

Modbus Module

For BoosterControl Advanced

Supplementary Operating Manual



Legal information/Copyright

Supplementary Operating Manual Modbus Module

Original operating manual

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

© KSB SE & Co. KGaA, Frankenthal 11/04/2018

Contents

1	Supplementary Operating Manual	4
1.1	General.....	4
1.2	Description of the Modbus module	4
1.3	Installing the Modbus module.....	4
1.3.1	Terminal assignment.....	5
1.3.2	Terminating resistors	5
1.3.3	LED status	6
1.3.4	Telegram layout.....	6
1.3.5	Guidelines for processing requests (responses).....	7
1.4	Application examples	7
1.4.1	Reading the System Pressure parameter (address: 0 × 2009)	7
1.4.2	Writing the Setpoint parameter (address: 0 × 2100)	8
1.5	Parameter lists	9
1.6	Warning and alert messages.....	15

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 Modbus module

General description

The supplementary operating manual contains information on how to use the Modbus module in conjunction with a BoosterControl system. The Modbus module is specified in accordance with Modbus protocol V1.1b.

Communications module	Modbus RTU
Transmission rate	9600, 19200 or 38400 baud
Device type	Slave
Bus access	Polling between master and slave
Communication parameters	Parity = Even, Odd or None
	Stop bits = 1 (2 automatically for no parity)
	Data bits = 8

1.3 Installing the Modbus module

	 DANGER
	Incorrect electrical installation Risk of fatal injury due to electric shock! ▷ 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 Modbus module when it is de-energised. The Modbus module is located in a sheet metal case with an assembly base for a 35 mm DIN rail. The assembly base is used to connect the Modbus 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 Modbus 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	B
9	A
10	-U



NOTE

Power supply is not protected against reverse polarity.

1.3.2 Terminating resistors

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

Several bus stations can be switched in series. If the Modbus 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

If both DIP switches are in the OFF position, the terminating resistors are only functional if voltage is applied to the Modbus module.

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.

1.3.3 LED status

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



Fig. 2: Status LED

1.3.4 Telegram layout

In BoosterControl Advanced, the Modbus slave address and transfer speed can be defined and adapted to the Modbus system.

- Parameter 3-15-2-1 (Slave Address) → 0 - 247 definable. This parameter can only be viewed with Service access rights.
- Parameter 3-15-2-2 (Baud Rate) → 9600, 19200 or 38400 baud possible.

Function	Function code
Read / Monitor	Function code 03 (0 × 03 Read Holding Register)
Write	Function code 16 (0 × 10 Write Multiple Register)

Read/monitor values from BoosterControl

Table 3: Read out (Request) and reply to (Response) query parameters

Request	Response
Slave address	Slave address
Function code	Function code
Register (address range) of requested parameters	Byte counter
Register size 16 bits = 1 register	Value of requested parameter
CRC	CRC

Write BoosterControl values

Table 4: Read out (Request) and reply to (Response) query parameters

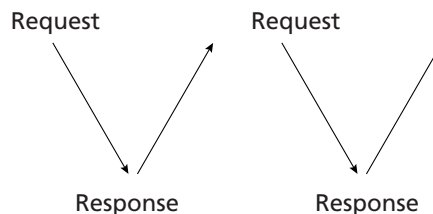
Request	Response
Slave address	Slave address
Function code	Function code
Register (address range) of requested parameters	Register (address range) of requested parameters
Register size 16 bits = 1 register	Register size 16 bits = 1 register
Byte count	-
Parameter value	-
CRC	CRC

1.3.5 Guidelines for processing requests (responses)

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

Modbus master:

Modbus slave (BoosterControl):



1.4 Application examples

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

Example:

Read System Pressure 1-1-1 for BoosterControl with Modbus address 10 (example value for system pressure = 3.92 bar):



Fig. 3: Example of read schematic

Table 5: Request in upper row, representation in hexadecimal format

Function code	Description
0A	Slave Address 10
03	Function code → Read Holding Register
2009	Address range (register), system pressure
0001	Register length, 16-bit → 1 register
5EB3	CRC

Table 6: Response in upper row, representation in hexadecimal format

Function code	Description
0A	Slave Address 10
03	Function code → Read Holding Register
02	Byte count → 2 bytes
0188	Notation of converted parameter value 188 (hexadecimal) = 392 (decimal)
1C73	CRC

The System Pressure parameter 1-1-1 is read out with decimal value 392 (base unit kPa). To convert into bar, divide the value by 100 (392 : 100 = 3.92 bar).

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

Example:

Setpoint 3-5-1 of the pressure booster system is set to 5 bar. The parameter unit is defined in kPa. 5 bar corresponds to 500 kPa.

Value 500 must be transmitted. The Modbus slave address used in the example is 10.

