

Technical Description

DULCOMARIN® 3

Modbus RTU, RS485

EN



18.10.2019, Version 1.3

Table of contents

1	Description.....	4
1.1	There is no need to check the setpoints for plausibility.....	4
2	Modbus-RTU implementation.....	5
2.1	General.....	5
2.2	Modbus-RTU message format.....	5
2.3	Modbus-RTU Link Layer.....	6
2.4	Modbus serial connections.....	6
2.5	Modbus connection terminals.....	8
3	Modbus-RTU data model.....	9
3.1	Function codes.....	9
3.1.1	Function code 3.....	9
3.1.2	Function code 6.....	11
3.1.3	Function code 8.....	12
3.1.4	Modbus Exception Responses - Exception codes.....	13
4	Overview of Modbus-RTU registers.....	14
4.1	The register range (system image).....	14
4.2	Standard Modbus register.....	15
4.3	Register according to pool.....	16
4.3.1	Measured values and control variable pool 1.....	16
4.3.2	Measured values and control variable pool 2.....	17
4.3.3	Measured values and control variable pool 3.....	18
4.3.4	Measured values and control variable pool 4.....	19
4.3.5	Measured values and control variable pool 5.....	20
4.3.6	Measured values and control variable pool 6.....	21
4.3.7	Measured values and control variable pool 7.....	22
4.3.8	Measured values and control variable pool 8.....	23
4.3.9	Measured values and control variable pool 9.....	24
4.3.10	Measured values and control variable pool 10.....	25
4.3.11	Measured values and control variable pool 11.....	26
4.3.12	Measured values and control variable pool 12.....	27
4.3.13	Measured values and control variable pool 13.....	28
4.3.14	Measured values and control variable pool 14.....	29
4.3.15	Measured values and control variable pool 15.....	30
4.3.16	Measured values and control variable pool 16.....	31
4.4	Error register for pools 1– 16 bit-coded.....	32
4.5	Status register for pools 1 -16.....	33
4.6	Register according to measured values.....	33
4.6.1	Pool number register.....	34
4.6.2	cNet status register.....	35
4.6.3	Pool name - Register.....	36
4.6.4	pH actual value register.....	37
4.6.5	pH control variable register.....	38
4.6.6	ORP actual value register.....	39
4.6.7	ORP control variable register.....	40
4.6.8	Actual resistance thermometer value register.....	41
4.6.9	Resistance thermometer control variable register.....	42
4.6.10	Actual chlorine sensor temperature value register.....	43
4.6.11	Chlorine sensor temperature control variable register.....	44
4.6.12	Actual free chlorine value register.....	45
4.6.13	Free chlorine control variable register.....	46
4.6.14	Actual total chlorine value register.....	47
4.6.15	Total chlorine control variable register.....	48
4.6.16	Actual combined chlorine value register.....	49

4.6.17	Combined chlorine control variable register.....	50
4.7	Setpoint register.....	51
4.7.1	pH setpoint register.....	52
4.7.2	ORP setpoint register.....	54
4.7.3	Temperature setpoint register.....	56
4.7.4	Free chlorine setpoint register.....	58
4.7.5	Combined chlorine setpoint register.....	60
4.7.6	Total chlorine setpoint register.....	62
4.7.7	Temperature of free Cl sensor setpoint register.....	64
4.8	Status register by function.....	66
4.8.1	Eco mode status register.....	66
4.8.2	Pause status register.....	67
4.8.3	Superchlorination status register.....	68
4.8.4	Sample water fault status register.....	69
4.8.5	Start/Stop status register.....	70
4.9	Error register.....	71
4.9.1	Pool 1 – 2 error register.....	71
4.9.2	Pool 3 – 5 error register.....	72
4.9.3	Error pool 6 – 8 - Register.....	73
4.9.4	Pool 9 – 11 error register.....	75
4.9.5	Pool 12 – 14 error register.....	76
4.9.6	Pool 15 – 16 error register.....	77
4.10	Operating mode register.....	78
4.10.1	Superchlorination mode.....	78
4.10.2	Eco mode.....	79
4.10.3	Software pause mode.....	80
5	Appendix A: Error messages.....	82

1 Description

The ProMinent L-Board provides the DM3 controller with the possibility of communicating with an external Modbus-RTU master using the Modbus-RTU RS485 protocol. The master thereby receives data from the DM3. The DM3 Compact controller or multi-pool central unit provide a Modbus-RTU slave interface (RS-485 serial). A second connecting option is also available to connect a further slave to the bus via a daisy chain principle. Only a maximum of one master may always be connected to one of the two interfaces.

1.1 There is no need to check the setpoints for plausibility

At this point, it is expressly pointed out that the DM3 Modbus-RTU RS485 communication does not carry out any plausibility testing of the feed-through parameters and setpoints.

There is no checking, alarming or correction of these setpoints and this is also not technically provided for.

In systems, in which incorrect operation or incorrect setpoint specifications may under certain circumstances cause damage, the responsibility lies with the operator, and this applies particularly where there is a risk of impairment to health. The user/operator must therefore ensure that they personally adhere to critical parameters by conducting regular, manual control measurements.

2 Modbus-RTU implementation

2.1 General

This document contains general information regarding the implementation of the ProMinent DM3 controller into the serial communication protocol of the Modbus-RTU. The ProMinent DM3 Controller acts as a slave device. It facilitates communication between the ProMinent DM3 controller and external master devices, such as a PLC or PC. The Modbus protocol is a communication protocol that enables devices to use data via a common connection if the devices communicate with each other via the Modbus-RTU RS-485 or RS-232 specification. The document is aimed at programmers and personnel involved in project management and commissioning.

The DM3 Controller does not emulate every type of MODICON device. The Modbus-RTU specification describes the data link layer and physical layer. The notification structure of the function codes uses Modbus-RTU standards. Integers are used.



Default settings:

The ProMinent DM3 controller is delivered to the customer with predetermined settings, with the slave address 10 and a baud rate of 19200 baud. The Slave address and other Modbus settings can be changes in the system settings.

The Modbus interface is implemented based on the following standards:

www.modbus.org/docs/Modbus_over_serial_line_V1_02.pdf

More information on Modbus can be found at www.modbus.org or other websites relating to Modbus organisations in your country (if available).

2.2 Modbus-RTU message format

Parameter	Value
Standard	RS-485
Coding system	8 bit
Broadcast support	Yes
Number of data bits per character	10 / 11 bits: 1 start bit 8 data bits 0 / 1 parity bits [no, odd, even] 1 / 2 stop bits (requires 2 stop bits if no parity bit is used) predetermined value: [8O1]
Data rate (baud)	2400, 4800, 9600, 19200 (predetermined value), 38400, 57600, 115200
Error check	CRC-16 [cyclic redundancy check]; polynomial = 0x0A001 (1010000000000001)
Multi-byte transmission	Byte sequence 0x1234 transfers 0x12 followed by 0x34
Message [TIMEOUT]	>= 3.5 characters (> 2 ms at a baud rate of \geq 19200)
Slave address	1 ... 247 (10 is pre-set)

2.3 Modbus-RTU Link Layer

The Link Layer contains the following properties:


- Slave address detection
- Start / end identification
- CRC-16 generation / check
- Buffer overflow detection
- Unused line detection
- Send / receive time limit for messages
- Raster setting error detection

Errors in messages received and detected by the physical layer of the slave are ignored. The physical layer is restarted automatically if a new message is detected on the unused line.

2.4 Modbus serial connections

The ProMinent DM3 Modbus interface supports the following interface standards: RS-485 (TIA-485-A)

- half-duplex, 2-wire technology, “twisted pair” cable
- Differential voltage level ± 5 V.
- Cable length up to 1200 m
- The bus needs an external termination.

The settings for the Modbus-RTU RS485 connector can be accessed in the DM3 by using the hamburger menu in the System Settings and using the Setting icon . Find the “Modbus settings” menu item in the System Settings menu. This menu can be displayed with all authorisations apart from user authorisations.

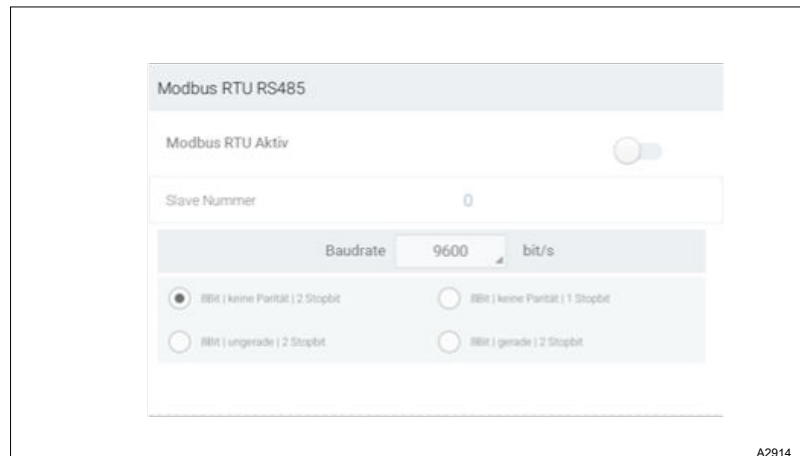


Fig. 1: Modbus-RTU RS485 settings (inactive)

Parameter	Possible selection values
Modbus-RTU RS485 active	active = activates the Modbus-RTU function inactive = deactivates the Modbus-RTU function (initial value)
Slave address	Selection of 1 to 247 (initial value: 10)

Parameter	Possible selection values
Baud rate	2400, 4800, 9600, 19200 (initial value), 38400, 57600, 115200
Serial format	(8n1) 8 data bits / none parity / 1 stop bit (8n2) 8 data bits / none parity / 2 stop bit (8o1) 8 data bits / odd parity/ 1 stop bit (8e1) 8 data bits / even parity / 1 stop bit (initial value)

The Modbus-RTU RS485 interface needs to be activated.

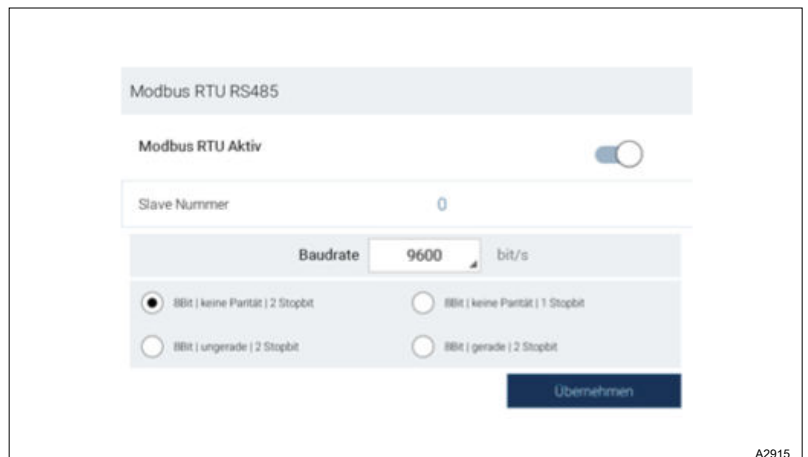


Fig. 2: Modbus-RTU RS485 settings (active)

The slave number is given which is used in this device. The master can access the device by stating the slave address. It is selected using a scroll wheel menu. The slave number can lie between 1 and 247, and the OK button is hidden outside the selection range.

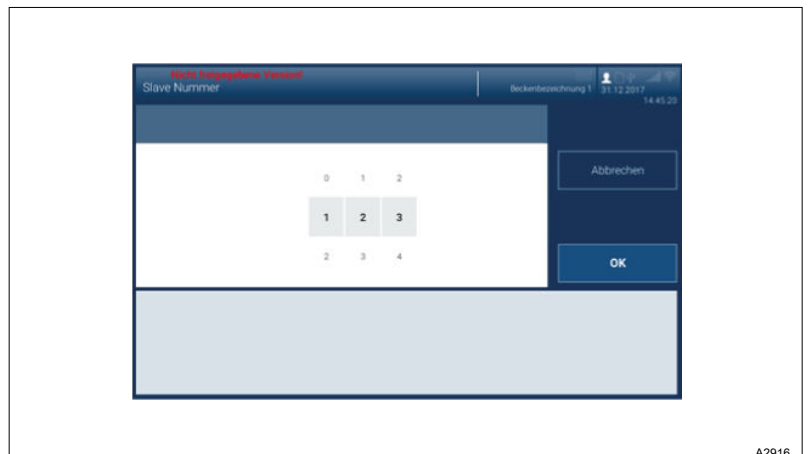


Fig. 3: Modbus-RTU RS485 settings slave number

2.5 Modbus connection terminals

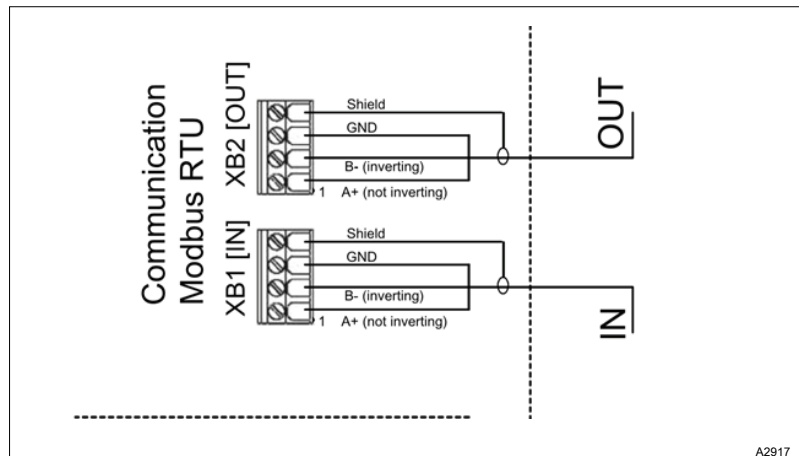


Fig. 4: Modbus connection terminals in the DM3

The DM3 Modbus-RTU interface provides two connection terminals for Modbus cabling. The connection terminal XB1 [IN] connects the interface to the master device PLC or PC. XB2[OUT] is a connector for an additional Modbus member on the existing BUS.

3 Modbus-RTU data model

3.1 Function codes

The DM3 Modbus-RTU RS485 communication supports the following function codes.

Function code	Name	Description
3	Read Holding Register	Up to 125 registers can be read with this function code.
6	Write Single Register	A maximum of one register can be written using this function code.
8	Diagnostic (return query data)	This function code only supports the sub-function code 0. The received frame is checked for CRC errors and then returned to the sender with function code 8 and sub-function code 0.

3.1.1 Function code 3

Up to 125 registers of the Read Holding Register can be read with this function code.

Tab. 1: Request:

Slave address	1 byte	1 – 247
Function code	1 byte	0x03
Start address	2 bytes	0x0000 – 0xFFFF
Number of registers	2 bytes	1 – 125 (7D)
CRC sum	2 bytes	0x0000 – 0xFFFF

Tab. 2: Response:

Slave address	1 byte	1 – 247
Function code	1 byte	0x03
Number of bytes	1 byte	2 x N*
Register values	N* x 2 bytes	
CRC sum	2 bytes	0x0000 – 0xFFFF

*N = number of registers

Tab. 3: Error:

Slave address	1 byte	1 – 247
Function code	1 byte	0x83
Exception code	1 byte	01, 02, 03 or 04
CRC sum	2 bytes	0x0000 – 0xFFFF

Example:

Read 4 registers (0x10000 to 0x10003) from the slave with address 1. The register values and the CRC sum serve purely as an example for depiction of the frame and may deviate.

Tab. 4: Example

Request		Response	
Name	Value (hex)	Name	Value (hex)
Slave address	0x01	Slave address	0x01
Function code	0x03	Function code	0x03
Start address (high)	0x07	Number of bytes	0x08
Start address (low)	0xd0	Register value 1 (high) - register 0x10000	0x00
Number of registers (high)	0x00	Register value 1 (low) - register 0x10000	0x00
Number of registers (low)	0x04	Register value 2 (high) - register 0x10001	0x00
CRC (high)	0xc7	Register value 2 (low) - register 0x10001	0x00
CRC (low)	0xa7	Register value 3 (high) - register 0x10002	0x00
		Register value 3 (low) - register 0x10002	0x00
		Register value 4 (high) - register 0x10003	0x00
		Register value 4 (low) - register 0x10003	0x00
		CRC (high)	0x95
		CRC (low)	0xd7

3.1.2 Function code 6

A maximum of one register can be written using this function code.

Tab. 5: Request:

Slave address	1 byte	1 – 247
Function code	1 byte	0x06
Register address	2 bytes	0x0000 – 0xFFFF
Register value	2 bytes	0x0000 – 0xFFFF
CRC sum	2 bytes	0x0000 – 0xFFFF

Tab. 6: Response:

Slave address	1 byte	1 – 247
Function code	1 byte	0x06
Register address	2 bytes	0x0000 – 0xFFFF
Register value	2 bytes	0x0000 – 0xFFFF
CRC sum	2 bytes	0x0000 – 0xFFFF

Tab. 7: Error:

Slave address	1 byte	1 – 247
Function code	1 byte	0x86
Exception code	1 byte	01, 02, 03 or 04
CRC sum	2 bytes	0x0000 – 0xFFFF

Example:

Write one register (0x5576) to the slave with slave address 1. The register values and the CRC sum serve purely as an example for depiction of the frame and may deviate.

Tab. 8: FC 6 - example

Request		Response	
Name	Value (hex)	Name	Value (hex)
Slave address	0x01	Slave address	0x01
Function code	0x06	Function code	0x06
Register address (high)	0x30	Register address (high)	0x30
Register address (low)	0x04	Register address (low)	0x04
Register value (high)	0x00	Register value 1 (low) - register 0x10004	0x00
Register value (low)	0x70	Register value 2 (high) - register 0x10004	0x70
CRC (high)	0xc6	CRC (high)	0xc6
CRC (low)	0xef	CRC (low)	0xef

3.1.3 Function code 8

This function code only supports the sub-function code 0. The received frame is checked for CRC errors and then returned to the sender with function code 8 and sub-function code 0.

Tab. 9: Request:

Slave address	1 byte	1 – 247
Function code	1 byte	0x08
Sub-function code	2 bytes	0x00
Data	N* x 2 bytes	0x0000 – 0xFFFF
CRC sum	2 bytes	0x0000 – 0xFFFF

*N = number of data

Tab. 10: Response:

Slave address	1 byte	1 – 247
Function code	1 byte	0x08
Sub-function code	2 bytes	0x00
Data	N* x 2 bytes	0x0000 – 0xFFFF
CRC sum	2 bytes	0x0000 – 0xFFFF

*N = number of data

Tab. 11: Error:

Slave address	1 byte	1 – 247
Function code	1 byte	0x88
Exception code	1 byte	01, 03 or 04
CRC sum	2 bytes	0x0000 – 0xFFFF

Example:

Write one register (0x10004) to the slave with address 1. The register values and the CRC sum serve purely as an example for depiction of the frame and may deviate.

Tab. 12: : FC 8 - example

Request		Response	
Name	Value (hex)	Name	Value (hex)
Slave address	0x01	Slave address	0x01
Function code	0x08	Function code	0x08
Sub-function code (high)	0x00	Sub-function code (high)	0x00
Sub-function code (low)	0x00	Sub-function code (low)	0x00
Data 1	0x01	Data 1	0x01
Data 2	0x02	Data 2	0x02
CRC (high)	0x60	CRC (high)	0x60
CRC (low)	0x5a	CRC (low)	0x5a

3.1.4 Modbus Exception Responses - Exception codes

The exception codes listed in the previous chapters are interpreted as follows:

Code	Name	Meaning
1	Incorrect function code	The received frame contains a function code that is not supported by the Modbus gateway.
2	Incorrect register address	The register address in the received frame is invalid.
3	Incorrect register value (data)	The user data transmitted in the frame is invalid for the register to be described.
4	Service device error	A non-correctable error has occurred during processing of the query.

