	1-2-6-4-2 Rainwater Pump Status 2	Operating status of rainwater pump 2	0 × 2074	2 (ENUM)	-

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
81	HMI Traffic Light Colour	Traffic light colour display	0 × 20EC	2 (UINT16)	0 = No fault 1 = Warning 2 = Alert
82	3-3-3 Konfig. Druckseite	Configuration, discharge side	0 × 20EE	2 (ENUM)	-
83	Messages 5 (Bits 128 - 159)	-	0 × 20F0	4 (UINT32)	-
84	Reserve	Reserved for additional messages	0 × 20F4	4 (UINT32)	-
85	Reserve	Reserved for additional messages	0 × 20F8	4 (UINT32)	-
86	Reserve	Reserved for additional messages	0 × 20FF	4 (UINT32)	-
87	3-5-1 Sollwert	-	0 × 2100	2 (UINT16)	-
88	3-5-9 Alternativ-Sollwert	-	0 × 2101	2 (UINT16)	-

Table 7: Write parameter overview

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
1	3-5-1 Sollwert	-	0 × 2100	2 (UINT16)	kPa
2	3-5-9 Alternativ-Sollwert	-	0 × 2101	2 (UINT16)	kPa
3	2-1-3 Fehler quittieren	-	0 × 2102	2 (UINT16)	0 → 1 (signal change from 0 to 1)
4	3-7-1 Setting the Year	-	0 × 2103	2 (UINT16)	-
5	3-7-1 Setting the Month	-	0 × 2104	2 (UINT16)	-
6	3-7-1 Setting the Day of the Week	-	0 × 2105	2 (UINT16)	-
7	3-7-2 Zeit	Setting the time in HH:MM:SS format	0 × 2106	4 (UINT32)	-

1.6 Warning and alert messages

The messages are bit-coded in the following addresses:

Table 8: Messages

Description	Address	Parameter length (bytes)	Register length
Messages 1	0 × 2001	4	2
Messages 2	0 × 2003	4	2
Messages 3	0 × 2005	4	2
Messages 4	0 × 2007	4	2
Messages 5	0 × 20F0	4	2

Table 9: Messages 1 (Bits 0 - 31)

Message field 0 × 2001	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 1	0	Sensor druckseitig	X	X	X
Message 1	1	Systemdruck niedrig	X	X	X
Message 1	2	Systemdruck hoch	X	X	X
Message 1	3	Wassermangel	X	X	X
Message 1	4	Service notwendig	X	X	X
Message 1	5	Störung Pumpen	X	X	X
Message 1	6	WSD Tank1	X	X	X
Message 1	7	WSD Tank2	X	X	X
Message 1	8	WSD Tank3	X	X	X
Message 1	9	WSD: mittl. T. hoch	X	X	X
Message 1	10	WSD: akt. T. hoch	X	X	X
Message 1	11	Störung Pumpe 1	X	X	X
Message 1	12	Störung Pumpe 2	X	X	X
Message 1	13	Störung Pumpe 3	X	X	X
Message 1	14	Störung Pumpe 4	X	X	X
Message 1	15	Störung Pumpe 5	X	X	X
Message 1	16	Störung Pumpe 6	X	X	X
Message 1	17	Armatur saugseitig	X	X	X
Message 1	18	Sensor saugseitig	X	X	X
Message 1	19	Wasserstand hoch	X	X	X
Message 1	20	Wasserstand niedrig	X	X	X
Message 1	21	Wasserstand niedrig	X	X	X
Message 1	22	Komm.-Fehler FU 1	-	-	X
Message 1	23	Komm.-Fehler FU 2	-	-	X
Message 1	24	Komm.-Fehler FU 3	-	-	X
Message 1	25	Komm.-Fehler FU 4	-	-	X
Message 1	26	Komm.-Fehler FU 5	-	-	X
Message 1	27	Komm.-Fehler FU 6	-	-	X
Message 1	28	Prüfsumme F1	-	-	X
Message 1	29	Prüfsumme F2	-	-	X
Message 1	30	Prüfsumme F3	-	-	X
Message 1	31	Prüfsumme F4	-	-	X