**[0A][10][21][00][00][01][02][01][F4][E4][75]
[0A][10][21][00][00][01][0A][8E]**

Fig. 4: Example of write schematic

Table 7: Write setpoint request in upper row, representation in hexadecimal format

Function code	Description
0A	Slave Address 10
10	Function code → Write Multiple Register
2100	Address range (register), setpoint
0001	Register length, 16-bit → 1 register
02	Byte count → 16 bits = 2 bytes
01F4	Notation of converted counter value 01F4 (hexadecimal) = 500 (decimal)
E475	CRC

Table 8: Write setpoint response in lower row, representation in hexadecimal format

Function code	Description
0A	Slave Address 10
10	Function code → Write Multiple Register
2100	Address range (register), setpoint
0001	Register length, 16-bit → 1 register
0A8E	CRC

1.5 Parameter lists

Table 9: 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 System pressure	-	0 × 2009	2 (UINT16)	kPa
7	1-1-2 System load	Pump load in percent	0 × 200a	2 (UINT16)	-
8	1-1-3 RDP switch	-	0 × 200b	2 (UINT16)	0 = Inactive 1 = Active
9	1-1-4 Inlet pressure	-	0 × 200c	2 (UINT16)	kPa
10	1-1-5 Level content in %	-	0 × 200d	2 (INT16)	-
11	1-1-6 Level height	-	0 × 200e	2 (UINT16)	-
12	1-1-7 Ambient temp. (WSD)	-	0 × 200f	2 (UINT16)	-
13	1-1-9-2 Position suppl.valve	Position of supply valve	0 × 2010	2 (UINT16)	-
14	1-1-9-1 Position suppl.valve	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 Act runtime Op hours	-	0 × 2014	4 (UINT32)	Seconds
18	1-3-2 Time to service	-	0 × 2016	4 (UINT32)	
19	1-3-3 Act Minimum Runtime	Current minimum pump runtime	0 × 2018	2 (UINT16)	Seconds
20	3-3-1 Number of pumps	-	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 Discharge	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 Set point	-	0 × 2100	2 (UINT16)	-
88	3-5-9 Adapt. setpoint	-	0 × 2101	2 (UINT16)	-

Table 10: Write parameter overview

Parameter	Code	Description	Hex address	Parameter length (bytes)	Value / Unit
1	3-5-1 Set point	-	0 × 2100	2 (UINT16)	kPa
2	3-5-9 Adapt. setpoint	-	0 × 2101	2 (UINT16)	kPa
3	2-1-3 Acknowledge All	-	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 Time	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 11: 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 12: Messages 1 (Bits 0 - 31)

Message field 0 × 2001	Bit	Message description	Variants		
			Hyamat K/M/H	Hyamat V	Hyamat SVP
Message 1	0	Failure PT. Dis.	X	X	X
Message 1	1	Sys. press.to low	X	X	X
Message 1	2	Sys press.to high	X	X	X
Message 1	3	No water	X	X	X
Message 1	4	Maintenance req.	X	X	X
Message 1	5	More pumps fail	X	X	X
Message 1	6	No refresh tank 1	X	X	X
Message 1	7	No refresh tank 2	X	X	X
Message 1	8	No refresh tank 3	X	X	X
Message 1	9	Aver temp to high	X	X	X
Message 1	10	Curr temp to high	X	X	X
Message 1	11	Temp. Fail. Pump 1	X	X	X
Message 1	12	Temp. Fail. Pump 2	X	X	X
Message 1	13	Temp. Fail. Pump 3	X	X	X
Message 1	14	Temp. Fail. Pump 4	X	X	X
Message 1	15	Temp. Fail. Pump 5	X	X	X
Message 1	16	Temp. Fail. Pump 6	X	X	X
Message 1	17	Failure valve	X	X	X
Message 1	18	Inlet sensor fail	X	X	X
Message 1	19	High water level	X	X	X
Message 1	20	Low water level	X	X	X
Message 1	21	Low water level	X	X	X
Message 1	22	Comm. Error FC 1	-	-	X
Message 1	23	Comm. Error FC 2	-	-	X
Message 1	24	Comm. Error FC 3	-	-	X
Message 1	25	Comm. Error FC 4	-	-	X
Message 1	26	Comm. Error FC 5	-	-	X
Message 1	27	Comm. Error FC 6	-	-	X
Message 1	28	incor. check sum F1	-	-	X
Message 1	29	incor. check sum F2	-	-	X
Message 1	30	incor. check sum F3	-	-	X
Message 1	31	incor. check sum F4	-	-	X

Table 13: 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 14: 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 15: 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 16: 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.



KSB SE & Co. KGaA

Johann-Klein-Straße 9 • 67227 Frankenthal (Germany)

Tel. +49 6233 86-0

www.ksb.com