4 Overview of Modbus-RTU registers

4.1 The register range (system image)

The register range of the Modbus-RTU is the central range through which the interfaces are connected with each other. The register range has a defined structure and is sub-divided into different data ranges.

0	Standard Modbus register (read-only)
100	
2000	Measured values – Register, Control variable – Register Error – Register 32 bit field (read-only)
2383	
2384	Status register 16 bit field
2389	Bit 0-Pool 1 - bit ,15-pool 16 Pause, ECO, Superchlorination, Sample water, StartStop (read-only)
3000	Setpoints – Register (write-only)
3175	
3176	Status register Pause, ECO, Superchlorination (write-only)
3223	
4000	Setpoints – Register (read-only)
4175	
4176	Status register Pause, ECO, Superchlorination, Samples water, Start/Stop per pool no bit field (read-only)
4255	
5000	Pool number, Pool cNet status, Pool name, Error – Register (read-only)
5367	

The Modbus-RTU master can read and write to the various registers using the Modbus-RTU functions.

4.2 Standard Modbus register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0001	1	Software version	uint16_t	R	Format 1000 = 1.0 V
0x0002	2	Hardware version	uint16_t	R	Format 0000 = 0.0 V
0x0003	3	Continuous counter	uint16_t	R	LIVE signal counts every communication
0x0004	4	CAN-ID	uint16_t	R	Contains the CAN ID of the DM3
0x0005	5	Error code	uint16_t	R	Value 0 is currently unused
0x0006	6	Number of pools	uint16_t	R	The number of pools in the system

4.3 Register according to pool

4.3.1 Measured values and control variable pool 1

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D0	2000	Actual pH value pool 1	int16_t	R	Current pH value channel 1 pool 1
0x07D1	2001	pH control variable pool 1	int16_t	R	Current control variable pH pool 1
0x07D2	2002	Actual ORP value pool 1	int16_t	R	Current ORP actual value pool 1
0x07D3	2003	ORP control variable pool 1	int16_t	R	Current ORP control variable pool 1
0x07D4	2004	Temperature actual value pool 1	int16_t	R	Current temperature of resistance thermometer for actual value pool 1
0x07D5	2005	Temperature control variable pool 1	int16_t	R	Current temperature of resistance thermometer setpoint pool 1
0x07D6	2006	Free Cl - actual value pool 1	int16_t	R	Free chlorine actual value pool 1
0x07D7	2007	Free Cl - control variable pool 1	int16_t	R	Free chlorine control variable pool 1
0x07D8	2008	Total Cl - actual value pool 1	int16_t	R	Actual total chlorine value pool 1
0x07D9	2009	Total Cl - Control variable pool 1	int16_t	R	Total chlorine control variable pool 1
0x07DA	2010	Combined Cl - actual value pool 1	int16_t	R	Combined chlorine actual value pool 1
0x07DB	2011	Combined Cl - control variable pool 1	int16_t	R	Combined chlorine control variable pool 1
0x07DC	2012	Temp. free Cl - actual value pool 1	int16_t	R	Actual chlorine sensor temperature value pool 1
0x07DD	2013	Temp. free Cl - control variable pool 1	int16_t	R	Temperature of chlorine sensor control variable pool 1
0x07DE	2014	Channel 8 - actual value pool 1	int16_t	R	reserved
0x07DF	2015	Channel 8 - control variable pool 1	int16_t	R	reserved
0x07E0	2016	Channel 9 - actual value pool 1	int16_t	R	reserved
0x07E1	2017	Channel 9 - control variable pool 1	int16_t	R	reserved
0x07E2	2018	Channel 10 - actual value pool 1	int16_t	R	reserved
0x07E3	2019	Channel 10 - control variable pool 1	int16_t	R	reserved
0x07E4	2020	Channel 11 - actual value pool 1	int16_t	R	reserved
0x07E5	2021	Channel 11 - control variable pool 1	int16_t	R	reserved
0x07E6	2022	Error pool 1 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x07E7	2023	Error pool 1 part 2			

4.3.2 Measured values and control variable pool 2

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07E8	2024	Actual pH value pool 2	int16_t	R	Current pH value channel 1 pool 2
0x07E9	2025	pH control variable pool 2	int16_t	R	Current control variable pH channel 1 pool 2
0x07EA	2026	Actual ORP value pool 2	int16_t	R	Current ORP actual value channel 2 pool 2
0x07EB	2027	ORP control variable pool 2	int16_t	R	Current ORP control variable channel 2 pool 2
0x07EC	2028	Temperature actual value pool 2	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 2
0x07ED	2029	Temperature control variable pool 2	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 2
0x07EE	2030	Free Cl - actual value pool 2	int16_t	R	Free chlorine actual value channel 4 pool 2
0x07EF	2031	Free Cl - control variable pool 2	int16_t	R	Free chlorine control variable channel 4 pool 2
0x07F0	2032	Total Cl - actual value pool 2	int16_t	R	Total chlorine actual value channel 5 pool 2
0x07F1	2033	Total Cl - Control variable pool 2	int16_t	R	Total chlorine control variable channel 5 pool 2
0x07F2	2034	Combined Cl - actual value pool 2	int16_t	R	Combined chlorine actual value channel 6 pool 2
0x07F3	2035	Combined Cl - control variable pool 2	int16_t	R	Combined chlorine control variable channel 6 pool 2
0x07F4	2036	Temp. free Cl - actual value pool 2	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 2
0x07F5	2037	Temp. free Cl - control variable pool 2	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 2
0x07F6	2038	Channel 8 - actual value pool 2	int16_t	R	reserved
0x07F7	2039	Channel 8 - control variable pool 2	int16_t	R	reserved
0x07F8	2040	Channel 9 - actual value pool 2	int16_t	R	reserved
0x07F9	2041	Channel 9 - control variable pool 2	int16_t	R	reserved
0x07FA	2042	Channel 10 - actual value pool 2	int16_t	R	reserved
0x07FB	2043	Channel 10 - control variable pool 2	int16_t	R	reserved
0x07FC	2044	Channel 11 - actual value pool 2	int16_t	R	reserved
0x07FD	2045	Channel 11 - control variable pool 2	int16_t	R	reserved
0x07FE	2046	Error pool 2 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x07FF	2047	Error pool 2 part 2			

4.3.3 Measured values and control variable pool 3

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0800	2048	Actual pH value pool 3	int16_t	R	Current pH – value channel 1 pool 3
0x0801	2049	pH control variable pool 3	int16_t	R	Current control variable pH channel 1 pool 3
0x0802	2050	Actual ORP value pool 3	int16_t	R	Current ORP actual value channel 2 pool 3
0x0803	2051	ORP control variable pool 3	int16_t	R	Current ORP control variable channel 2 pool 3
0x0804	2052	Temperature actual value pool 3	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 3
0x0805	2053	Temperature control variable pool 3	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 3
0x0806	2054	Free Cl - actual value pool 3	int16_t	R	Free chlorine actual value channel 4 pool 3
0x0807	2055	Free Cl - control variable pool 3	int16_t	R	Free chlorine control variable channel 4 pool 3
0x0808	2056	Total Cl - actual value pool 3	int16_t	R	Total chlorine actual value channel 5 pool 3
0x0809	2057	Total Cl - Control variable pool 3	int16_t	R	Total chlorine control variable channel 5 pool 3
0x080A	2058	Combined Cl - actual value pool 3	int16_t	R	Combined chlorine actual value channel 6 pool 3
0x080B	2059	Combined Cl - control variable pool 3	int16_t	R	Combined chlorine control variable channel 6 pool 3
0x080C	2060	Temp. free Cl - actual value pool 3	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 3
0x080D	2061	Temp. free Cl - control variable pool 3	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 3
0x080E	2062	Channel 8 - actual value pool 3	int16_t	R	reserved
0x080F	2063	Channel 8 - control variable pool 3	int16_t	R	reserved
0x0810	2064	Channel 9 - actual value pool 3	int16_t	R	reserved
0x0811	2065	Channel 9 - control variable pool 3	int16_t	R	reserved
0x0812	2066	Channel 10 - actual value pool 3	int16_t	R	reserved
0x0813	2067	Channel 10 - control variable pool 3	int16_t	R	reserved
0x0814	2068	Channel 11 - actual value pool 3	int16_t	R	reserved
0x0815	2069	Channel 11 - control variable pool 3	int16_t	R	reserved
0x0816	2070	Error pool 3 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x0817	2071	Error pool 3 part 2			

4.3.4 Measured values and control variable pool 4

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0818	2072	Actual pH value pool 4	int16_t	R	Current pH value channel 1 pool 4
0x0819	2073	pH control variable pool 4	int16_t	R	Current control variable pH channel 1 pool 4
0x081A	2074	Actual ORP value pool 4	int16_t	R	Current ORP actual value channel 2 pool 4
0x081B	2075	ORP control variable pool 4	int16_t	R	Current ORP control variable channel 2 pool 4
0x081C	2076	Temperature actual value pool 4	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 4
0x081D	2077	Temperature control variable pool 4	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 4
0x081E	2078	Free Cl - actual value pool 4	int16_t	R	Free chlorine actual value channel 4 pool 4
0x081F	2079	Free Cl - control variable pool 4	int16_t	R	Free chlorine control variable channel 4 pool 4
0x0820	2080	Total Cl - actual value pool 4	int16_t	R	Total chlorine actual value channel 5 pool 4
0x0821	2081	Total Cl - Control variable pool 4	int16_t	R	Total chlorine control variable channel 5 pool 4
0x0822	2082	Combined Cl - actual value pool 4	int16_t	R	Combined chlorine actual value channel 6 pool 4
0x0823	2083	Combined Cl - control variable pool 4	int16_t	R	Combined chlorine control variable channel 6 pool 4
0x0824	2084	Temp. free Cl - actual value pool 4	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 4
0x0825	2085	Temp. free Cl - control variable pool 4	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 4
0x0826	2086	Channel 8 - actual value pool 4	int16_t	R	reserved
0x0827	2087	Channel 8 - control variable pool 4	int16_t	R	reserved
0x0828	2088	Channel 9 - actual value pool 4	int16_t	R	reserved
0x0829	2089	Channel 9 - control variable pool 4	int16_t	R	reserved
0x082A	2090	Channel 10 - actual value pool 4	int16_t	R	reserved
0x082B	2091	Channel 10 - control variable pool 4	int16_t	R	reserved
0x082C	2092	Channel 11 - actual value pool 4	int16_t	R	reserved
0x082D	2093	Channel 11 - control variable pool 4	int16_t	R	reserved
0x082E	2094	Error pool 4 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x082F	2095	Error pool 4 part 2			

4.3.5 Measured values and control variable pool 5

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0830	2096	Actual pH value pool 5	int16_t	R	Current pH value channel 1 pool 5
0x0831	2097	pH control variable pool 5	int16_t	R	Current control variable pH channel 1 pool 5
0x0832	2098	Actual ORP value pool 5	int16_t	R	Current ORP actual value channel 2 pool 5
0x0833	2099	ORP control variable pool 5	int16_t	R	Current ORP control variable channel 2 pool 5
0x0834	2100	Temperature actual value pool 5	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 5
0x0835	2101	Temperature control variable pool 5	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 5
0x0836	2102	Free Cl - actual value pool 5	int16_t	R	Free chlorine actual value channel 4 pool 5
0x0837	2103	Free Cl - control variable pool 5	int16_t	R	Free chlorine control variable channel 4 pool 5
0x0838	2104	Total Cl - actual value pool 5	int16_t	R	Total chlorine actual value channel 5 pool 5
0x0839	2105	Total Cl - Control variable pool 5	int16_t	R	Total chlorine control variable channel 5 pool 5
0x083A	2106	Combined Cl - actual value pool 5	int16_t	R	Combined chlorine actual value channel 6 pool 5
0x083B	2107	Combined Cl - control variable pool 5	int16_t	R	Combined chlorine control variable channel 6 pool 5
0x083C	2108	Temp. free Cl - actual value pool 5	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 5
0x083D	2109	Temp. free Cl - control variable pool 5	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 5
0x083E	2110	Channel 8 - actual value pool 5	int16_t	R	reserved
0x083F	2111	Channel 8 - control variable pool 5	int16_t	R	reserved
0x0840	2112	Channel 9 - actual value pool 5	int16_t	R	reserved
0x0841	2113	Channel 9 - control variable pool 5	int16_t	R	reserved
0x0842	2114	Channel 10 - actual value pool 5	int16_t	R	reserved
0x0843	2115	Channel 10 - control variable pool 5	int16_t	R	reserved
0x0844	2116	Channel 11 - actual value pool 5	int16_t	R	reserved
0x0845	2117	Channel 11 - control variable pool 5	int16_t	R	reserved
0x0846	2118	Error pool 5 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x0847	2119	Error pool 5 part 2			

4.3.6 Measured values and control variable pool 6

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0848	2120	Actual pH value pool 6	int16_t	R	Current pH value channel 1 pool 6
0x0849	2121	pH control variable pool 6	int16_t	R	Current control variable pH channel 1 pool 6
0x084A	2122	Actual ORP value pool 6	int16_t	R	Current ORP actual value channel 2 pool 6
0x084B	2123	ORP control variable pool 6	int16_t	R	Current ORP control variable channel 2 pool 6
0x084C	2124	Temperature actual value pool 6	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 6
0x084D	2125	Temperature control variable pool 6	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 6
0x084E	2126	Free Cl - actual value pool 6	int16_t	R	Free chlorine actual value channel 4 pool 6
0x084F	2127	Free Cl - control variable pool 6	int16_t	R	Free chlorine control variable channel 4 pool 6
0x0850	2128	Total Cl - actual value pool 6	int16_t	R	Total chlorine actual value channel 5 pool 6
0x0851	2129	Total Cl - Control variable pool 6	int16_t	R	Total chlorine control variable channel 5 pool 6
0x0852	2130	Combined Cl - actual value pool 6	int16_t	R	Combined chlorine actual value channel 6 pool 6
0x0853	2131	Combined Cl - control variable pool 6	int16_t	R	Combined chlorine control variable channel 6 pool 6
0x0854	2132	Temp. free Cl - actual value pool 6	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 6
0x0855	2133	Temp. free Cl - control variable pool 6	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 6
0x0856	2134	Channel 8 - actual value pool 6	int16_t	R	reserved
0x0857	2135	Channel 8 - control variable pool 6	int16_t	R	reserved
0x0858	2136	Channel 9 - actual value pool 6	int16_t	R	reserved
0x0859	2137	Channel 9 - control variable pool 6	int16_t	R	reserved
0x085A	2138	Channel 10 - actual value pool 6	int16_t	R	reserved
0x085B	2139	Channel 10 - control variable pool 6	int16_t	R	reserved
0x085C	2140	Channel 11 - actual value pool 6	int16_t	R	reserved
0x085D	2141	Channel 11 - control variable pool 6	int16_t	R	reserved
0x085E	2142	Error pool 6 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x085F	2143	Error pool 6 part 2			

4.3.7 Measured values and control variable pool 7

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0860	2144	Actual pH value pool 7	int16_t	R	Current pH value channel 1 pool 7
0x0861	2145	pH control variable pool 7	int16_t	R	Current pH control variable channel 1 pool 7
0x0862	2146	Actual ORP value pool 7	int16_t	R	Current ORP actual value channel 2 pool 7
0x0863	2147	ORP control variable pool 7	int16_t	R	Current ORP control variable channel 2 pool 7
0x0864	2148	Temperature actual value pool 7	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 7
0x0865	2149	Temperature control variable pool 7	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 7
0x0866	2150	Free Cl - actual value pool 7	int16_t	R	Free chlorine actual value channel 4 pool 7
0x0867	2151	Free Cl - control variable pool 7	int16_t	R	Free chlorine control variable channel 4 pool 7
0x0868	2152	Total Cl - actual value pool 7	int16_t	R	Total chlorine actual value channel 5 pool 7
0x0869	2153	Total Cl - Control variable pool 7	int16_t	R	Total chlorine control variable channel 5 pool 7
0x086A	2154	Combined Cl - actual value pool 7	int16_t	R	Combined chlorine actual value channel 6 pool 7
0x086B	2155	Combined Cl - control variable pool 7	int16_t	R	Combined chlorine control variable channel 6 pool 7
0x086C	2156	Temp. free Cl - actual value pool 7	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 7
0x086D	2157	Temp. free Cl - control variable pool 7	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 7
0x086E	2158	Channel 8 - actual value pool 7	int16_t	R	reserved
0x086F	2159	Channel 8 - control variable pool 7	int16_t	R	reserved
0x0870	2160	Channel 9 - actual value pool 7	int16_t	R	reserved
0x0871	2161	Channel 9 - control variable pool 7	int16_t	R	reserved
0x0872	2162	Channel 10 - actual value pool 7	int16_t	R	reserved
0x0873	2163	Channel 10 - control variable pool 7	int16_t	R	reserved
0x0874	2164	Channel 11 - actual value pool 7	int16_t	R	reserved
0x0875	2165	Channel 11 - control variable pool 7	int16_t	R	reserved
0x0876	2166	Error pool 7 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x0877	2167	Error pool 7 part 2			

4.3.8 Measured values and control variable pool 8

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0878	2168	Actual pH value pool 8	int16_t	R	Current pH value channel 1 pool 8
0x0879	2169	pH control variable pool 8	int16_t	R	Current pH control variable channel 1 pool 8
0x087A	2170	Actual ORP value pool 8	int16_t	R	Current ORP actual value channel 2 pool 8
0x087B	2171	ORP control variable pool 8	int16_t	R	Current ORP control variable channel 2 pool 8
0x087C	2172	Temperature actual value pool 8	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 8
0x087D	2173	Temperature control variable pool 8	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 8
0x087E	2174	Free Cl - actual value pool 8	int16_t	R	Free chlorine actual value channel 4 pool 8
0x087F	2175	Free Cl - control variable pool 8	int16_t	R	Free chlorine control variable channel 4 pool 8
0x0880	2176	Total Cl - actual value pool 8	int16_t	R	Total chlorine actual value channel 5 pool 8
0x0881	2177	Total Cl - Control variable pool 8	int16_t	R	Total chlorine control variable channel 5 pool 8
0x0882	2178	Combined Cl - actual value pool 8	int16_t	R	Combined chlorine actual value channel 6 pool 8
0x0883	2179	Combined Cl - control variable pool 8	int16_t	R	Combined chlorine control variable channel 6 pool 8
0x0884	2180	Temp. free Cl - actual value pool 8	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 8
0x0885	2181	Temp. free Cl - control variable pool 8	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 8
0x0886	2182	Channel 8 - actual value pool 8	int16_t	R	reserved
0x0887	2183	Channel 8 - control variable pool 8	int16_t	R	reserved
0x0888	2184	Channel 9 - actual value pool 8	int16_t	R	reserved
0x0889	2185	Channel 9 - control variable pool 8	int16_t	R	reserved
0x088A	2186	Channel 10 - actual value pool 8	int16_t	R	reserved
0x088B	2187	Channel 10 - control variable pool 8	int16_t	R	reserved
0x088C	2188	Channel 11 - actual value pool 8	int16_t	R	reserved
0x088D	2189	Channel 11 - control variable pool 8	int16_t	R	reserved
0x088E	2190	Error pool 8 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x088F	2191	Error pool 8 part 2			