Table 10: Messages 2 (Bits 32 - 63)

Message field 0 × 2003	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 2	32	Check sum, FI 5	-	-	X
Message 2	33	Check sum, FI 6	-	-	X
Message 2	34	WSD temp. sensor	X	X	X
Message 2	35	24 V out of range	X	X	X
Message 2	36	5 V voltage invalid	X	X	X
Message 2	37	3 V out of range	X	X	X
Message 2	38	External OFF	X	X	X
Message 2	39	Fire alert	X	X	X
Message 2	40	Failure FI	-	X	-
Message 2	41	Fault DS sensor Broken wire	X	X	X
Message 2	42	Fault SS sensor	X	X	X
Message 2	43	Failure of several FIs	-	-	X
Message 2	44	Leakage	X	X	X
Message 2	45	EEPROM HW defective	X	X	X
Message 2	46	Pump 1 Off (via display)	X	X	X
Message 2	47	Pump 2 Off (via display)	X	X	X
Message 2	48	Pump 3 Off (via display)	X	X	X
Message 2	49	Pump 4 Off (via display)	X	X	X
Message 2	50	Pump 5 Off (via display)	X	X	X
Message 2	51	Pump 6 Off (via display)	X	X	X
Message 2	52	Pump 1 Manual mode (via display)	X	X	X
Message 2	53	Pump 2 Manual mode (via display)	X	X	X
Message 2	54	Pump 3 Manual mode (via display)	X	X	X
Message 2	55	Pump 4 Manual mode (via display)	X	X	X
Message 2	56	Pump 5 Manual mode (via display)	X	X	X
Message 2	57	Pump 6 Manual mode (via display)	X	X	X
Message 2	58	Multiple pumps Off (via display)	X	X	X
Message 2	59	Internal fault FI 1	-	-	X
Message 2	60	Internal fault FI 2	-	-	X
Message 2	61	Internal fault FI 3	-	-	X
Message 2	62	Internal fault FI 4	-	-	X
Message 2	63	Internal fault FI 5	-	-	X

Table 11: Messages 3 (Bits 64 - 95)

Message field 0 × 2005	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 3	64	Internal fault FI 6	-	-	X
Message 3	65	Mains fault FI 1	-	-	X
Message 3	66	Mains fault FI 2	-	-	X
Message 3	67	Mains fault FI 3	-	-	X
Message 3	68	Mains fault FI 4	-	-	X
Message 3	69	Mains fault FI 5	-	-	X
Message 3	70	Mains fault FI 6	-	-	X
Message 3	71	Overvoltage FI 1	-	-	X
Message 3	72	Overvoltage FI 2	-	-	X
Message 3	73	Overvoltage FI 3	-	-	X
Message 3	74	Overvoltage FI 4	-	-	X
Message 3	75	Overvoltage FI 5	-	-	X
Message 3	76	Overvoltage FI 6	-	-	X
Message 3	77	Undervoltage FI 1	-	-	X
Message 3	78	Undervoltage FI 2	-	-	X
Message 3	79	Undervoltage FI 3	-	-	X
Message 3	80	Undervoltage FI 4	-	-	X
Message 3	81	Undervoltage FI 5	-	-	X
Message 3	82	Undervoltage FI 6	-	-	X
Message 3	83	Overload fault FI 1	-	-	X
Message 3	84	Overload fault FI 2	-	-	X
Message 3	85	Overload fault FI 3	-	-	X
Message 3	86	Overload fault FI 4	-	-	X
Message 3	87	Overload fault FI 5	-	-	X
Message 3	88	Overload fault FI 6	-	-	X
Message 3	89	Braking resistor FI 1	-	-	X
Message 3	90	Braking resistor FI 2	-	-	X
Message 3	91	Braking resistor FI 3	-	-	X
Message 3	92	Braking resistor FI 4	-	-	X
Message 3	93	Braking resistor FI 5	-	-	X
Message 3	94	Braking resistor FI 6	-	-	X
Message 3	95	Temperature fault FI 1	-	-	X

Table 12: Messages 4 (bits 96 -127)