4.3.9 Measured values and control variable pool 9

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0890	2192	Actual pH value pool 9	int16_t	R	Current pH value channel 1 pool 9
0x0891	2193	pH control variable pool 9	int16_t	R	Current pH control variable channel 1 pool 9
0x0892	2194	Actual ORP value pool 9	int16_t	R	Current ORP actual value channel 2 pool 9
0x0893	2195	ORP control variable pool 9	int16_t	R	Current ORP control variable channel 2 pool 9
0x0894	2196	Temperature actual value pool 9	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 9
0x0895	2197	Temperature control variable pool 9	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 9
0x0896	2198	Free Cl - actual value pool 9	int16_t	R	Free chlorine actual value channel 4 pool 9
0x0897	2199	Free Cl - control variable pool 9	int16_t	R	Free chlorine control variable channel 4 pool 9
0x0898	2200	Total Cl - actual value pool 9	int16_t	R	Total chlorine actual value channel 5 pool 9
0x0899	2201	Total Cl - Control variable pool 9	int16_t	R	Total chlorine control variable channel 5 pool 9
0x089A	2202	Combined Cl - actual value pool 9	int16_t	R	Combined chlorine actual value channel 6 pool 9
0x089B	2203	Combined Cl - control variable pool 9	int16_t	R	Combined chlorine control variable channel 6 pool 9
0x089C	2204	Temp. free Cl - actual value pool 9	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 9
0x089D	2205	Temp. free Cl - control variable pool 9	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 9
0x089E	2206	Channel 8 - actual value pool 9	int16_t	R	reserved
0x089F	2207	Channel 8 - control variable pool 9	int16_t	R	reserved
0x08A0	2208	Channel 9 - actual value pool 9	int16_t	R	reserved
0x08A1	2209	Channel 9 - control variable pool 9	int16_t	R	reserved
0x08A2	2210	Channel 10 - actual value pool 9	int16_t	R	reserved
0x08A3	2211	Channel 10 - control variable pool 9	int16_t	R	reserved
0x08A4	2212	Channel 11 - actual value pool 9	int16_t	R	reserved
0x08A5	2213	Channel 11 - control variable pool 9	int16_t	R	reserved
0x08A6	2214	Error pool 9 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x08A7	2215	Error pool 9 part 2			

4.3.10 Measured values and control variable pool 10

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x08A8	2216	Actual pH value pool 10	int16_t	R	Current pH value channel 1 pool 10
0x08A9	2217	pH control variable pool 10	int16_t	R	Current pH control variable channel 1 pool 10
0x08AA	2218	Actual ORP value pool 10	int16_t	R	Current ORP actual value channel 2 pool 10
0x08AB	2219	ORP control variable pool 10	int16_t	R	Current ORP control variable channel 2 pool 10
0x08AC	2220	Temperature actual value pool 10	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 10
0x08AD	2221	Temperature control variable pool 10	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 10
0x08AE	2222	Free Cl - actual value pool 10	int16_t	R	Free chlorine actual value channel 4 pool 10
0x08AF	2223	Free Cl - control variable pool 10	int16_t	R	Free chlorine control variable channel 4 pool 10
0x08B0	2224	Total Cl - actual value pool 10	int16_t	R	Total chlorine actual value channel 5 pool 10
0x08B1	2225	Total Cl - Control variable pool 10	int16_t	R	Total chlorine control variable channel 5 pool 10
0x08B2	2226	Combined Cl - actual value pool 10	int16_t	R	Combined chlorine actual value channel 6 pool 10
0x08B3	2227	Combined Cl - control variable pool 10	int16_t	R	Combined chlorine control variable channel 6 pool 10
0x08B4	2228	Temp. free Cl - actual value pool 10	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 10
0x08B5	2229	Temp. free Cl - control variable pool 10	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 10
0x08B6	2230	Channel 8 - actual value pool 10	int16_t	R	reserved
0x08B7	2231	Channel 8 - control variable pool 10	int16_t	R	reserved
0x08B8	2232	Channel 9 - actual value pool 10	int16_t	R	reserved
0x08B9	2233	Channel 9 - control variable pool 10	int16_t	R	reserved
0x08BA	2234	Channel 10 - actual value pool 10	int16_t	R	reserved
0x08BB	2235	Channel 10 - control variable pool 10	int16_t	R	reserved
0x08BC	2236	Channel 11 - actual value pool 10	int16_t	R	reserved
0x08BD	2237	Channel 11 - control variable pool 10	int16_t	R	reserved
0x08BE	2238	Error pool 10 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x08BF	2239	Error pool 10 part 2			

4.3.11 Measured values and control variable pool 11

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x08C0	2240	Actual pH value pool 11	int16_t	R	Current pH value channel 1 pool 11
0x08C1	2241	pH control variable pool 11	int16_t	R	Current pH control variable channel 1 pool 11
0x08C2	2242	Actual ORP value pool 11	int16_t	R	Current ORP actual value channel 2 pool 11
0x08C3	2243	ORP control variable pool 11	int16_t	R	Current ORP control variable channel 2 pool 11
0x08C4	2244	Temperature actual value pool 11	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 11
0x08C5	2245	Temperature control variable pool 11	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 11
0x08C6	2246	Free Cl - actual value pool 11	int16_t	R	Free chlorine actual value channel 4 pool 11
0x08C7	2247	Free Cl - control variable pool 11	int16_t	R	Free chlorine control variable channel 4 pool 11
0x08C8	2248	Total Cl - actual value pool 11	int16_t	R	Total chlorine actual value channel 5 pool 11
0x08C9	2249	Total Cl - Control variable pool 11	int16_t	R	Total chlorine control variable channel 5 pool 11
0x08CA	2250	Combined Cl - actual value pool 11	int16_t	R	Combined chlorine actual value channel 6 pool 11
0x08CB	2251	Combined Cl - control variable pool 11	int16_t	R	Combined chlorine control variable channel 6 pool 11
0x08CC	2252	Temp. free Cl - actual value pool 11	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 11
0x08CD	2253	Temp. free Cl - control variable pool 11	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 11
0x08CE	2254	Channel 8 - actual value pool 11	int16_t	R	reserved
0x08CF	2255	Channel 8 - control variable pool 11	int16_t	R	reserved
0x08D0	2256	Channel 9 - actual value pool 11	int16_t	R	reserved
0x08D1	2257	Channel 9 - control variable pool 11	int16_t	R	reserved
0x08D2	2258	Channel 10 - actual value pool 11	int16_t	R	reserved
0x08D3	2259	Channel 10 - control variable pool 11	int16_t	R	reserved
0x08D4	2260	Channel 11 - actual value pool 11	int16_t	R	reserved
0x08D5	2261	Channel 11 - control variable pool 11	int16_t	R	reserved
0x08D6	2262	Error pool 11 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x08D7	2263	Error pool 11 part 2			

4.3.12 Measured values and control variable pool 12

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x08D8	2264	Actual pH value pool 12	int16_t	R	Current pH value channel 1 pool 12
0x08D9	2265	pH control variable pool 12	int16_t	R	Current pH control variable channel 1 pool 12
0x08DA	2266	Actual ORP value pool 12	int16_t	R	Current ORP actual value channel 2 pool 12
0x08DB	2267	ORP control variable pool 12	int16_t	R	Current ORP control variable channel 2 pool 12
0x08DC	2268	Temperature actual value pool 12	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 12
0x08DD	2269	Temperature control variable pool 12	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 12
0x08DE	2270	Free Cl - actual value pool 12	int16_t	R	Free chlorine actual value channel 4 pool 12
0x08DF	2271	Free Cl - control variable pool 12	int16_t	R	Free chlorine control variable channel 4 pool 12
0x08E0	2272	Total Cl - actual value pool 12	int16_t	R	Total chlorine actual value channel 5 pool 12
0x08E1	2273	Total Cl - Control variable pool 12	int16_t	R	Total chlorine control variable channel 5 pool 12
0x08E2	2274	Combined Cl - actual value pool 12	int16_t	R	Combined chlorine actual value channel 6 pool 12
0x08E3	2275	Combined Cl - control variable pool 12	int16_t	R	Combined chlorine control variable channel 6 pool 12
0x08E4	2276	Temp. free Cl - actual value pool 12	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 12
0x08E5	2277	Temp. free Cl - control variable pool 12	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 12
0x08E6	2278	Channel 8 - actual value pool 12	int16_t	R	reserved
0x08E7	2279	Channel 8 - control variable pool 12	int16_t	R	reserved
0x08E8	2280	Channel 9 - actual value pool 12	int16_t	R	reserved
0x08E9	2281	Channel 9 - control variable pool 12	int16_t	R	reserved
0x08EA	2282	Channel 10 - actual value pool 12	int16_t	R	reserved
0x08EB	2283	Channel 10 - control variable pool 12	int16_t	R	reserved
0x08EC	2284	Channel 11 - actual value pool 12	int16_t	R	reserved
0x08ED	2285	Channel 11 - control variable pool 12	int16_t	R	reserved
0x08EE	2286	Error pool 12 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x08EF	2287	Error pool 12 part 2			

4.3.13 Measured values and control variable pool 13

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x08F0	2288	Actual pH value pool 13	int16_t	R	Current pH value channel 1 pool 13
0x08F1	2289	pH control variable pool 13	int16_t	R	Current pH control variable channel 1 pool 13
0x08F2	2290	Actual ORP value pool 13	int16_t	R	Current ORP actual value channel 2 pool 13
0x08F3	2291	ORP control variable pool 13	int16_t	R	Current ORP control variable channel 2 pool 13
0x08F4	2292	Temperature actual value pool 13	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 13
0x08F5	2293	Temperature control variable pool 13	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 13
0x08F6	2294	Free Cl - actual value pool 13	int16_t	R	Free chlorine actual value channel 4 pool 13
0x08F7	2295	Free Cl - control variable pool 13	int16_t	R	Free chlorine control variable channel 4 pool 13
0x08F8	2296	Total Cl - actual value pool 13	int16_t	R	Total chlorine actual value channel 5 pool 13
0x08F9	2297	Total Cl - Control variable pool 13	int16_t	R	Total chlorine control variable channel 5 pool 13
0x08FA	2298	Combined Cl - actual value pool 13	int16_t	R	Combined chlorine actual value channel 6 pool 13
0x08FB	2299	Combined Cl - control variable pool 13	int16_t	R	Combined chlorine control variable channel 6 pool 13
0x08FC	2300	Temp. free Cl - actual value pool 13	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 13
0x08FD	2301	Temp. free Cl - control variable pool 13	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 13
0x08FE	2302	Channel 8 - actual value pool 13	int16_t	R	reserved
0x08FF	2303	Channel 8 - control variable pool 13	int16_t	R	reserved
0x0900	2304	Channel 9 - actual value pool 13	int16_t	R	reserved
0x0901	2305	Channel 9 - control variable pool 13	int16_t	R	reserved
0x0902	2306	Channel 10 - actual value pool 13	int16_t	R	reserved
0x0903	2307	Channel 10 - control variable pool 13	int16_t	R	reserved
0x0904	2308	Channel 11 - actual value pool 13	int16_t	R	reserved
0x0905	2309	Channel 11 - control variable pool 13	int16_t	R	reserved
0x0906	2310	Error pool 13 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x0907	2311	Error pool 13 part 2			

4.3.14 Measured values and control variable pool 14

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0908	2312	Actual pH value pool 14	int16_t	R	Current pH value channel 1 pool 14
0x0909	2313	pH control variable pool 14	int16_t	R	Current pH control variable channel 1 pool 14
0x090A	2314	Actual ORP value pool 14	int16_t	R	Current ORP actual value channel 2 pool 14
0x090B	2315	ORP control variable pool 14	int16_t	R	Current ORP control variable channel 2 pool 14
0x090C	2316	Temperature actual value pool 14	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 14
0x090D	2317	Temperature control variable pool 14	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 14
0x090E	2318	Free Cl - actual value pool 14	int16_t	R	Free chlorine actual value channel 4 pool 14
0x090F	2319	Free Cl - control variable pool 14	int16_t	R	Free chlorine control variable channel 4 pool 14
0x0910	2320	Total Cl - actual value pool 14	int16_t	R	Total chlorine actual value channel 5 pool 14
0x0911	2321	Total Cl - Control variable pool 14	int16_t	R	Total chlorine control variable channel 5 pool 14
0x0912	2322	Combined Cl - actual value pool 14	int16_t	R	Combined chlorine actual value channel 6 pool 14
0x0913	2323	Combined Cl - control variable pool 14	int16_t	R	Combined chlorine control variable channel 6 pool 14
0x0914	2324	Temp. free Cl - actual value pool 14	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 14
0x0915	2325	Temp. free Cl - control variable pool 14	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 14
0x0916	2326	Channel 8 - actual value pool 14	int16_t	R	reserved
0x0917	2327	Channel 8 - control variable pool 14	int16_t	R	reserved
0x0918	2328	Channel 9 - actual value pool 14	int16_t	R	reserved
0x0919	2329	Channel 9 - control variable pool 14	int16_t	R	reserved
0x091A	2330	Channel 10 - actual value pool 14	int16_t	R	reserved
0x091B	2331	Channel 10 - control variable pool 14	int16_t	R	reserved
0x091C	2332	Channel 11 - actual value pool 14	int16_t	R	reserved
0x091D	2333	Channel 11 - control variable pool 14	int16_t	R	reserved
0x091E	2334	Error pool 14 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x091F	2335	Error pool 14 part 2			

4.3.15 Measured values and control variable pool 15

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0920	2336	Actual pH value pool 15	int16_t	R	Current pH value channel 1 pool 15
0x0921	2337	pH control variable pool 15	int16_t	R	Current pH control variable channel 1 pool 15
0x0922	2338	Actual ORP value pool 15	int16_t	R	Current ORP actual value channel 2 pool 15
0x0923	2339	ORP control variable pool 15	int16_t	R	Current ORP control variable channel 2 pool 15
0x0924	2340	Temperature actual value pool 15	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 15
0x0925	2341	Temperature control variable pool 15	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 15
0x0926	2342	Free Cl - actual value pool 15	int16_t	R	Free chlorine actual value channel 4 pool 15
0x0927	2343	Free Cl - control variable pool 15	int16_t	R	Free chlorine control variable channel 4 pool 15
0x0928	2344	Total Cl - actual value pool 15	int16_t	R	Total chlorine actual value channel 5 pool 15
0x0929	2345	Total Cl - Control variable pool 15	int16_t	R	Total chlorine control variable channel 5 pool 15
0x092A	2346	Combined Cl - actual value pool 15	int16_t	R	Combined chlorine actual value channel 6 pool 15
0x092B	2347	Combined Cl - control variable pool 15	int16_t	R	Combined chlorine control variable channel 6 pool 15
0x092C	2348	Temp. free Cl - actual value pool 15	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 15
0x092D	2349	Temp. free Cl - control variable pool 15	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 15
0x092E	2350	Channel 8 - actual value pool 15	int16_t	R	reserved
0x092F	2351	Channel 8 - control variable pool 15	int16_t	R	reserved
0x0930	2352	Channel 9 - actual value pool 15	int16_t	R	reserved
0x0931	2353	Channel 9 - control variable pool 15	int16_t	R	reserved
0x0932	2354	Channel 10 - actual value pool 15	int16_t	R	reserved
0x0933	2355	Channel 10 - control variable pool 15	int16_t	R	reserved
0x0934	2356	Channel 11 - actual value pool 15	int16_t	R	reserved
0x0935	2357	Channel 11 - control variable pool 15	int16_t	R	reserved
0x0936	2358	Error pool 15 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x0937	2359	Error pool 15 part 2			

4.3.16 Measured values and control variable pool 16

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0938	2360	Actual pH value pool 16	int16_t	R	Current pH value channel 1 pool 16
0x0939	2361	pH control variable pool 16	int16_t	R	Current pH control variable channel 1 pool 16
0x093A	2362	Actual ORP value pool 16	int16_t	R	Current ORP actual value channel 2 pool 16
0x093B	2363	ORP control variable pool 16	int16_t	R	Current ORP control variable channel 2 pool 16
0x093C	2364	Temperature actual value pool 16	int16_t	R	Current temperature of resistance thermometer channel 3 actual value pool 16
0x093D	2365	Temperature control variable pool 16	int16_t	R	Current temperature of resistance thermometer setpoint channel 3 pool 16
0x093E	2366	Free Cl - actual value pool 16	int16_t	R	Free chlorine actual value channel 4 pool 16
0x093F	2367	Free Cl - control variable pool 16	int16_t	R	Free chlorine control variable channel 4 pool 16
0x0940	2368	Total Cl - actual value pool 16	int16_t	R	Total chlorine actual value channel 5 pool 16
0x0941	2369	Total Cl - Control variable pool 16	int16_t	R	Total chlorine control variable channel 5 pool 16
0x0942	2370	Combined Cl - actual value pool 16	int16_t	R	Combined chlorine actual value channel 6 pool 16
0x0943	2371	Combined Cl - control variable pool 16	int16_t	R	Combined chlorine control variable channel 6 pool 16
0x0944	2372	Temp. free Cl - actual value pool 16	int16_t	R	Temperature of chlorine sensor actual value channel 6 pool 16
0x0945	2373	Temp. free Cl - control variable pool 16	int16_t	R	Temperature of chlorine sensor control variable channel 6 pool 16
0x0946	2374	Channel 8 - actual value pool 16	int16_t	R	reserved
0x0947	2375	Channel 8 - control variable pool 16	int16_t	R	reserved
0x0948	2376	Channel 9 - actual value pool 16	int16_t	R	reserved
0x0949	2377	Channel 9 - control variable pool 16	int16_t	R	reserved
0x094A	2378	Channel 10 - actual value pool 16	int16_t	R	reserved
0x094B	2379	Channel 10 - control variable pool 16	int16_t	R	reserved
0x094C	2380	Channel 11 - actual value pool 16	int16_t	R	reserved
0x094D	2381	Channel 11 - control variable pool 16	int16_t	R	reserved
0x094E	2382	Error pool 16 part 1	uint32_t	R	Error messages are coded as a 32-bit field.
0x094F	2383	Error pool 16 part 2			

4.4 Error register for pools 1– 16 bit-coded

The errors are bit-coded and are contained in a 32-bit coded register at the end of each pool. The bit information is as follows:

Bit	Meaning: Error in pool X	Hex error code	Meaning
0	pH actual value channel 1 bit: 0	= 0x00000001	pH measured value invalid
1	pH actual value channel 1 bit: 1	= 0x00000002	pH measured value min.
2	pH actual value channel 1 bit: 2	= 0x00000004	pH measured value max.
3	ORP actual value bit: 3	= 0x00000008	Measured value invalid
4	ORP actual value bit: 4	= 0x00000010	Measured value min.
5	ORP actual value bit: 5	= 0x00000020	Measured value max.
6	Temp. actual value Pt1000 bit: 6	= 0x00000040	Measured value invalid
7	Temp. actual value Pt1000 bit: 7	= 0x00000080	Measured value min.
8	Temp. actual value Pt1000 bit: 8	= 0x00000100	Measured value max.
9	Free Cl actual value bit: 9	= 0x00000200	Measured value invalid
10	Free Cl actual value bit: 10	= 0x00000400	Measured value min.
11	Free Cl actual value bit: 11	= 0x00000800	Measured value max.
12	Total Cl actual value bit: 12	= 0x00001000	Measured value invalid
13	Total Cl actual value bit: 13	= 0x00002000	Measured value min.
14	Total Cl actual value bit: 14	= 0x00004000	Measured value max.
15	Combined Cl actual value bit: 15	= 0x00008000	Measured value invalid
15	Combined Cl actual value bit: 16	= 0x00010000	Measured value min.
17	Combined Cl actual value bit: 17	= 0x00020000	Measured value max.
18	Temp. free Cl actual value bit: 18	= 0x00040000	Measured value invalid
19	Temp. free Cl actual value bit: 19	= 0x00080000	Measured value min.
20	Temp. free Cl actual value bit: 20	= 0x00100000	Measured value max.
21	Sample water bit 21	= 0x00200000	Sample water error active
22	Free bit: 22	= 0x00400000	Reserved
23	Free bit: 23	= 0x00800000	Reserved
24	Free bit: 24	= 0x01000000	Reserved
25	Free bit: 25	= 0x02000000	Reserved
26	Free bit: 26	= 0x04000000	Reserved
27	DXMaR module bit: 27	= 0x08000000	Control valve not ready (chlorine gas metering)
28	Metering pump DP1 bit: 28	= 0x10000000	Metering pump error active
29	Metering pump DP2 bit: 29	= 0x20000000	Metering pump error active
30	Metering pump DP3 bit: 30	= 0x40000000	Metering pump error active
31	Metering pump DP4 bit: 31	= 0x80000000	Metering pump error active
All	No faults or errors	= 0x00000000	

4.5 Status register for pools 1 -16

The status register for pools 1 to 16 is coded as a bit field. Bit 0 is therefore the status of pool 1 and bit 1 is the status of pool 2 etc. Bit 15 contains the status for pool 16.

Bit 0 – Bit 15:

- Active = 1
- Inactive = 0

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0950	2384	ECO status pool 1 to 16	int16_t	R	ECO active in pool X
0x0951	2385	Pause status pool 1 to 16	int16_t	R	Pause active in pool X
0x0952	2386	Superchlorination status	int16_t	R	Superchlorination active in pool X
0x0953	2387	Sample water status	int16_t	R	Sample water error active in pool X
0x0954	2388	StartStop status	int16_t	R	Pool X start active
0x0955	2389	cNet status	int16_t	R	Pool X In cNet active

4.6 Register according to measured values

The pool_cNet status needs to be checked before the measured values of the pools can be used. To verify the validity of the data. New measured values are updated every 5 - 15 seconds with an extended 16-pool system.

The pool cNet status means:

- 0 = Pool not available on cNet
- 1 = Pool active on cNet

A master or a PLC or PC must constantly monitor this value. The measured values are not valid in the event that the pool is not available (value = 0) and max. 30 seconds (hysteresis) has elapsed. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.1 Pool number register

PDU Address (hex.)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1388	5000	Pool number 1	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1389	5001	Pool number 2	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138A	5002	Pool number 3	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138B	5003	Pool number 4	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138C	5004	Pool number 5	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138D	5005	Pool number 6	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138E	5006	Pool number 7	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x138F	5007	Pool number 8	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1390	5008	Pool number 9	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1391	5009	Pool number 10	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1392	5010	Pool number 11	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1393	5011	Pool number 12	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1394	5012	Pool number 13	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1395	5013	Pool number 14	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1396	5014	Pool number 15	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools
0x1397	5015	Pool number 16	UINT8	R	0 = not assigned to a pool. assigned to > 0 pools

The pool number is assigned to a pool in the cNet network and can have the value range of 0 to 16. The assignment of the pool numbers corresponds to the expected order of the pools: pool number 1 has the value 1 when a pool in the cNet network is assigned to it or if a local pool is connected to the global unit. If the register of pool number 12 contains the value 0, then no pool in the cNet network is assigned to pool 12. Configuration is possible using the > System Setting > cNet – configuration menu.

4.6.2 cNet status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1398	5016	Pool 1 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x1399	5017	Pool 2 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139A	5018	Pool 3 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139B	5019	Pool 4 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139C	5020	Pool 5 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139D	5021	Pool 6 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139E	5022	Pool 7 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x139F	5023	Pool 8 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A0	5024	Pool 9 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A1	5025	Pool 10 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A2	5026	Pool 11 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A3	5027	Pool 12 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A4	5028	Pool 13 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A5	5029	Pool 14 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A6	5030	Pool 15 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet
0x13A7	5031	Pool 16 cNet status	UINT8	R	0 = Pool available in the cNet, 1 = Pool not available in the cNet

The pool's cNet status means that a pool is connected via cNet. For this to be the case, there needs to be a value range of 0 – 1 for the Pools 1 – 16 register. It is necessary because the local unit can generate connection errors via cNet. A UINT8, which fits into 1 Modbus register, is used here as the data type.

The pool cNet status means:

- 0 = Pool not available on cNet
- 1 = Pool active on cNet

If a pool with pool number 3 is connected, then the Pool 3 register cNet status should contain the value 1.

4.6.3 Pool name - Register

PDU address (hex)	Register (decimal)	Parameter name (max. 20 characters)	Format	Access R = Read	Information
0x13A8	5032	Pool name 1	STRING[20]	R	Current pool name
0x13B2	5042	Pool name 2	STRING[20]	R	Current pool name
0x13BC	5052	Pool name 3	STRING[20]	R	Current pool name
0x13C6	5062	Pool name 4	STRING[20]	R	Current pool name
0x13D0	5072	Pool name 5	STRING[20]	R	Current pool name
0x13DA	5082	Pool name 6	STRING[20]	R	Current pool name
0x13E4	5092	Pool name 7	STRING[20]	R	Current pool name
0x13EE	5102	Pool name 8	STRING[20]	R	Current pool name
0x13F8	5112	Pool name 9	STRING[20]	R	Current pool name
0x1402	5122	Pool name 10	STRING[20]	R	Current pool name
0x140C	5132	Pool name 11	STRING[20]	R	Current pool name
0x1416	5142	Pool name 12	STRING[20]	R	Current pool name
0x1420	5152	Pool name 13	STRING[20]	R	Current pool name
0x142A	5162	Pool name 14	STRING[20]	R	Current pool name
0x1434	5172	Pool name 15	STRING[20]	R	Current pool name
0x143E	5182	Pool name 16	STRING[20]	R	Current pool name

The pool name is transmitted as an ASCII string with a maximum of 20 characters. 16 bits are available as 1 Modbus register for each character. 10 Modbus registers are used for a string with 20 characters.

4.6.4 pH actual value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D0	2000	Actual pH value pool 1	INT16	R	0.00 - 14.00 unit: pH
0x07E8	2024	Actual pH value pool 2	INT16	R	0.00 - 14.00 unit: pH
0x0800	2048	Actual pH value pool 3	INT16	R	0.00 - 14.00 unit: pH
0x0818	2072	Actual pH value pool 4	INT16	R	0.00 - 14.00 unit: pH
0x0830	2096	Actual pH value pool 5	INT16	R	0.00 - 14.00 unit: pH
0x0848	2120	Actual pH value pool 6	INT16	R	0.00 - 14.00 unit: pH
0x0860	2144	Actual pH value pool 7	INT16	R	0.00 - 14.00 unit: pH
0x0878	2168	Actual pH value pool 8	INT16	R	0.00 - 14.00 unit: pH
0x0890	2192	Actual pH value pool 9	INT16	R	0.00 - 14.00 unit: pH
0x08A8	2216	Actual pH value pool 10	INT16	R	0.00 - 14.00 unit: pH
0x08C0	2240	Actual pH value pool 11	INT16	R	0.00 - 14.00 unit: pH
0x08D8	2264	Actual pH value pool 12	INT16	R	0.00 - 14.00 unit: pH
0x08F0	2288	Actual pH value pool 13	INT16	R	0.00 - 14.00 unit: pH
0x0908	2312	Actual pH value pool 14	INT16	R	0.00 - 14.00 unit: pH
0x0920	2336	Actual pH value pool 15	INT16	R	0.00 - 14.00 unit: pH
0x0938	2360	Actual pH value pool 16	INT16	R	0.00 - 14.00 unit: pH

The pH actual value is valid for each pool and represents the currently measured pH value of the respective pool. The pH measured value can be read between 0.00 and 14.00 from the Dulcomarin 3.

The value range can be

- 0 – 1400 = measured value with 2 decimal points
- e.g.: Register value is 725 = 7.25 pH

The decimal points are automatically generated by the device in the display. 7.20 pH should be displayed as an example. The value 720 is transmitted via the Modbus-RTU.

The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.5 pH control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D1	2001	pH control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07E9	2025	pH control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x0801	2049	pH control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x0819	2073	pH control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x0831	2097	pH control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x0849	2121	pH control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x0861	2145	pH control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x0879	2169	pH control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x0891	2193	pH control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08A9	2217	pH control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08C1	2241	pH control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08D9	2265	pH control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08F1	2289	pH control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x0909	2313	pH control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x0921	2337	pH control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x0939	2361	pH control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The pH control variable is valid for each pool and gives the control variable entered as a percentage. The respective control range can be read off between -100% and +100% from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- - e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the setpoint 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.6 ORP actual value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D2	2002	Actual ORP value pool 1	INT16	R	0 - 1200 unit: mV
0x07EA	2026	Actual ORP value pool 2	INT16	R	0 - 1200 unit: mV
0x0802	2050	Actual ORP value pool 3	INT16	R	0 - 1200 unit: mV
0x081A	2074	Actual ORP value pool 4	INT16	R	0 - 1200 unit: mV
0x0832	2098	Actual ORP value pool 5	INT16	R	0 - 1200 unit: mV
0x084A	2122	Actual ORP value pool 6	INT16	R	0 - 1200 unit: mV
0x0862	2146	Actual ORP value pool 7	INT16	R	0 - 1200 unit: mV
0x087A	2170	Actual ORP value pool 8	INT16	R	0 - 1200 unit: mV
0x0892	2194	Actual ORP value pool 9	INT16	R	0 - 1200 unit: mV
0x08AA	2218	Actual ORP value pool 10	INT16	R	0 - 1200 unit: mV
0x08C2	2242	Actual ORP value pool 11	INT16	R	0 - 1200 unit: mV
0x08DA	2266	Actual ORP value pool 12	INT16	R	0 - 1200 unit: mV
0x08F2	2290	Actual ORP value pool 13	INT16	R	0 - 1200 unit: mV
0x090A	2314	Actual ORP value pool 14	INT16	R	0 - 1200 unit: mV
0x0922	2338	Actual ORP value pool 15	INT16	R	0 - 1200 unit: mV
0x093A	2362	Actual ORP value pool 16	INT16	R	0 - 1200 unit: mV

The actual ORP value is valid for each pool and gives the ORP value measured in mV. The respective control range can be read off between 0 – 1200 mV from the Dulcomarin 3.

The value range used:

- 0 – 1200 = measured value with 0 decimal point
- e.g.: Register value is 745 = 745 mV

By way of example, the actual value of 1022 mV is transmitted via Modbus-RTU with the integer 1022. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.7 ORP control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D3	2003	ORP control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07EB	2027	ORP control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x0803	2051	ORP control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x081B	2075	ORP control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x0833	2099	ORP control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x084B	2123	ORP control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x0863	2147	ORP control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x087B	2171	ORP control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x0893	2195	ORP control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08AB	2219	ORP control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08C3	2243	ORP control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08DB	2267	ORP control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08F3	2291	ORP control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x090B	2315	ORP control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x0923	2339	ORP control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x093B	2363	ORP control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The ORP control variable is valid for each pool and gives the control variable entered as a percentage. The respective control range can be read off between -100 % and +100 % from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.8 Actual resistance thermometer value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D4	2004	Actual resistance thermometer value pool 1	INT16	R	-10.0 – 140.0 unit: °C
0x07EC	2028	Actual resistance thermometer value pool 2	INT16	R	-10.0 – 140.0 unit: °C
0x0804	2052	Actual resistance thermometer value pool 3	INT16	R	-10.0 – 140.0 unit: °C
0x081C	2076	Actual resistance thermometer value pool 4	INT16	R	-10.0 – 140.0 unit: °C
0x0834	2100	Actual resistance thermometer value pool 5	INT16	R	-10.0 – 140.0 unit: °C
0x084C	2124	Actual resistance thermometer value pool 6	INT16	R	-10.0 – 140.0 unit: °C
0x0864	2148	Actual resistance thermometer value pool 7	INT16	R	-10.0 – 140.0 unit: °C
0x087C	2172	Actual resistance thermometer value pool 8	INT16	R	-10.0 – 140.0 unit: °C
0x0894	2196	Actual resistance thermometer value pool 9	INT16	R	-10.0 – 140.0 unit: °C
0x08AC	2220	Actual resistance thermometer value pool 10	INT16	R	-10.0 – 140.0 unit: °C
0x08C4	2244	Actual resistance thermometer value pool 11	INT16	R	-10.0 – 140.0 unit: °C
0x08DC	2268	Actual resistance thermometer value pool 12	INT16	R	-10.0 – 140.0 unit: °C
0x08F4	2292	Actual resistance thermometer value pool 13	INT16	R	-10.0 – 140.0 unit: °C
0x090C	2316	Actual resistance thermometer value pool 14	INT16	R	-10.0 – 140.0 unit: °C
0x0924	2340	Actual resistance thermometer value pool 15	INT16	R	-10.0 – 140.0 unit: °C
0x093C	2364	Actual resistance thermometer value pool 16	INT16	R	-10.0 – 140.0 unit: °C

The resistance thermometer measured value is valid for each pool and gives the current measured value as an actual value. The respective control range can be read off between -10 °C and +140 °C from the Dulcomarin 3.

The value range used:

- -100 ... +1400 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5 °C

The decimal points are automatically generated by the device in the display. By way of example, the actual value of 35.3 °C is transmitted via Modbus-RTU with the value 353. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.9 Resistance thermometer control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D5	2005	Resistance thermometer control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07ED	2029	Resistance thermometer control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x0805	2053	Resistance thermometer control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x081D	2077	Resistance thermometer control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x0835	2101	Resistance thermometer control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x084D	2125	Resistance thermometer control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x0865	2149	Resistance thermometer control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x087D	2173	Resistance thermometer control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x0895	2197	Resistance thermometer control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08AD	2221	Resistance thermometer control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08C5	2245	Resistance thermometer control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08DD	2269	Resistance thermometer control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08F5	2293	Resistance thermometer control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x090D	2317	Resistance thermometer control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x0925	2341	Resistance thermometer control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x093D	2365	Resistance thermometer control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The temperature of a resistance thermometer can be used as a control variable given as a percentage. The respective control range can be read off between -100% and +100% from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.10 Actual chlorine sensor temperature value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07DC	2012	Actual chlorine sensor temperature value pool 1	INT16	R	-10.0 – 140.0 unit: °C
0x07F4	2036	Actual chlorine sensor temperature value pool 2	INT16	R	-10.0 – 140.0 unit: °C
0x080C	2060	Actual chlorine sensor temperature value pool 3	INT16	R	-10.0 – 140.0 unit: °C
0x0824	2084	Actual chlorine sensor temperature value pool 4	INT16	R	-10.0 – 140.0 unit: °C
0x083C	2108	Actual chlorine sensor temperature value pool 5	INT16	R	-10.0 – 140.0 unit: °C
0x0854	2132	Actual chlorine sensor temperature value pool 6	INT16	R	-10.0 – 140.0 unit: °C
0x086C	2156	Actual chlorine sensor temperature value pool 7	INT16	R	-10.0 – 140.0 unit: °C
0x0884	2180	Actual chlorine sensor temperature value pool 8	INT16	R	-10.0 – 140.0 unit: °C
0x089C	2204	Actual chlorine sensor temperature value pool 9	INT16	R	-10.0 – 140.0 unit: °C
0x08B4	2228	Actual chlorine sensor temperature value pool 10	INT16	R	-10.0 – 140.0 unit: °C
0x08CC	2252	Actual chlorine sensor temperature value pool 11	INT16	R	-10.0 – 140.0 unit: °C
0x08E4	2276	Actual chlorine sensor temperature value pool 12	INT16	R	-10.0 – 140.0 unit: °C
0x08FC	2300	Actual chlorine sensor temperature value pool 13	INT16	R	-10.0 – 140.0 unit: °C
0x0914	2324	Actual chlorine sensor temperature value pool 14	INT16	R	-10.0 – 140.0 unit: °C
0x092C	2348	Actual chlorine sensor temperature value pool 15	INT16	R	-10.0 – 140.0 unit: °C
0x0944	2372	Actual chlorine sensor temperature value pool 16	INT16	R	-10.0 – 140.0 unit: °C

The temperature of the chlorine sensor can be read as a measured value from the Dulcomarin 3. The control range lies between -10.0 and -140.0.

The value range used:

- -100 ... +1400 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5 °C

The decimal points are automatically generated by the device in the display. By way of example, the actual value of 35.3 °C is transmitted via Modbus-RTU with the value 353. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.11 Chlorine sensor temperature control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07DD	2013	Temperature of chlorine sensor control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07F5	2037	Temperature of chlorine sensor control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x080D	2061	Temperature of chlorine sensor control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x0825	2085	Temperature of chlorine sensor control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x083D	2109	Temperature of chlorine sensor control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x0855	2133	Temperature of chlorine sensor control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x086D	2157	Temperature of chlorine sensor control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x0885	2181	Temperature of chlorine sensor control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x089D	2205	Temperature of chlorine sensor control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08B5	2229	Temperature of chlorine sensor control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08CD	2253	Temperature of chlorine sensor control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08E5	2277	Temperature of chlorine sensor control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08FD	2301	Temperature of chlorine sensor control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x0915	2325	Temperature of chlorine sensor control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x092D	2349	Temperature of chlorine sensor control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x0945	2373	Temperature of chlorine sensor control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The temperature of the chlorine sensor can be used as a control variable given as a percentage. The respective control range can be read off between -100 % and +100 % from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.12 Actual free chlorine value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D6	2006	Free chlorine actual value pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x07EE	2030	Free chlorine actual value pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x0806	2054	Free chlorine actual value pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x081E	2078	Free chlorine actual value pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x0836	2102	Free chlorine actual value pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x084E	2126	Free chlorine actual value pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x0866	2150	Free chlorine actual value pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x087E	2174	Free chlorine actual value pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x0896	2198	Free chlorine actual value pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x08AE	2222	Free chlorine actual value pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x08C6	2246	Free chlorine actual value pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x08DE	2270	Free chlorine actual value pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x08F6	2294	Free chlorine actual value pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x090E	2318	Free chlorine actual value pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x0926	2342	Free chlorine actual value pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x093E	2366	Free chlorine actual value pool 16	INT16	R	0.00 – 10.00 unit: ppm

The actual value for free chlorine can be read as a measured value from the Dulcomarin 3. The control range lies between 0.00 ppm and 10.00 ppm.

The value range used:

- 0 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 1.45 ppm

The decimal points are automatically generated by the device in the display. By way of example, the actual value of 5.00 ppm is transmitted via Modbus-RTU with the integer 500. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.13 Free chlorine control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D7	2007	Free chlorine control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07EF	2031	Free chlorine control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x0807	2055	Free chlorine control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x081F	2079	Free chlorine control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x0837	2103	Free chlorine control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x084F	2127	Free chlorine control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x0867	2151	Free chlorine control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x087F	2175	Free chlorine control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x0897	2199	Free chlorine control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08AF	2223	Free chlorine control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08C7	2247	Free chlorine control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08DF	2271	Free chlorine control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08F7	2295	Free chlorine control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x090F	2319	Free chlorine control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x0927	2343	Free chlorine control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x093F	2367	Free chlorine control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The control variable for free chlorine is used as a percentage. The respective control range can be read off between -100 % and +100 % from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 – +1000 = measured value with 1 decimal point
- for instance: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.14 Actual total chlorine value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D8	2008	Actual total chlorine value pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x07F0	2032	Actual total chlorine value pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x0808	2056	Actual total chlorine value pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x0820	2080	Actual total chlorine value pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x0838	2104	Actual total chlorine value pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x0850	2128	Actual total chlorine value pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x0868	2152	Actual total chlorine value pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x0880	2176	Actual total chlorine value pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x0898	2200	Actual total chlorine value pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x08B0	2224	Actual total chlorine value pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x08C8	2248	Actual total chlorine value pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x08E0	2272	Actual total chlorine value pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x08F8	2296	Actual total chlorine value pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x0910	2320	Actual total chlorine value pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x0928	2344	Actual total chlorine value pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x0940	2368	Actual total chlorine value pool 16	INT16	R	0.00 – 10.00 unit: ppm

The actual value for total chlorine can be read as a measured value from the Dulcomarin 3. The control range lies between 0.00 ppm and 10.00 ppm.