Message field 0 × 2007	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 4	96	Temperature fault FI 2	-	-	X
Message 4	97	Temperature fault FI 3	-	-	X
Message 4	98	Temperature fault FI 4	-	-	X
Message 4	99	Temperature fault FI 5	-	-	X
Message 4	100	Temperature fault FI 6	-	-	X
Message 4	101	ATM fault FI 1, Danfoss only	-	-	X
Message 4	102	ATM fault FI 2, Danfoss only	-	-	X
Message 4	103	ATM fault FI 3, Danfoss only	-	-	X
Message 4	104	ATM fault FI 4, Danfoss only	-	-	X
Message 4	105	ATM fault FI 5, Danfoss only	-	-	X
Message 4	106	ATM fault FI 6, Danfoss only	-	-	X
Message 4	107	Flush	X	X	X
Message 4	108	Valve frequently open	X	X	X
Message 4	109	Short circuit fault FI 1	-	-	X
Message 4	110	Short circuit fault FI 2	-	-	X
Message 4	111	Short circuit fault FI 3	-	-	X
Message 4	112	Short circuit fault FI 4	-	-	X
Message 4	113	Short circuit fault FI 5	-	-	X
Message 4	114	Short circuit fault FI 6	-	-	X
Message 4	115	Emergency power mode	X	X	X
Message 4	116	Setpoint reduction	-	X	X
Message 4	117	Plant test	X	X	X
Message 4	118	MPO fault	-	-	X
Message 4	119	ASR deactivation	-	X	X
Message 4	120	BC IO comm. error	X	X	X
Message 4	121	Fault, rainwater pump 1	X	X	X
Message 4	122	Fault, rainwater pump 2	X	X	X
Message 4	123	No rainwater	X	X	X
Message 4	124	Fault, drinking water valve	X	X	X
Message 4	125	Starts/h, rainwater pump 1	X	X	X
Message 4	126	Starts/h, rainwater pump 2	X	X	X
Message 4	127	Drinking water use	X	X	X

Table 13: Messages 5 (Bits 128 - 159)

Message field 0 × 20F0	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 5	128	Water replacement	X	X	X
Message 5	129	Force water replacement	X	X	X
Message 5	130	Rainwater pump 1 Manual Off	X	X	X
Message 5	131	Rainwater pump 2 Manual Off	X	X	X
Message 5	132	Rainwater pump 1 Manual On	X	X	X
Message 5	133	Rainwater pump 2 Manual On	X	X	X
Message 5	134	Reserve	-	-	-
Message 5	135	Reserve	-	-	-
Message 5	136	Reserve	-	-	-
Message 5	137	Reserve	-	-	-
Message 5	138	Reserve	-	-	-
Message 5	139	Reserve	-	-	-
Message 5	140	Reserve	-	-	-
Message 5	141	Reserve	-	-	-
Message 5	142	Reserve	-	-	-
Message 5	143	Reserve	-	-	-
Message 5	144	Reserve	-	-	-
Message 5	145	Reserve	-	-	-
Message 5	146	Reserve	-	-	-
Message 5	147	Reserve	-	-	-
Message 5	148	Reserve	-	-	-
Message 5	149	Reserve	-	-	-
Message 5	150	Reserve	-	-	-
Message 5	151	Reserve	-	-	-
Message 5	152	Reserve	-	-	-
Message 5	153	Reserve	-	-	-
Message 5	154	Reserve	-	-	-
Message 5	155	Reserve	-	-	-
Message 5	156	Reserve	-	-	-
Message 5	157	Reserve	-	-	-
Message 5	158	Reserve	-	-	-
Message 5	159	Reserve	-	-	-



X = Querying/ evaluation in corresponding variant possible
 P1 = Pump 1 to P6 = Pump 6

Evaluation/querying of general system fault: Register 0 × 20EC:

0 × 20EC = Decimal 0 → No fault

0 × 20EC = Decimal 1 → Warning

0 × 20EC = Decimal 2 → Alert

Querying of running/ "in operation" message for individual pumps with respective pump status 1 - 6.

Remote acknowledgement with signal change 0 → 1 in register 0 × 2102 executable.



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