The value range used:

- 0 – +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 1.45 ppm

The decimal points are automatically generated by the device in the display. By way of example, the actual value of 5.00 ppm is transmitted via Modbus-RTU with the integer 500. The value 0x7FFF is entered for all measured values and control variables if the respective value is notvalid.

4.6.15 Total chlorine control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07D9	2009	Total chlorine control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07F1	2033	Total chlorine control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x0809	2057	Total chlorine control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x0821	2081	Total chlorine control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x0839	2105	Total chlorine control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x0851	2129	Total chlorine control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x0869	2153	Total chlorine control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x0881	2177	Total chlorine control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x0899	2201	Total chlorine control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08B1	2225	Total chlorine control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08C9	2249	Total chlorine control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08E1	2273	Total chlorine control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08F9	2297	Total chlorine control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x0911	2321	Total chlorine control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x0929	2345	Total chlorine control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x0941	2369	Total chlorine control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The control variable for total chlorine is used as a percentage. The respective control range can be read off between -100 % and +100 % from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.16 Actual combined chlorine value register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07DA	2010	Actual combined chlorine value pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x07F2	2034	Actual combined chlorine value pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x080A	2058	Actual combined chlorine value pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x0822	2082	Actual combined chlorine value pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x083A	2106	Actual combined chlorine value pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x0852	2130	Actual combined chlorine value pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x086A	2154	Actual combined chlorine value pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x0882	2178	Actual combined chlorine value pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x089A	2202	Actual combined chlorine value pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x08B2	2226	Actual combined chlorine value pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x08CA	2250	Actual combined chlorine value pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x08E2	2274	Actual combined chlorine value pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x08FA	2298	Actual combined chlorine value pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x0912	2322	Actual combined chlorine value pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x092A	2346	Actual combined chlorine value pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x0942	2370	Actual combined chlorine value pool 16	INT16	R	0.00 – 10.00 unit: ppm

The actual value for combined chlorine can be read as a measured value from the Dulcomarin 3. The control range lies between 0.00 ppm and 10.00 ppm.

The value range used:

- 0 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 1.45 ppm

The decimal points are automatically generated by the device in the display. By way of example, the actual value of 5.00 ppm is transmitted via Modbus-RTU with the integer 500. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.6.17 Combined chlorine control variable register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x07DB	2011	Combined chlorine control variable pool 1	INT16	R	- 100.0 - 100.0 unit: %
0x07F3	2035	Combined chlorine control variable pool 2	INT16	R	- 100.0 - 100.0 unit: %
0x080B	2059	Combined chlorine control variable pool 3	INT16	R	- 100.0 - 100.0 unit: %
0x0823	2083	Combined chlorine control variable pool 4	INT16	R	- 100.0 - 100.0 unit: %
0x083B	2107	Combined chlorine control variable pool 5	INT16	R	- 100.0 - 100.0 unit: %
0x0853	2131	Combined chlorine control variable pool 6	INT16	R	- 100.0 - 100.0 unit: %
0x086B	2155	Combined chlorine control variable pool 7	INT16	R	- 100.0 - 100.0 unit: %
0x0883	2179	Combined chlorine control variable pool 8	INT16	R	- 100.0 - 100.0 unit: %
0x089B	2203	Combined chlorine control variable pool 9	INT16	R	- 100.0 - 100.0 unit: %
0x08B3	2227	Combined chlorine control variable pool 10	INT16	R	- 100.0 - 100.0 unit: %
0x08CB	2251	Combined chlorine control variable pool 11	INT16	R	- 100.0 - 100.0 unit: %
0x08E3	2275	Combined chlorine control variable pool 12	INT16	R	- 100.0 - 100.0 unit: %
0x08FB	2299	Combined chlorine control variable pool 13	INT16	R	- 100.0 - 100.0 unit: %
0x0913	2323	Combined chlorine control variable pool 14	INT16	R	- 100.0 - 100.0 unit: %
0x092B	2347	Combined chlorine control variable pool 15	INT16	R	- 100.0 - 100.0 unit: %
0x0943	2371	Combined chlorine control variable pool 16	INT16	R	- 100.0 - 100.0 unit: %

The control variable for combined chlorine is used as a percentage. The respective control range can be read off between -100 % and +100 % from the Dulcomarin 3. It can therefore be used for raising and lowering systems.

The value range used:

- -1000 ... +1000 = measured value with 1 decimal point
- e.g.: Register value is 145 = 14.5%

The decimal points are automatically generated by the device in the display. By way of example, the control variable of 23.2% is transmitted via Modbus-RTU with the value 232. The value 0x7FFF is entered for all measured values and control variables if the respective value is not valid.

4.7 Setpoint register

Setpoint changes are immediately carried over and permanently saved. The controller will immediately work with the new setpoint. The system restarts with the setpoint following a power outage. The setpoints are only saved if the values are changed to prevent cyclic setpoint telegrams. This mechanism protects the integral flash memory from excessively frequent writing. Writing to a register set does not require additional enabling by the user as Modbus-RTU does not provide a connection to a network. Setpoint can be written into devices and read off. The value 0x7FFF is entered for all setpoint if the respective value is not valid

4.7.1 pH setpoint register

The pH setpoint is valid for each pool and represents the currently set pH value of the respective pool.

It is defined in the following as a write register:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0BB8	3000	pH setpoint channel 1 pool 1	INT16	W	0.00 = 14.00 unit: pH
0x0BB9	3001	Setpoint pH channel 1 setpoint pool 2	INT16	W	0.00 = 14.00 unit: pH
0x0BBA	3002	Setpoint pH channel 1 setpoint pool 3	INT16	W	0.00 = 14.00 unit: pH
0x0BBB	3003	Setpoint pH channel 1 setpoint pool 4	INT16	W	0.00 = 14.00 unit: pH
0x0BBC	3004	Setpoint pH channel 1 setpoint pool 5	INT16	W	0.00 = 14.00 unit: pH
0x0BBD	3005	Setpoint pH channel 1 setpoint pool 6	INT16	W	0.00 = 14.00 unit: pH
0x0BBE	3006	Setpoint pH channel 1 setpoint pool 7	INT16	W	0.00 = 14.00 unit: pH
0x0BBF	3007	Setpoint pH channel 1 setpoint pool 8	INT16	W	0.00 = 14.00 unit: pH
0x0BC0	3008	Setpoint pH channel 1 setpoint pool 9	INT16	W	0.00 = 14.00 unit: pH
0x0BC1	3009	Setpoint pH channel 1 setpoint pool 10	INT16	W	0.00 = 14.00 unit: pH
0x0BC2	3010	Setpoint pH channel 1 setpoint pool 11	INT16	W	0.00 = 14.00 unit: pH
0x0BC3	3011	Setpoint pH channel 1 setpoint pool 12	INT16	W	0.00 = 14.00 unit: pH
0x0BC4	3012	Setpoint pH channel 1 setpoint pool 13	INT16	W	0.00 = 14.00 unit: pH
0x0BC5	3013	Setpoint pH channel 1 setpoint pool 14	INT16	W	0.00 = 14.00 unit: pH
0x0BC6	3014	Setpoint pH channel 1 setpoint pool 15	INT16	W	0.00 = 14.00 unit: pH
0x0BC7	3015	Setpoint pH channel 1 setpoint pool 16	INT16	W	0.00 = 14.00 unit: pH

The pH setpoint can be written between 0.00 and 14.00 in the Dulcomarin 3.

The value range lies between: 0 – 1400 = setpoint with 2 decimal points

The decimal points are automatically generated by the device in the display. By way of example, 7.20 pH should be set as the setpoint. Then the value 720 is transmitted from the master or the PLC or PC by Modbus-RTU.

Tab. 13: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FA0	4000	pH setpoint channel 1 pool 1	INT16	R	0.00 = 14.00 unit: pH
0x0FA1	4001	Setpoint pH channel 1 setpoint pool 2	INT16	R	0.00 = 14.00 unit: pH
0x0FA2	4002	Setpoint pH channel 1 setpoint pool 3	INT16	R	0.00 = 14.00 unit: pH
0x0FA3	4003	Setpoint pH channel 1 setpoint pool 4	INT16	R	0.00 = 14.00 unit: pH
0x0FA4	4004	Setpoint pH channel 1 setpoint pool 5	INT16	R	0.00 = 14.00 unit: pH
0x0FA5	4005	Setpoint pH channel 1 setpoint pool 6	INT16	R	0.00 = 14.00 unit: pH
0x0FA6	4006	Setpoint pH channel 1 setpoint pool 7	INT16	R	0.00 = 14.00 unit: pH
0x0FA7	4007	Setpoint pH channel 1 setpoint pool 8	INT16	R	0.00 = 14.00 unit: pH
0x0FA8	4008	Setpoint pH channel 1 setpoint pool 9	INT16	R	0.00 = 14.00 unit: pH
0x0FA9	4009	Setpoint pH channel 1 setpoint pool 10	INT16	R	0.00 = 14.00 unit: pH
0x0FAA	4010	Setpoint pH channel 1 setpoint pool 11	INT16	R	0.00 = 14.00 unit: pH
0x0FAB	4011	Setpoint pH channel 1 setpoint pool 12	INT16	R	0.00 = 14.00 unit: pH
0x0FAC	4012	Setpoint pH channel 1 setpoint pool 13	INT16	R	0.00 = 14.00 unit: pH
0x0FAD	4013	Setpoint pH channel 1 setpoint pool 14	INT16	R	0.00 = 14.00 unit: pH
0x0FAE	4014	Setpoint pH channel 1 setpoint pool 15	INT16	R	0.00 = 14.00 unit: pH
0x0FAF	4015	Setpoint pH channel 1 setpoint pool 16	INT16	R	0.00 = 14.00 unit: pH

4.7.2 ORP setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0BC8	3016	ORP setpoint channel 2 pool 1	INT16	W	0 – 1200 unit: mV
0x0BC9	3017	ORP setpoint channel 2 pool 2	INT16	W	0 – 1200 unit: mV
0x0BCA	3018	ORP setpoint channel 2 pool 3	INT16	W	0 – 1200 unit: mV
0x0BCB	3019	ORP setpoint channel 2 pool 4	INT16	W	0 – 1200 unit: mV
0x0BCC	3020	ORP setpoint channel 2 pool 5	INT16	W	0 – 1200 unit: mV
0x0BCD	3021	ORP setpoint channel 2 pool 6	INT16	W	0 – 1200 unit: mV
0x0BCE	3022	ORP setpoint channel 2 pool 7	INT16	W	0 – 1200 unit: mV
0x0BCF	3023	ORP setpoint channel 2 pool 8	INT16	W	0 – 1200 unit: mV
0x0BD0	3024	ORP setpoint channel 2 pool 9	INT16	W	0 – 1200 unit: mV
0x0BD1	3025	ORP setpoint channel 2 pool 10	INT16	W	0 – 1200 unit: mV
0x0BD2	3026	ORP setpoint channel 2 pool 11	INT16	W	0 – 1200 unit: mV
0x0BD3	3027	ORP setpoint channel 2 pool 12	INT16	W	0 – 1200 unit: mV
0x0BD4	3028	ORP setpoint channel 2 pool 13	INT16	W	0 – 1200 unit: mV
0x0BD5	3029	ORP setpoint channel 2 pool 14	INT16	W	0 – 1200 unit: mV
0x0BD6	3030	ORP setpoint channel 2 pool 15	INT16	W	0 – 1200 unit: mV
0x0BD7	3031	ORP setpoint channel 2 pool 16	INT16	W	0 – 1200 unit: mV

The ORP setpoint is valid for each pool and represents the ORP value of the respective pool currently set. The ORP setpoint can be written between 0 and 1200 mV in the Dulcomarin 3.

The value range lies between:

- 0 ... 1200 = setpoint without decimal point

By way of example, the setpoint should be 1022 mV and the integer 1022 is transmitted from the master or the PLC or PC by Modbus-RTU.

Tab. 14: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FB0	4016	ORP setpoint channel 2 pool 1	INT16	R	0 – 1200 unit: mV
0x0FB1	4017	ORP setpoint channel 2 pool 2	INT16	R	0 – 1200 unit: mV
0x0FB2	4018	ORP setpoint channel 2 pool 3	INT16	R	0 – 1200 unit: mV
0x0FB3	4019	ORP setpoint channel 2 pool 4	INT16	R	0 – 1200 unit: mV
0x0FB4	4020	ORP setpoint channel 2 pool 5	INT16	R	0 – 1200 unit: mV
0x0FB5	4021	ORP setpoint channel 2 pool 6	INT16	R	0 – 1200 unit: mV
0x0FB6	4022	ORP setpoint channel 2 pool 7	INT16	R	0 – 1200 unit: mV
0x0FB7	4023	ORP setpoint channel 2 pool 8	INT16	R	0 – 1200 unit: mV
0x0FB8	4024	ORP setpoint channel 2 pool 9	INT16	R	0 – 1200 unit: mV
0x0FB9	4025	ORP setpoint channel 2 pool 10	INT16	R	0 – 1200 unit: mV
0x0FBA	4026	ORP setpoint channel 2 pool 11	INT16	R	0 – 1200 unit: mV
0x0FBB	4027	ORP setpoint channel 2 pool 12	INT16	R	0 – 1200 unit: mV
0x0FBC	4028	ORP setpoint channel 2 pool 13	INT16	R	0 – 1200 unit: mV
0x0FBD	4029	ORP setpoint channel 2 pool 14	INT16	R	0 – 1200 unit: mV
0x0FBE	4030	ORP setpoint channel 2 pool 15	INT16	R	0 – 1200 unit: mV
0x0FBF	4031	ORP setpoint channel 2 pool 16	INT16	R	0 – 1200 unit: mV

4.7.3 Temperature setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0BD8	3032	Temperature setpoint Pt1000 channel 3 pool 1	INT16	W	-10.0 – 140.0 unit: °C
0x0BD9	3033	Temperature setpoint Pt1000 channel 3 pool 2	INT16	W	-10.0 – 140.0 unit: °C
0x0BDA	3034	Temperature setpoint Pt1000 channel 3 pool 3	INT16	W	-10.0 – 140.0 unit: °C
0x0BDB	3035	Temperature setpoint Pt1000 channel 3 pool 4	INT16	W	-10.0 – 140.0 unit: °C
0x0BDC	3036	Temperature setpoint Pt1000 channel 3 pool 5	INT16	W	-10.0 – 140.0 unit: °C
0x0BDD	3037	Temperature setpoint Pt1000 channel 3 pool 6	INT16	W	-10.0 – 140.0 unit: °C
0x0BDE	3038	Temperature setpoint Pt1000 channel 3 pool 7	INT16	W	-10.0 – 140.0 unit: °C
0x0BDF	3039	Temperature setpoint Pt1000 channel 3 pool 8	INT16	W	-10.0 – 140.0 unit: °C
0x0BE0	3040	Temperature setpoint Pt1000 channel 3 pool 9	INT16	W	-10.0 – 140.0 unit: °C
0x0BE1	3041	Temperature setpoint Pt1000 channel 3 pool 10	INT16	W	-10.0 – 140.0 unit: °C
0x0BE2	3042	Temperature setpoint Pt1000 channel 3 pool 11	INT16	W	-10.0 – 140.0 unit: °C
0x0BE3	3043	Temperature setpoint Pt1000 channel 3 pool 12	INT16	W	-10.0 – 140.0 unit: °C
0x0BE4	3044	Temperature setpoint Pt1000 channel 3 pool 13	INT16	W	-10.0 – 140.0 unit: °C
0x0BE5	3045	Temperature setpoint Pt1000 channel 3 pool 14	INT16	W	-10.0 – 140.0 unit: °C
0x0BE6	3046	Temperature setpoint Pt1000 channel 3 pool 15	INT16	W	-10.0 – 140.0 unit: °C
0x0BE7	3047	Temperature setpoint Pt1000 channel 3 pool 16	INT16	W	-10.0 – 140.0 unit: °C

The temperature setpoint for the resistance Pt1000 is valid for each pool and gives the resistance temperature setpoint of the respective pool currently set. The resistance temperature setpoint can be written between -10.0 and 140.0 °C in the Dulcomarin 3.

The value range lies between:

- -100 1400 = setpoint with 1 decimal point

By way of example, the setpoint should be 35.3 °C and the integer 353 is transmitted from the master or the PLC or PC by Modbus-RTU.

Tab. 15: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FC0	4032	Temperature setpoint Pt1000 channel 3 pool 1	INT16	R	-10.0 – 140.0 unit: °C
0x0FC1	4033	Temperature setpoint Pt1000 channel 3 pool 2	INT16	R	-10.0 – 140.0 unit: °C
0x0FC2	4034	Temperature setpoint Pt1000 channel 3 pool 3	INT16	R	-10.0 – 140.0 unit: °C
0x0FC3	4035	Temperature setpoint Pt1000 channel 3 pool 4	INT16	R	-10.0 – 140.0 unit: °C
0x0FC4	4036	Temperature setpoint Pt1000 channel 3 pool 5	INT16	R	-10.0 – 140.0 unit: °C
0x0FC5	4037	Temperature setpoint Pt1000 channel 3 pool 6	INT16	R	-10.0 – 140.0 unit: °C
0x0FC6	4038	Temperature setpoint Pt1000 channel 3 pool 7	INT16	R	-10.0 – 140.0 unit: °C
0x0FC7	4039	Temperature setpoint Pt1000 channel 3 pool 8	INT16	R	-10.0 – 140.0 unit: °C
0x0FC8	4040	Temperature setpoint Pt1000 channel 3 pool 9	INT16	R	-10.0 – 140.0 unit: °C
0x0FC9	4041	Temperature setpoint Pt1000 channel 3 pool 10	INT16	R	-10.0 – 140.0 unit: °C
0x0FCA	4042	Temperature setpoint Pt1000 channel 3 pool 11	INT16	R	-10.0 – 140.0 unit: °C
0x0FCB	4043	Temperature setpoint Pt1000 channel 3 pool 12	INT16	R	-10.0 – 140.0 unit: °C
0x0FCC	4044	Temperature setpoint Pt1000 channel 3 pool 13	INT16	R	-10.0 – 140.0 unit: °C
0x0FCD	4045	Temperature setpoint Pt1000 channel 3 pool 14	INT16	R	-10.0 – 140.0 unit: °C
0x0FCE	4046	Temperature setpoint Pt1000 channel 3 pool 15	INT16	R	-10.0 – 140.0 unit: °C
0x0FCF	4047	Temperature setpoint Pt1000 channel 3 pool 16	INT16	R	-10.0 – 140.0 unit: °C

4.7.4 Free chlorine setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0BE8	3048	Free chlorine setpoint channel 4 pool 1	INT16	W	0.00 – 10.00 unit: ppm
0x0BE9	3049	Free chlorine setpoint channel 4 pool 2	INT16	W	0.00 – 10.00 unit: ppm
0x0BEA	3050	Free chlorine setpoint channel 4 pool 3	INT16	W	0.00 – 10.00 unit: ppm
0x0BEB	3051	Free chlorine setpoint channel 4 pool 4	INT16	W	0.00 – 10.00 unit: ppm
0x0BEC	3052	Free chlorine setpoint channel 4 pool 5	INT16	W	0.00 – 10.00 unit: ppm
0x0BED	3053	Free chlorine setpoint channel 4 pool 6	INT16	W	0.00 – 10.00 unit: ppm
0x0BEE	3054	Free chlorine setpoint channel 4 pool 7	INT16	W	0.00 – 10.00 unit: ppm
0x0BEF	3055	Free chlorine setpoint channel 4 pool 8	INT16	W	0.00 – 10.00 unit: ppm
0x0BF0	3056	Free chlorine setpoint channel 4 pool 9	INT16	W	0.00 – 10.00 unit: ppm
0x0BF1	3057	Free chlorine setpoint channel 4 pool 10	INT16	W	0.00 – 10.00 unit: ppm
0x0BF2	3058	Free chlorine setpoint channel 4 pool 11	INT16	W	0.00 – 10.00 unit: ppm
0x0BF3	3059	Free chlorine setpoint channel 4 pool 12	INT16	W	0.00 – 10.00 unit: ppm
0x0BF4	3060	Free chlorine setpoint channel 4 pool 13	INT16	W	0.00 – 10.00 unit: ppm
0x0BF5	3061	Free chlorine setpoint channel 4 pool 14	INT16	W	0.00 – 10.00 unit: ppm
0x0BF6	3062	Free chlorine setpoint channel 4 pool 15	INT16	W	0.00 – 10.00 unit: ppm
0x0BF7	3063	Free chlorine setpoint channel 4 pool 16	INT16	W	0.00 – 10.00 unit: ppm

The setpoint for free chlorine is valid for each pool and gives the ppm setpoint of the respective pool currently set. The setpoint for free chlorine can be written between 0.00 and 10.00 ppm in the Dulcomarin 3. :

The value range lies between

- 0 – 1000 = setpoint with 2 decimal points

By way of example, the setpoint should be 5.35 ppm and the integer 535 is then transmitted from the master to the PLC or PC by Modbus-RTU.

Tab. 16: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FD0	4048	Free chlorine setpoint channel 4 pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x0FD1	4049	Free chlorine setpoint channel 4 pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x0FD2	4050	Free chlorine setpoint channel 4 pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x0FD3	4051	Free chlorine setpoint channel 4 pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x0FD4	4052	Free chlorine setpoint channel 4 pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x0FD5	4053	Free chlorine setpoint channel 4 pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x0FD6	4054	Free chlorine setpoint channel 4 pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x0FD7	4055	Free chlorine setpoint channel 4 pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x0FD8	4056	Free chlorine setpoint channel 4 pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x0FD9	4057	Free chlorine setpoint channel 4 pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x0FDA	4058	Free chlorine setpoint channel 4 pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x0FDB	4059	Free chlorine setpoint channel 4 pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x0FDC	4060	Free chlorine setpoint channel 4 pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x0FDD	4061	Free chlorine setpoint channel 4 pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x0FDE	4062	Free chlorine setpoint channel 4 pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x0FDF	4063	Free chlorine setpoint channel 4 pool 16	INT16	R	0.00 – 10.00 unit: ppm

4.7.5 Combined chlorine setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C08	3080	Combined chlorine setpoint channel 5 pool 1	INT16	W	0.00 – 10.00 unit: ppm
0x0C09	3081	Combined chlorine setpoint channel 5 pool 2	INT16	W	0.00 – 10.00 unit: ppm
0x0C0A	3082	Combined chlorine setpoint channel 5 pool 3	INT16	W	0.00 – 10.00 unit: ppm
0x0C0B	3083	Combined chlorine setpoint channel 5 pool 4	INT16	W	0.00 – 10.00 unit: ppm
0x0C0C	3084	Combined chlorine setpoint channel 5 pool 5	INT16	W	0.00 – 10.00 unit: ppm
0x0C0D	3085	Combined chlorine setpoint channel 5 pool 6	INT16	W	0.00 – 10.00 unit: ppm
0x0C0E	3086	Combined chlorine setpoint channel 5 pool 7	INT16	W	0.00 – 10.00 unit: ppm
0x0C0F	3087	Combined chlorine setpoint channel 5 pool 8	INT16	W	0.00 – 10.00 unit: ppm
0x0C10	3088	Combined chlorine setpoint channel 5 pool 9	INT16	W	0.00 – 10.00 unit: ppm
0x0C11	3089	Combined chlorine setpoint channel 5 pool 10	INT16	W	0.00 – 10.00 unit: ppm
0x0C12	3090	Combined chlorine setpoint channel 5 pool 11	INT16	W	0.00 – 10.00 unit: ppm
0x0C13	3091	Combined chlorine setpoint channel 5 pool 12	INT16	W	0.00 – 10.00 unit: ppm
0x0C14	3092	Combined chlorine setpoint channel 5 pool 13	INT16	W	0.00 – 10.00 unit: ppm
0x0C15	3093	Combined chlorine setpoint channel 5 pool 14	INT16	W	0.00 – 10.00 unit: ppm
0x0C16	3094	Combined chlorine setpoint channel 5 pool 15	INT16	W	0.00 – 10.00 unit: ppm
0x0C17	3095	Combined chlorine setpoint channel 5 pool 16	INT16	W	0.00 – 10.00 unit: ppm

The setpoint for combined chlorine is valid for each pool and gives the ppm setpoint of the respective pool currently set. The setpoint for combined chlorine can be written between 0.00 and 10.00 ppm in the Dulco-marin 3.

The value range lies between:

- 0 – 1000 = setpoint with 2 decimal points

By way of example the setpoint should be 5.35 ppm and the integer 535 is then transmitted from the master to the PLC or PC by Modbus-RTU.

Tab. 17: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FF0	4080	Combined chlorine setpoint channel 5 pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x0FF1	4081	Combined chlorine setpoint channel 5 pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x0FF2	4082	Combined chlorine setpoint channel 5 pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x0FF3	4083	Combined chlorine setpoint channel 5 pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x0FF4	4084	Combined chlorine setpoint channel 5 pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x0FF5	4085	Combined chlorine setpoint channel 5 pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x0FF6	4086	Combined chlorine setpoint channel 5 pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x0FF7	4087	Combined chlorine setpoint channel 5 pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x0FF8	4088	Combined chlorine setpoint channel 5 pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x0FF9	4089	Combined chlorine setpoint channel 5 pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x0FFA	4090	Combined chlorine setpoint channel 5 pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x0FFB	4091	Combined chlorine setpoint channel 5 pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x0FFC	4092	Combined chlorine setpoint channel 5 pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x0FFD	4093	Combined chlorine setpoint channel 5 pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x0FFE	4094	Combined chlorine setpoint channel 5 pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x0FFF	4095	Combined chlorine setpoint channel 5 pool 16	INT16	R	0.00 – 10.00 unit: ppm

4.7.6 Total chlorine setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0BF8	3064	Total chlorine setpoint channel 6 pool 1	INT16	W	0.00 – 10.00 unit: ppm
0x0BF9	3065	Total chlorine setpoint channel 6 pool 2	INT16	W	0.00 – 10.00 unit: ppm
0x0BFA	3066	Total chlorine setpoint channel 6 pool 3	INT16	W	0.00 – 10.00 unit: ppm
0x0BFB	3067	Total chlorine setpoint channel 6 pool 4	INT16	W	0.00 – 10.00 unit: ppm
0x0BFC	3068	Total chlorine setpoint channel 6 pool 5	INT16	W	0.00 – 10.00 unit: ppm
0x0BFD	3069	Total chlorine setpoint channel 6 pool 6	INT16	W	0.00 – 10.00 unit: ppm
0x0BFE	3070	Total chlorine setpoint channel 6 pool 7	INT16	W	0.00 – 10.00 unit: ppm
0x0BFF	3071	Total chlorine setpoint channel 6 pool 8	INT16	W	0.00 – 10.00 unit: ppm
0x0C00	3072	Total chlorine setpoint channel 6 pool 9	INT16	W	0.00 – 10.00 unit: ppm
0x0C01	3073	Total chlorine setpoint channel 6 pool 10	INT16	W	0.00 – 10.00 unit: ppm
0x0C02	3074	Total chlorine setpoint channel 6 pool 11	INT16	W	0.00 – 10.00 unit: ppm
0x0C03	3075	Total chlorine setpoint channel 6 pool 12	INT16	W	0.00 – 10.00 unit: ppm
0x0C04	3076	Total chlorine setpoint channel 6 pool 13	INT16	W	0.00 – 10.00 unit: ppm
0x0C05	3077	Total chlorine setpoint channel 6 pool 14	INT16	W	0.00 – 10.00 unit: ppm
0x0C06	3078	Total chlorine setpoint channel 6 pool 15	INT16	W	0.00 – 10.00 unit: ppm
0x0C07	3079	Total chlorine setpoint channel 6 pool 16	INT16	W	0.00 – 10.00 unit: ppm

The setpoint for the total chlorine is valid for each pool and gives the currently set ppm setpoint of the respective pool. The setpoint for the total chlorine can be written between 0.00 and 10.00 ppm in the Dulcomarin 3.

The value range lies between:

- 0 – 1000 = setpoint with 2 decimal points

By way of example the setpoint should be 5.35 ppm and the integer 535 is then transmitted from the master to the PLC or PC by Modbus-RTU.

Tab. 18: Use the following registers to read the value:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x0FE0	4064	Total chlorine setpoint channel 6 pool 1	INT16	R	0.00 – 10.00 unit: ppm
0x0FE1	4065	Total chlorine setpoint channel 6 pool 2	INT16	R	0.00 – 10.00 unit: ppm
0x0FE2	4066	Total chlorine setpoint channel 6 pool 3	INT16	R	0.00 – 10.00 unit: ppm
0x0FE3	4067	Total chlorine setpoint channel 6 pool 4	INT16	R	0.00 – 10.00 unit: ppm
0x0FE4	4068	Total chlorine setpoint channel 6 pool 5	INT16	R	0.00 – 10.00 unit: ppm
0x0FE5	4069	Total chlorine setpoint channel 6 pool 6	INT16	R	0.00 – 10.00 unit: ppm
0x0FE6	4070	Total chlorine setpoint channel 6 pool 7	INT16	R	0.00 – 10.00 unit: ppm
0x0FE7	4071	Total chlorine setpoint channel 6 pool 8	INT16	R	0.00 – 10.00 unit: ppm
0x0FE8	4072	Total chlorine setpoint channel 6 pool 9	INT16	R	0.00 – 10.00 unit: ppm
0x0FE9	4073	Total chlorine setpoint channel 6 pool 10	INT16	R	0.00 – 10.00 unit: ppm
0x0FEA	4074	Total chlorine setpoint channel 6 pool 11	INT16	R	0.00 – 10.00 unit: ppm
0x0FEB	4075	Total chlorine setpoint channel 6 pool 12	INT16	R	0.00 – 10.00 unit: ppm
0x0FEC	4076	Total chlorine setpoint channel 6 pool 13	INT16	R	0.00 – 10.00 unit: ppm
0x0FED	4077	Total chlorine setpoint channel 6 pool 14	INT16	R	0.00 – 10.00 unit: ppm
0x0FEE	4078	Total chlorine setpoint channel 6 pool 15	INT16	R	0.00 – 10.00 unit: ppm
0x0FEF	4079	Total chlorine setpoint channel 6 pool 16	INT16	R	0.00 – 10.00 unit: ppm

4.7.7 Temperature of free CI sensor setpoint register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C18	3096	Temperature of free CI sensor setpoint channel 3 pool 1	INT16	W	-10.0 – 140.0 unit: °C
0x0C19	3097	Temperature of free CI sensor setpoint channel 3 pool 2	INT16	W	-10.0 – 140.0 unit: °C
0x0C1A	3098	Temperature of free CI sensor setpoint channel 3 pool 3	INT16	W	-10.0 – 140.0 unit: °C
0x0C1B	3099	Temperature of free CI sensor setpoint channel 3 pool 4	INT16	W	-10.0 – 140.0 unit: °C
0x0C1C	3100	Temperature of free CI sensor setpoint channel 3 pool 5	INT16	W	-10.0 – 140.0 unit: °C
0x0C1D	3101	Temperature of free CI sensor setpoint channel 3 pool 6	INT16	W	-10.0 – 140.0 unit: °C
0x0C1E	3102	Temperature of free CI sensor setpoint channel 3 pool 7	INT16	W	-10.0 – 140.0 unit: °C
0x0C1F	3103	Temperature of free CI sensor setpoint channel 3 pool 8	INT16	W	-10.0 – 140.0 unit: °C
0x0C20	3104	Temperature of free CI sensor setpoint channel 3 pool 9	INT16	W	-10.0 – 140.0 unit: °C
0x0C21	3105	Temperature of free CI sensor setpoint channel 3 pool 10	INT16	W	-10.0 – 140.0 unit: °C
0x0C22	3106	Temperature of free CI sensor setpoint channel 3 pool 11	INT16	W	-10.0 – 140.0 unit: °C
0x0C23	3107	Temperature of free CI sensor setpoint channel 3 pool 12	INT16	W	-10.0 – 140.0 unit: °C
0x0C24	3108	Temperature of free CI sensor setpoint channel 3 pool 13	INT16	W	-10.0 – 140.0 unit: °C
0x0C25	3109	Temperature of free CI sensor setpoint channel 3 pool 14	INT16	W	-10.0 – 140.0 unit: °C
0x0C26	3110	Temperature of free CI sensor setpoint channel 3 pool 15	INT16	W	-10.0 – 140.0 unit: °C
0x0C27	3111	Temperature of free CI sensor setpoint channel 3 pool 16	INT16	W	-10.0 – 140.0 unit: °C

The temperature setpoint for the temperature of the free CI sensor is valid for each pool and gives the currently set temperature setpoint of the respective pool. The temperature setpoint can be written between -10.0 and 140.0 °C in the Dulcomarin 3.

The value range lies between:

- -100 – 1400 = setpoint with 1 decimal points

By way of example, the setpoint should be 35.3°C and the integer 353 is then transmitted from the master to the PLC or PC by Modbus-RTU.

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1000	4096	Temperature of free Cl sensor set-point channel 3 pool 1	INT16	R	-10.0 – 140.0 unit: °C
0x1001	4097	Temperature of free Cl sensor set-point channel 3 pool 2	INT16	R	-10.0 – 140.0 unit: °C
0x1002	4098	Temperature of free Cl sensor set-point channel 3 pool 3	INT16	R	-10.0 – 140.0 unit: °C
0x1003	4099	Temperature of free Cl sensor set-point channel 3 pool 4	INT16	R	-10.0 – 140.0 unit: °C
0x1004	4100	Temperature of free Cl sensor set-point channel 3 pool 5	INT16	R	-10.0 – 140.0 unit: °C
0x1005	4101	Temperature of free Cl sensor set-point channel 3 pool 6	INT16	R	-10.0 – 140.0 unit: °C
0x1006	4102	Temperature of free Cl sensor set-point channel 3 pool 7	INT16	R	-10.0 – 140.0 unit: °C
0x1007	4103	Temperature of free Cl sensor set-point channel 3 pool 8	INT16	R	-10.0 – 140.0 unit: °C
0x1008	4104	Temperature of free Cl sensor set-point channel 3 pool 9	INT16	R	-10.0 – 140.0 unit: °C
0x1009	4105	Temperature of free Cl sensor set-point channel 3 pool 10	INT16	R	-10.0 – 140.0 unit: °C
0x100A	4106	Temperature of free Cl sensor set-point channel 3 pool 11	INT16	R	-10.0 – 140.0 unit: °C
0x100B	4107	Temperature of free Cl sensor set-point channel 3 pool 12	INT16	R	-10.0 – 140.0 unit: °C
0x100C	4108	Temperature of free Cl sensor set-point channel 3 pool 13	INT16	R	-10.0 – 140.0 unit: °C
0x100D	4109	Temperature of free Cl sensor set-point channel 3 pool 14	INT16	R	-10.0 – 140.0 unit: °C
0x100E	4110	Temperature of free Cl sensor set-point channel 3 pool 15	INT16	R	-10.0 – 140.0 unit: °C
0x100F	4111	Temperature of free Cl sensor set-point channel 3 pool 16	INT16	R	-10.0 – 140.0 unit: °C

4.8 Status register by function

4.8.1 Eco mode status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1050	4176	Eco mode status pool 1	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1051	4177	Eco mode status pool 2	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1052	4178	Eco mode status pool 3	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1053	4179	Eco mode status pool 4	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1054	4180	Eco mode status pool 5	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1055	4181	Eco mode status pool 6	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1056	4182	Eco mode status pool 7	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1057	4183	Eco mode status pool 8	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1058	4184	Eco mode status pool 9	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x1059	4185	Eco mode status pool 10	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105A	4186	Eco mode status pool 11	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105B	4187	Eco mode status pool 12	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105C	4188	Eco mode status pool 13	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105D	4189	Eco mode status pool 14	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105E	4190	Eco mode status pool 15	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active
0x105F	4191	Eco mode status pool 16	UINT8	R	0 = Eco mode inactive, 1 = Eco mode active

The Eco mode status can be read using the status register for each pool.

The value range is:

- 0 = Eco mode inactive
- 1 = Eco mode active

4.8.2 Pause status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1060	4192	Pause status pool 1	UINT8	R	0= Pause inactive, 1 = pause active
0x1061	4193	Pause status pool 2	UINT8	R	0= Pause inactive, 1 = pause active
0x1062	4194	Pause status pool 3	UINT8	R	0= Pause inactive, 1 = pause active
0x1063	4195	Pause status pool 4	UINT8	R	0= Pause inactive, 1 = pause active
0x1064	4196	Pause status pool 5	UINT8	R	0= Pause inactive, 1 = pause active
0x1065	4197	Pause status pool 6	UINT8	R	0= Pause inactive, 1 = pause active
0x1066	4198	Pause status pool 7	UINT8	R	0= Pause inactive, 1 = pause active
0x1067	4199	Pause status pool 8	UINT8	R	0= Pause inactive, 1 = pause active
0x1068	4200	Pause status pool 9	UINT8	R	0= Pause inactive, 1 = pause active
0x1069	4201	Pause status pool 10	UINT8	R	0= Pause inactive, 1 = pause active
0x106A	4202	Pause status pool 11	UINT8	R	0= Pause inactive, 1 = pause active
0x106B	4203	Pause status pool 12	UINT8	R	0= Pause inactive, 1 = pause active
0x106C	4204	Pause status pool 13	UINT8	R	0= Pause inactive, 1 = pause active
0x106D	4205	Pause status pool 14	UINT8	R	0= Pause inactive, 1 = pause active
0x106E	4206	Pause status pool 15	UINT8	R	0= Pause inactive, 1 = pause active
0x106F	4207	Pause status pool 16	UINT8	R	0= Pause inactive, 1 = pause active

The status of the control can be read using the Pause status register for each pool.

The value range is:

- 0 = Pause: Pool control Pause switched off
- 1 = Pause: Pool control Pause switched on

4.8.3 Superchlorination status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1070	4208	Superchlorination status pool 1	UINT8	R	0= Superchlorination inactive, 1 = Superchlorination active
0x1071	4209	Superchlorination status pool 2	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1072	4210	Superchlorination status pool 3	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1073	4211	Superchlorination status pool 4	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1074	4212	Superchlorination status pool 5	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1075	4213	Superchlorination status pool 6	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1076	4214	Superchlorination status pool 7	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1077	4215	Superchlorination status pool 8	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1078	4216	Superchlorination status pool 9	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x1079	4217	Superchlorination status pool 10	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107A	4218	Superchlorination status pool 11	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107B	4219	Superchlorination status pool 12	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107C	4220	Superchlorination status pool 13	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107D	4221	Superchlorination status pool 14	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107E	4222	Superchlorination status pool 15	UINT8	R	0= superchlorination inactive, 1 = superchlorination active
0x107F	4223	Superchlorination status pool 16	UINT8	R	0= superchlorination inactive, 1 = superchlorination active

The superchlorination status can be read using the status register for each pool.

The value range is:

- 0 = Superchlorination inactive
- 1 = Superchlorination active

4.8.4 Sample water fault status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1080	4224	Sample water fault status pool 1	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1081	4225	Sample water error status pool 2	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1082	4226	Sample water error status pool 3	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1083	4227	Sample water error status pool 4	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1084	4228	Sample water error status pool 5	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1085	4229	Sample water error status pool 6	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1086	4230	Sample water error status pool 7	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1087	4231	Sample water error status pool 8	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1088	4232	Sample water error status pool 9	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x1089	4233	Sample water error status pool 10	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108A	4234	Sample water error status pool 11	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108B	4235	Sample water error status pool 12	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108C	4236	Sample water error status pool 13	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108D	4237	Sample water error status pool 14	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108E	4238	Sample water error status pool 15	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active
0x108F	4239	Sample water error status pool 16	UINT8	R	0= Sample water fault inactive, 1 = Sample water fault active

The sample water fault status can be read using the status register for each pool.

The value range is:

- 0 = Sample water fault inactive
- 1 = Sample water fault! active

4.8.5 Start/Stop status register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1090	4240	Start/Stop status pool 1	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1091	4241	Start/Stop status pool 2	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1092	4242	Start/Stop status pool 3	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1093	4243	Start/Stop status pool 4	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1094	4244	Start/Stop status pool 5	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1095	4245	Start/Stop status pool 6	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1096	4246	Start/Stop status pool 7	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1097	4247	Start/Stop status pool 8	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1098	4248	Start/Stop status pool 9	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x1099	4249	Start/Stop status pool 10	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109A	4250	Start/Stop status pool 11	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109B	4251	Start/Stop status pool 12	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109C	4252	Start/Stop status pool 13	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109D	4253	Start/Stop status pool 14	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109E	4254	Start/Stop status pool 15	UINT8	R	0 = Pool control stop, 1 = Pool control start
0x109F	4255	Start/Stop status pool 16	UINT8	R	0 = Pool control stop, 1 = Pool control start

The status of the control can be read using the Start/Stop status register for each pool.

The value range is:

- 0 = Stop: The pool control is switched off
- 1 = Start: The pool control is switched on

4.9 Error register

There is a register set for each pool with the number of errors contained and 10 additional registered with occurring error codes. The error code is listed in Appendix 'A - Document error messages'.

The error counter has the following meaning:

- Error counter 0 means no errors present for the selected pool
- Error counter 5 means the first five registers contain errors
- Error counter 3 means the first three registers contain errors

The error registers 1 – 10 for each pool contain error codes explained in the appendix.

If an error code displayed in error register 1 is rectified, then error codes in error register 2 and 3 will be moved to positions 1 and 2. An error code of 0 means that there are no errors. Error codes remain in the error register for as long as the error is still pending.

4.9.1 Pool 1 – 2 error register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1448	5192	Current number of errors pool 1	UINT16	R	0-300
0x1449	5193	Pool 1 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x144A	5194	Pool 1 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x144B	5195	Pool 1 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x144C	5196	Pool 1 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x144D	5197	Pool 1 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x144E	5198	Pool 1 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x144F	5199	Pool 1 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x1450	5200	Pool 1 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x1451	5201	Pool 1 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x1452	5202	Pool 1 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x1453	5203	Current number of errors pool 2	UINT16	R	0-300
0x1454	5204	Pool 2 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x1455	5205	Pool 2 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x1456	5206	Pool 2 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x1457	5207	Pool 2 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x1458	5208	Pool 2 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x1459	5209	Pool 2 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x145A	5210	Pool 2 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x145B	5211	Pool 2 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x145C	5212	Pool 2 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x145D	5213	Pool 2 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.9.2 Pool 3 – 5 error register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x145E	5214	Current number of errors pool 3	UINT16	R	0-300
0x145F	5215	Pool 3 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x1460	5216	Pool 3 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x1461	5217	Pool 3 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x1462	5218	Pool 3 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x1463	5219	Pool 3 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x1464	5220	Pool 3 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x1465	5221	Pool 3 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x1466	5222	Pool 3 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x1467	5223	Pool 3 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x1468	5224	Pool 3 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x1469	5225	Current number of errors pool 4	UINT16	R	0-300
0x146A	5226	Pool 4 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x146B	5227	Pool 4 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x146C	5228	Pool 4 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x146D	5229	Pool 4 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x146E	5230	Pool 4 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x146F	5231	Pool 4 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x1470	5232	Pool 4 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x1471	5233	Pool 4 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x1472	5234	Pool 4 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x1473	5235	Pool 4 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x1474	5236	Current number of errors pool 5	UINT16	R	0-300
0x1475	5237	Pool 5 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x1476	5238	Pool 5 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x1477	5239	Pool 5 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x1478	5240	Pool 5 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x1479	5241	Pool 5 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x147A	5242	Pool 5 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x147B	5243	Pool 5 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x147C	5244	Pool 5 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x147D	5245	Pool 5 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x147E	5246	Pool 5 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.9.3 Error pool 6 – 8 - Register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x147F	5247	Current number of errors pool 7	UINT16	R	0-300
0x1480	5248	Pool 6 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x1481	5249	Pool 6 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x1482	5250	Pool 6 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x1483	5251	Pool 6 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x1484	5252	Pool 6 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x1485	5253	Pool 6 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x1486	5254	Pool 6 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x1487	5255	Pool 6 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x1488	5256	Pool 6 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x1489	5257	Pool 6 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x148A	5258	Current number of errors pool 7	UINT16	R	0-300
0x148B	5259	Pool 7 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x148C	5260	Pool 7 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x148D	5261	Pool 7 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x148E	5262	Pool 7 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x148F	5263	Pool 7 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x1490	5264	Pool 7 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x1491	5265	Pool 7 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x1492	5266	Pool 7 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x1493	5267	Pool 7 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x1494	5268	Pool 7 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x1495	5269	Current number of errors pool 8	UINT16	R	0-300
0x1496	5270	Pool 8 error 1	UINT16	R	0 - 0xFFFF (see appendix A)

Overview of Modbus-RTU registers

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x1497	5271	Pool 8 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x1498	5272	Pool 8 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x1499	5273	Pool 8 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x149A	5274	Pool 8 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x149B	5275	Pool 8 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x149C	5276	Pool 8 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x149D	5277	Pool 8 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x149E	5278	Pool 8 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x149F	5279	Pool 8 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.9.4 Pool 9 – 11 error register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x14A0	5280	Current number of errors pool 9	UINT16	R	0-300
0x14A1	5281	Pool 9 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A2	5282	Pool 9 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A3	5283	Pool 9 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A4	5284	Pool 9 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A5	5285	Pool 9 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A6	5286	Pool 9 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A7	5287	Pool 9 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A8	5288	Pool 9 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14A9	5289	Pool 9 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14AA	5290	Pool 9 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x14AB	5291	Current number of errors pool 10	UINT16	R	0-300
0x14AC	5292	Pool 10 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14AD	5293	Pool 10 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14AE	5294	Pool 10 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14AF	5295	Pool 10 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B0	5296	Pool 10 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B1	5297	Pool 10 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B2	5298	Pool 10 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B3	5299	Pool 10 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B4	5300	Pool 10 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B5	5301	Pool 10 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B6	5302	Current number of errors pool 11	UINT16	R	0-300
0x14B7	5303	Pool 11 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B8	5304	Pool 11 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14B9	5305	Pool 11 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BA	5306	Pool 11 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BB	5307	Pool 11 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BC	5308	Pool 11 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BD	5309	Pool 11 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BE	5310	Pool 11 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14BF	5311	Pool 11 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C0	5312	Pool 11 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.9.5 Pool 12 – 14 error register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x14C1	5313	Current number of errors pool 12	UINT16	R	0-300
0x14C2	5314	Pool 12 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C3	5315	Pool 12 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C4	5316	Pool 12 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C5	5317	Pool 12 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C6	5318	Pool 12 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C7	5319	Pool 12 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C8	5320	Pool 12 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14C9	5321	Pool 12 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14CA	5322	Pool 12 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14CB	5323	Pool 12 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x14CC	5324	Current number of errors pool 13	UINT16	R	0-300
0x14CD	5325	Pool 13 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14CE	5326	Pool 13 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14CF	5327	Pool 13 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D0	5328	Pool 13 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D1	5329	Pool 13 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D2	5330	Pool 13 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D3	5331	Pool 13 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D4	5332	Pool 13 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D5	5333	Pool 13 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D6	5334	Pool 13 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D7	5335	Current number of errors pool 14	UINT16	R	0-300
0x14D8	5336	Pool 14 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14D9	5337	Pool 14 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DA	5338	Pool 14 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DB	5339	Pool 14 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DC	5340	Pool 14 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DD	5341	Pool 14 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DE	5342	Pool 14 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14DF	5343	Pool 14 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E0	5344	Pool 14 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E1	5345	Pool 14 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.9.6 Pool 15 – 16 error register

PDU address (hex)	Register (decimal)	Parameter name	Format	Access R = Read	Information
0x14E2	5346	Current number of errors pool 15	UINT16	R	0-300
0x14E3	5347	Pool 15 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E4	5348	Pool 15 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E5	5349	Pool 15 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E6	5350	Pool 15 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E7	5351	Pool 15 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E8	5352	Pool 15 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14E9	5353	Pool 15 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14EA	5354	Pool 15 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14EB	5355	Pool 15 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14EC	5356	Pool 15 error 10	UINT16	R	0 - 0xFFFF (see appendix A)
0x14ED	5357	Current number of errors pool 16	UINT16	R	0-300
0x14EE	5358	Pool 16 error 1	UINT16	R	0 - 0xFFFF (see appendix A)
0x14EF	5359	Pool 16 error 2	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F0	5360	Pool 16 error 3	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F1	5361	Pool 16 error 4	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F2	5362	Pool 16 error 5	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F3	5363	Pool 16 error 6	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F4	5364	Pool 16 error 7	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F5	5365	Pool 16 error 8	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F6	5366	Pool 16 error 9	UINT16	R	0 - 0xFFFF (see appendix A)
0x14F7	5367	Pool 16 error 10	UINT16	R	0 - 0xFFFF (see appendix A)

4.10 Operating mode register

4.10.1 Superchlorination mode

Superchlorination mode can only be activated/deactivated via the Modbus-RTU RS485 if activation/deactivation is enabled in the Dulcomarin 3. To do so, the corresponding pool needs to be selected in the central unit or local unit (Compact device). Swiping left takes you to the Pool Settings menu. Select the Superchlorination settings and enable "Via Bus". Set all the other settings to "inactive". The following registers can be used for each pool to activate or deactivate superchlorination operating mode:

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C88	3208	Set superchlorination status pool 1	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C89	3209	Set superchlorination status pool 2	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8A	3210	Set superchlorination status pool 3	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8B	3211	Set superchlorination status pool 4	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8C	3212	Set superchlorination status pool 5	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8D	3213	Set superchlorination status pool 6	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8E	3214	Set superchlorination status pool 7	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C8F	3215	Set superchlorination status pool 8	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C90	3216	Set superchlorination status pool 9	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C91	3217	Set superchlorination status pool 10	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C92	3218	Set superchlorination status pool 11	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C93	3219	Set superchlorination status pool 12	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C94	3220	Set superchlorination status pool 13	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C95	3221	Set superchlorination status pool 14	UINT8	W	0= superchlorination inactive, 1 = superchlorination active

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C96	3222	Set superchlorination status pool 15	UINT8	W	0= superchlorination inactive, 1 = superchlorination active
0x0C97	3223	Set superchlorination status pool 16	UINT8	W	0= superchlorination inactive, 1 = superchlorination active

4.10.2 Eco mode

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C68	3176	Set Eco mode pool 1	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C69	3177	Set Eco mode pool 2	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6A	3178	Set Eco mode pool 3	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6B	3179	Set Eco mode pool 4	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6C	3180	Set Eco mode pool 5	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6D	3181	Set Eco mode pool 6	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6E	3182	Set Eco mode pool 7	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C6F	3183	Set Eco mode pool 8	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C70	3184	Set Eco mode pool 9	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C71	3185	Set Eco mode pool 10	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C72	3186	Set Eco mode pool 11	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C73	3187	Set Eco mode pool 12	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C74	3188	Set Eco mode pool 13	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C75	3189	Set Eco mode pool 14	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C76	3190	Set Eco mode pool 15	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active
0x0C77	3191	Set Eco mode pool 16	UINT8	W	0 = Eco mode inactive, 1 = Eco mode active

4.10.3 Software pause mode

The Dulcomarin 3 controller has a software pause status, which can be activated or deactivated by external devices and causes the control to pause. There is a “Set software pause” register for this purpose. In the event that the Pause is actively switched by the PLC, the Pause icon appears in the display and “SW Pause” also appears in the controller’s status.

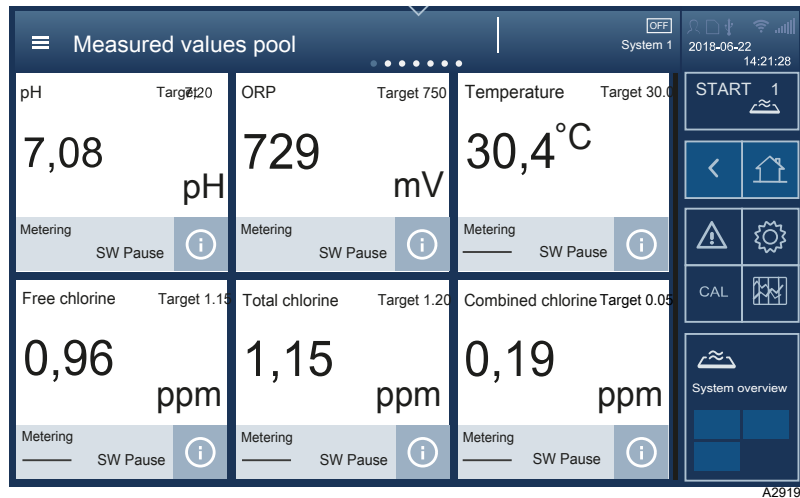


Fig. 5: Software pause mode

“Set software pause pool X” register:

- 0 = Software pause inactive
- 1 = Software pause active

In the event of a power outage, the device is started without software pause. The value in this register is not saved. Were this value to be saved, there would be no option to quit this status manually through local operation. The PLC needs to rewrite the software pause signal after a power outage. The PLC can then read the current Pause status from the status register, and when this status is no longer active, the software pause signal register can be re-written. The PLC should cyclically monitor the Pause status. If the Software Pause register is permanently written by the PLC, then Modbus-RTU RS485 communication needs to be disabled. This is to ensure that the device does not go into Software Pause status in the event of a restart.

PDU address (hex)	Register (decimal)	Parameter name	Format	Access W = Write	Information
0x0C78	3192	Set software pause pool 1	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C79	3193	Set software pause pool 2	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7A	3194	Set software pause pool 3	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7B	3195	Set software pause pool 4	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7C	3196	Set software pause pool 5	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7D	3197	Set software pause pool 6	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7E	3198	Set software pause pool 7	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C7F	3199	Set software pause pool 8	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C80	3200	Set software pause pool 9	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C81	3201	Set software pause pool 10	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C82	3202	Set software pause pool 11	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C83	3203	Set software pause pool 12	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C84	3204	Set software pause pool 13	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C85	3205	Set software pause pool 14	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C86	3206	Set software pause pool 15	UINT8	W	0= SW Pause inactive, 1 = SW pause active
0x0C87	3207	Set software pause pool 16	UINT8	W	0= SW Pause inactive, 1 = SW pause active

5 Appendix A: Error messages

Error code (Hex)	Error code (Decimal)	Description
0x0001	1	Sample water fault!
0x0002	2	No SD card detected. No data is saved. Please insert an SD card!
0x0003	3	Error in the SD card file system. Use a PC with FAT or FAT32 to format it. The data logger does not work without an SD card!
0x0004	4	Storage tank empty!
0x0005	5	Storage tank almost empty!
0x0006	6	CAN Bus - off!
0x0007	7	! Servomotor not ready!
0x0064	100	Digital output 1 Pump status Increase value!
0x0065	101	Digital output 1 Pump status pH increase value!
0x0066	102	Digital output 1 Pump status ORP increase value!
0x0067	103	Digital output 1 Pump status Temperature increase value!
0x0068	104	Digital output 1 Pump status free chlorine increase value!
0x0069	105	Digital output 1 Pump status Combined chlorine increase value!
0x006A	106	Digital output 1 Pump status Total chlorine increase value!
0x006B	107	Digital output 1 Pump status Temperature Cl sensor increase value!
0x006E	110	Digital output 1 Pump status Decrease value!
0x006F	111	Digital output 1 Pump status pH Decrease value!
0x0070	112	Digital output 1 Pump status ORP Decrease value!
0x0071	113	Digital output 1 Pump status Temperature Decrease value!
0x0072	114	Digital output 1 Pump status Free chlorine Decrease value!
0x0073	115	Digital output 1 Pump status Combined chlorine Decrease value!
0x0074	116	Digital output 1 Pump status Total chlorine Decrease value!
0x0075	117	Digital output 1 Pump status Temperature Cl sensor Decrease value!
0x00C8	200	Digital output 2 Pump status Increase value!
0x00C9	201	Digital output 2 Pump status pH increase value!
0x00CA	202	Digital output 2 Pump status ORP increase value!
0x00CB	203	Digital output 2 Pump status Temperature increase value!
0x00CC	204	Digital output 2 Pump status free chlorine increase value!
0x00CD	205	Digital output 2 Pump status Combined chlorine increase value!
0x00CE	206	Digital output 2 Pump status Total chlorine increase value!
0x00CF	207	Digital output 2 Pump status Temperature Cl sensor increase value!
0x00D2	210	Digital output 2 Pump status Decrease value!
0x00D3	211	Digital output 2 Pump status pH Decrease value!
0x00D4	212	Digital output 2 Pump status ORP Decrease value!
0x00D5	213	Digital output 2 Pump status Temperature Decrease value!
0x00D6	214	Digital output 2 Pump status Free chlorine Decrease value!
0x00D7	215	Digital output 2 Pump status Combined chlorine Decrease value!

Error code (Hex)	Error code (Decimal)	Description
0x00D8	216	Digital output 2 Pump status Total chlorine Decrease value!
0x00D9	217	Digital output 2 Pump status Temperature Cl sensor Decrease value!
0x012C	300	Digital output 3 Pump status Increase value!
0x012D	301	Digital output 3 Pump status pH increase value!
0x012E	302	Digital output 3 Pump status ORP increase value!
0x012F	303	Digital output 3 Pump status Temperature increase value!
0x0130	304	Digital output 3 Pump status free chlorine increase value!
0x0131	305	Digital output 3 Pump status Combined chlorine increase value!
0x0132	306	Digital output 3 Pump status Total chlorine increase value!
0x0133	307	Digital output 3 Pump status Temperature Cl sensor increase value!
0x0136	310	Digital output 3 Pump status Decrease value!
0x0137	311	Digital output 3 Pump status pH Decrease value!
0x0138	312	Digital output 3 Pump status ORP Decrease value!
0x0139	313	Digital output 3 Pump status Temperature Decrease value!
0x013A	314	Digital output 3 Pump status Free chlorine Decrease value!
0x013B	315	Digital output 3 Pump status Combined chlorine Decrease value!
0x013C	316	Digital output 3 Pump status Total chlorine Decrease value!
0x013D	317	Digital output 3 Pump status Temperature Cl sensor Decrease value!
0x0190	400	Digital output 4 Pump status Increase value!
0x0191	401	Digital output 4 Pump status pH increase value!
0x0192	402	Digital output 4 Pump status ORP increase value!
0x0193	403	Digital output 4 Pump status Temperature increase value!
0x0194	404	Digital output 4 Pump status free chlorine increase value!
0x0195	405	Digital output 4 Pump status Combined chlorine increase value!
0x0196	406	Digital output 4 Pump status Total chlorine increase value!
0x0197	407	Digital output 4 Pump status Temperature Cl sensor increase value!
0x019A	410	Digital output 4 Pump status Decrease value!
0x019B	411	Digital output 4 Pump status pH Decrease value!
0x019C	412	Digital output 4 Pump status ORP Decrease value!
0x019D	413	Digital output 4 Pump status Temperature Decrease value!
0x019E	414	Digital output 4 Pump status Free chlorine Decrease value!
0x019F	415	Digital output 4 Pump status Combined chlorine Decrease value!
0x01A0	416	Digital output 4 Pump status Total chlorine Decrease value!
0x01A1	417	Digital output 4 Pump status Temperature Cl sensor Decrease value!
0x03E9	1001	Module 1, channel 1 module in slot 1, channel 1 removed!
0x03EA	1002	Module 1, channel 2 module in slot 1, channel 2 removed!
0x03EB	1003	Module 2, channel 1 module in slot 2, channel 1 removed!
0x03EC	1004	Module 2, channel 2 module in slot 2, channel 2 removed!
0x03ED	1005	Module 3, channel 1 module in slot 3, channel 1 removed!

Appendix A: Error messages

Error code (Hex)	Error code (Decimal)	Description
0x03EE	1006	Module 3, channel 2 module in slot 3, channel 2 removed!
0x03EF	1007	Module 4, channel 1 module in slot 4, channel 1 removed!
0x03F0	1008	Module 4, channel 2 module in slot 4, channel 2 removed!
0x03F1	1009	No temperature sensor connected!
0x03F2	1010	Temperature value not OK!
0x03F3	1011	pH sensor is low-ohmic; glass break!
0x03F4	1012	pH sensor is high-ohmic; cable break!
0x03F5	1013	pH value User calibration offset too low!
0x03F6	1014	ORP value User calibration offset too low!
0x03F7	1015	ORP value User calibration offset too high!
0x03F8	1016	ORP value User calibration offset too high!
0x03F9	1017	pH value User calibration offset too high!
0x03FA	1018	ORP value User calibration offset too high!
0x03FB	1019	pH value User calibration amplification too low!
0x03FC	1020	ORP value User calibration amplification too low!
0x03FD	1021	pH value User calibration amplification too high!
0x03FE	1022	ORP value User calibration amplification too high!
0x03FF	1023	pH value User calibration amplification too low!
0x0400	1024	ORP value User calibration amplification too low!
0x0401	1025	mV input voltage too high!
0x0402	1026	pH value too low!
0x0403	1027	ORP value too low!
0x0404	1028	pH value too high!
0x0405	1029	ORP value too high!
0x0406	1030	Temperature value too low!
0x0407	1031	Temperature value too high!
0x0408	1032	Current Loop Output 1 (XA1) is open!
0x0409	1033	Current Loop Output 2 (XA2) is open!
0x040A	1034	Fuse for relays is blown!
0x040B	1035	Fuse for mains output is blown!
0x040C	1036	24 V output for CANopen is faulty!
0x040D	1037	Fuse for mains input is blown!
0x040E	1038	Power supply overload condition on digital input!
0x040F	1039	Soft reset was initiated!
0x0410	1040	Watchdog prewarning!
0x0411	1041	Fan error!
0x0412	1042	Internal backup is running!
0x0413	1043	Internal update started!
0x0414	1044	Slot module update is running!

Error code (Hex)	Error code (Decimal)	Description
0x0415	1045	Internal temperature reached max limit!
0x04105	1109	Module 1, channel 1 No temperature sensor connected!
0x04106	1110	Module 1, channel 1 Temperature value not OK!
0x04107	1111	Module 1, channel 1 pH sensor is low-ohmic; glass break!
0x04107	1112	Module 1, channel 1 pH sensor is high-ohmic; cable break!
0x0465	1125	Module 1, channel 1 mV input voltage too high!
0x046C	1132	Module 1, channel 1 Current Loop Output 1 (XA1) is open!
0x046D	1133	Module 1, channel 1 Current Loop Output 2 (XA2) is open!
0x04B9	1209	Module 1, channel 2 No temperature sensor connected!
0x04BA	1210	Module 1, channel 2 Temperature value not OK!
0x04BB	1211	Module 1, channel 2 pH sensor is low-ohmic; glass break!
0x04BC	1212	Module 1, channel 2 pH sensor is high-ohmic; cable break!
0x04C9	1225	Module 1, channel 2 mV input voltage too high!
0x04D0	1232	Module 1, channel 2 Current Loop Output 1 (XA1) is open!
0x04D1	1233	Module 1, channel 2 Current Loop Output 2 (XA2) is open!
0x0101D	1309	Module 2, channel 1 No temperature sensor connected!
0x0101E	1310	Module 2, channel 1 Temperature value not OK!
0x0101F	1311	Module 2, channel 1 pH sensor is low-ohmic; glass break!
0x01020	1312	Module 2, channel 1 pH sensor is high-ohmic; cable break!
0x0102D	1325	Module 2, channel 1 mV input voltage too high!
0x01034	1332	Module 2, channel 1 Current Loop Output 1 (XA1) is open!
0x01035	1333	Module 2, channel 1 Current Loop Output 2 (XA2) is open!
0x01071	1409	Module 2, channel 2 No temperature sensor connected!
0x01072	1410	Module 2, channel 2 Temperature value not OK!
0x01073	1411	Module 2, channel 2 pH sensor is low-ohmic; glass break!
0x01074	1412	Module 2, channel 2 pH sensor is high-ohmic; cable break!
0x01071	1425	Module 2, channel 2 mV input voltage too high!
0x01078	1432	Module 2, channel 2 Current Loop Output 1 (XA1) is open!
0x01079	1433	Module 2, channel 2 Current Loop Output 2 (XA2) is open!
0x05E5	1509	Module 3, channel 1 No temperature sensor connected!
0x05E6	1510	Module 3, channel 1 Temperature value not OK!
0x05E7	1511	Module 3, channel 1 pH sensor is low-ohmic; glass break!
0x05E8	1512	Module 3, channel 1 pH sensor is high-ohmic; cable break!
0x05F5	1525	Module 3, channel 1 mV input voltage too high!
0x05FC	1532	Module 3, channel 1 Current Loop Output 1 (XA1) is open!
0x05FD	1533	Module 3, channel 1 Current Loop Output 2 (XA2) is open!
0x0649	1579	Module 3, channel 2 No temperature sensor connected!
0x064A	1610	Module 3, channel 2 Temperature value not OK!
0x064B	1611	Module 3, channel 2 pH sensor is low-ohmic; glass break!

Appendix A: Error messages

Error code (Hex)	Error code (Decimal)	Description
0x064C	1612	Module 3, channel 2 pH sensor is high-ohmic; cable break!
0x06107	1625	Module 3, channel 2 mV input voltage too high!
0x06107	1632	Module 3, channel 2 Current Loop Output 1 (XA1) is open!
0x0661	1633	Module 3, channel 2 Current Loop Output 2 (XA2) is open!
0x06AD	1709	Module 4, channel 1 No temperature sensor connected!
0x06AE	1710	Module 4, channel 1 Temperature value not OK!
0x06AF	1711	Module 4, channel 1 pH sensor is low-ohmic; glass break!
0x06B0	1712	Module 4, channel 1 pH sensor is high-ohmic; cable break!
0x06BD	1725	Module 4, channel 1 mV input voltage too high!
0x06C4	1732	Module 4, channel 1 Current Loop Output 1 (XA1) is open!
0x06C5	1733	Module 4, channel 1 Current Loop Output 2 (XA2) is open!
0x0711	1809	Module 4, channel 2 No temperature sensor connected!
0x0712	1810	Module 4, channel 2 Temperature value not OK!
0x0713	1811	Module 4, channel 2 pH sensor is low-ohmic; glass break!
0x0714	1812	Module 4, channel 2 pH sensor is high-ohmic; cable break!
0x0721	1825	Module 4, channel 2 mV input voltage too high!
0x0728	1832	Module 4, channel 2 Current Loop Output 1 (XA1) is open!
0x0729	1833	Module 4, channel 2 Current Loop Output 2 (XA2) is open!
0x07DB	2011	Chlorine value too low!
0x07DC	2012	Chlorine value too high!
0x07DD	2013	Chlorine calibration invalid!
0x07DE	2014	Chlorine pH correction error!
0x07DF	2015	Chlorine temperature correction missing!
0x07E5	2021	Bromine value too low!
0x07E6	2022	Bromine value too high!
0x07E7	2023	Bromine calibration invalid!
0x07E8	2024	Bromine pH correction error!
0x07E9	2025	Bromine temperature correction missing!
0x07EF	2031	Temperature Cl sensor value too low!
0x07F0	2032	Temperature Cl sensor Value too high!
0x07F1	2033	Temperature Cl sensor Calibration invalid!
0x07F2	2034	Temperature Cl sensor pH correction error!
0x07F3	2035	Temperature Cl sensor Temperature correction missing!
0x07F9	2041	ClO2 value too low!
0x07FA	2042	ClO2 Value too high!
0x07FB	2043	ClO2 Calibration invalid!
0x07FC	2044	Chlorine dioxide pH correction error!
0x07FD	2045	ClO2 Temperature correction missing!
0x0BC3	3011	Total chlorine value too low!

Error code (Hex)	Error code (Decimal)	Description
0x0BC4	3012	Total chlorine value too high!
0x0BC5	3013	Total chlorine calibration invalid!
0x0BC6	3014	Total chlorine pH correction error!
0x0BC7	3015	Total chlorine Temperature correction missing!
0x0BCD	3021	Measured value chlorite value too low!
0x0BCE	3022	Measured value chlorite value too high!
0x0BCF	3023	Chlorite measured value calibration invalid!
0x0BD0	3024	Chlorite measured value pH correction error!
0x0BD1	3025	Measured value chlorite Temperature correction missing!
0x0BD7	3031	Temperature Cl sensor value too low!
0x0BD8	3032	Temperature Cl sensor Value too high!
0x0BD9	3033	Temperature Cl sensor Calibration invalid!
0x0BDA	3034	Temperature Cl sensor pH correction error!
0x0BDB	3035	Temperature Cl sensor Temperature correction missing!
0x0BE1	3041	Combined chlorine value too low!
0x0BE2	3042	Combined chlorine value too high!
0x0BE3	3043	Combined chlorine calibration invalid!
0x0BE4	3044	Combined chlorine pH correction error!
0x0BE5	3045	Combined chlorine Temperature correction missing!
0x271B	10011	Chlorine standby pump Storage tank empty!
0x271C	10012	Chlorine standby pump Storage tank empty!
0x271D	10013	Chlorine standby pump Storage tank almost empty!
0x271E	10014	Chlorine standby pump Storage tank almost empty!
0x271F	10015	Chlorine standby pump Stroke length was adjusted by more than 10%!
0x2720	10016	Chlorine standby pump Pump error: please check pump. A more precise error message is shown in the pump display!
0x2721	10017	Chlorine standby pump Manual pump operation not permitted!
0x2722	10018	Chlorine standby pump Storage tank empty!
0x2725	10021	Pump NH4OH Storage tank empty!
0x2726	10022	Pump NH4OH Storage tank empty!
0x2727	10023	Pump NH4OH Storage tank almost empty!
0x2728	10024	Pump NH4OH Storage tank almost empty!
0x2729	10025	Pump NH4OH stroke length was adjusted by more than 10%!

Error code (Hex)	Error code (Decimal)	Description
0x272A	10026	Pump NH4OH pump error: please check pump. A more precise error message is shown in the pump display!
0x272B	10027	Pump NH4OH Manual pump operation not permitted!
0x272C	10028	Pump NH4OH Storage tank empty!

Appendix A: Error messages

Error code (Hex)	Error code (Decimal)	Description
0x272F	10031	Pump F- Storage tank empty!
0x2730	10032	Pump F- Storage tank empty!
0x2731	10033	Pump F- Storage tank almost empty!
0x2732	10034	Pump F- Storage tank almost empty!
0x2733	10035	Pump F - Stroke length was adjusted by more than 10%!
0x2734	10036	Pump F- Pump error: please check pump. A more precise error message is shown in the pump display!
0x2735	10037	Pump F - Manual pump operation not permitted!
0x2736	10038	Pump F- Storage tank empty!
0x2739	10041	Pump ClO2 Storage tank empty!
0x273A	10042	Pump ClO2 Storage tank empty!
0x273B	10043	Pump ClO2 Storage tank almost empty!
0x273C	10044	Pump ClO2 Storage tank almost empty!
0x273D	10045	Pump ClO2 - Stroke length was adjusted by more than 10%!
0x273E	10046	Pump ClO- Pump error: please check pump. A more precise error message is shown in the pump display!
0x273F	10047	Pump ClO2 Manual pump operation not permitted!
0x2740	10048	Pump ClO2 Storage tank empty!
0x2743	10051	Pump H2O2 Storage tank empty!
0x2744	10052	Pump H2O2 Storage tank empty!
0x2745	10053	Pump H2O2 Storage tank almost empty!
0x2746	10054	Pump H2O2 Storage tank almost empty!
0x2747	10055	Pump H2O2 Stroke length was adjusted by more than 10%!
0x2748	10056	Pump H2O2- Pump error: please check pump. A more precise error message is shown in the pump display!
0x2749	10057	Pump H2O2 Manual pump operation not permitted!
0x274A	10058	Pump H2O2 Storage tank empty!
0x274D	10061	Pump for increasing chlorine value Storage tank empty!
0x274E	10062	Pump for increasing chlorine value Storage tank empty!
0x274F	10063	Pump for increasing chlorine value Storage tank almost empty!
0x27100	10064	Pump for increasing chlorine value Storage tank almost empty!
0x27101	10065	Pump to decrease chlorine Stroke length was adjusted by more than 10%!
0x27102	10066	Pump to decrease chlorine Pump error: please check pump. A more precise error message is shown in the pump display!
0x27103	10067	Pump to decrease chlorine Manual pump operation not permitted!
0x2754	10068	Pump for increasing chlorine value Storage tank empty!
0x27107	10071	Pump for increasing pH value Storage tank empty!
0x27107	10072	Pump for increasing pH value Storage tank empty!
0x27107	10073	Pump for increasing pH value Storage tank almost empty!
0x275A	10074	Pump for increasing pH value Storage tank almost empty!
0x275B	10075	Pump to increase pH Stroke length was adjusted by more than 10%!

Error code (Hex)	Error code (Decimal)	Description
0x275C	10076	Pump to increase pH value Pump error: please check pump. A more precise error message is shown in the pump display!
0x275D	10077	Pump to increase pH value Manual pump operation not permitted!
0x275E	10078	Pump for increasing pH value Storage tank empty!
0x2761	10081	Pump controlled by ORP value Storage tank empty!
0x2762	10082	Pump controlled by ORP value Storage tank empty!
0x2763	10083	Pump controlled by ORP value, storage tank almost empty!
0x2764	10084	Pump controlled by ORP value, storage tank almost empty!
0x2765	10085	Pump controlled by ORP value Stroke length was adjusted by more than 10%!
0x2766	10086	Pump controlled by ORP value Pump error: please check pump. A more precise error message is shown in the pump display!
0x2767	10087	Pump controlled by ORP value Manual pump operation not permitted!
0x2768	10088	Pump controlled by ORP value Storage tank empty!
0x276B	10091	Pump for increasing chlorine value Storage tank empty!
0x276C	10092	Pump for increasing chlorine value Storage tank empty!
0x276D	10093	Pump for increasing chlorine value Storage tank almost empty!
0x276E	10094	Pump for increasing chlorine value Storage tank almost empty!
0x276F	10095	Pump to increase chlorine Stroke length was adjusted by more than 10%!
0x2770	10096	Pump to increase chlorine Pump error: please check pump. A more precise error message is shown in the pump display!
0x2771	10097	Pump to increase chlorine Manual pump operation not permitted!
0x2772	10098	Pump for increasing chlorine value Storage tank empty!
0x2775	10101	Pump for flocculant Storage tank empty!
0x2776	10102	Pump for flocculant Storage tank empty!
0x2777	10103	Pump for flocculant Storage tank almost empty!
0x2778	10104	Pump for flocculant Storage tank almost empty!

Error code (Hex)	Error code (Decimal)	Description
0x2779	10105	Pump for flocculant Stroke length was adjusted by more than 10%! Reset the control for the flocculant.
0x277A	10106	Pump for flocculant Pump error: please check pump. A more precise error message is shown in the pump display!
0x277B	10107	Pump for flocculant Manual pump operation not permitted!
0x277C	10108	Pump for flocculant Storage tank empty!
0x277F	10111	Pump PES Storage tank empty!
0x2780	10112	Pump PES Storage tank empty!
0x2781	10113	Pump PES Storage tank almost empty!
0x2782	10114	Pump PES Storage tank almost empty!
0x2783	10115	Pump PES Stroke length was adjusted by more than 10%!

Appendix A: Error messages

Error code (Hex)	Error code (Decimal)	Description
0x2784	10116	Pump PES Pump error: please check pump. A more precise error message is shown in the pump display!
0x2785	10117	Pump PES Manual pump operation not permitted!
0x2786	10118	Pump PES Storage tank empty!
0x2789	10121	Lower pump ORP value Storage tank empty!
0x278B	10123	Lower pump ORP value Storage tank almost empty!
0x278C	10124	Lower pump ORP value Storage tank almost empty!
0x278D	10125	Pump to decrease ORP Stroke length was adjusted by more than 10%!
0x278E	10126	Pump to decrease ORP Pump error: please check pump. A more precise error message is shown in the pump display!
0x278F	10127	Pump to decrease ORP Manual pump operation not permitted!
0x2790	10128	Lower pump ORP value Storage tank empty!
0x2793	10131	Pump for increasing measured variable I2 value Storage tank empty!
0x2794	10132	Pump for increasing measured variable I2 value Storage tank empty!
0x2795	10133	Pump for increasing measured variable I2 value Storage tank almost empty!
0x2796	10134	Pump for increasing measured variable I2 value Storage tank almost empty!
0x2797	10135	Pump to increase measured variable I2 Stroke length was adjusted by more than 10%!
0x2798	10136	Pump to increase measured variable I2 Pump error: please check pump. A more precise error message is shown in the pump display!
0x2799	10137	Pump to increase measured variable I2 Manual pump operation not permitted!
0x279A	10138	Pump for increasing measured variable I2 value Storage tank empty!
0x279D	10141	Pump for decreasing pH value Storage tank empty!
0x279E	10142	Pump for decreasing pH value Storage tank empty!
0x279F	10143	Pump for decreasing pH value Storage tank almost empty!
0x27A0	10144	Pump for decreasing pH value Storage tank almost empty!
0x27A1	10145	Pump to decrease pH Stroke length was adjusted by more than 10%!
0x27A2	10146	Pump to decrease pH Pump error: please check pump. A more precise error message is shown in the pump display!
0x27A3	10147	Pump to decrease pH Manual pump operation not permitted!
0x27A4	10148	Pump for decreasing pH value Storage tank empty!



ProMinent GmbH
Im Schuhmachergewann 5 - 11
69123 Heidelberg, Germany
Telephone: +49 6221 842-0
Fax: +49 6221 842-419
Email: info@prominent.com
Internet: www.prominent.com

981497, 1, en_GB