ZIEHL industrie – elektronik GmbH + Co KG
Daimlerstraße 13, D – 74523 Schwäbisch Hall
+ 49 791 504-0, info@ziehl.de, www.ziehl.de



# Operating Manual UR420IP / UR840IP

updated: 2026-04-07 / sm
from Firmware: 02-06

**- Modbus TCP communication protocol**

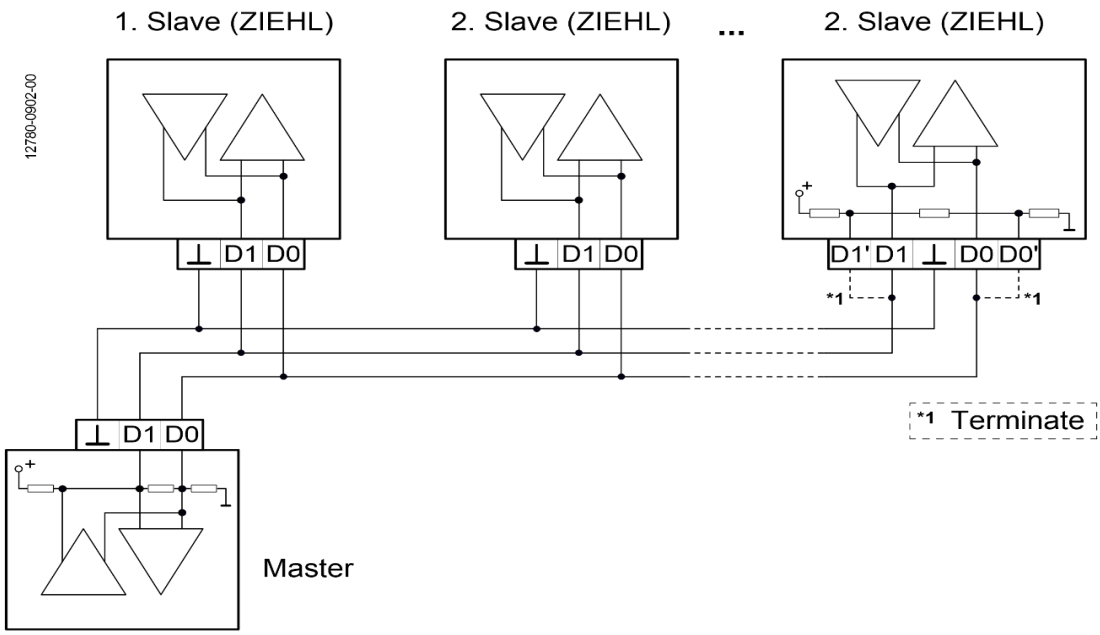
## Table of contents

**1 Important Information ..... 2**
**2 Connection diagram RS485-BUS ..... 2**
**3 Interface Parameters ..... 2**
**4 RS485-BUS interface parameter ..... 2**
**5 Telegram Structure ..... 2**
5.1 MODBUS Application Protocol header (MBAP) ..... 3
5.1.1 Modbus function code 0x03 (Read Holding Registers) ..... 3
5.1.2 Modbus function code 0x10 (Write Multiple Registers) ..... 3
**6 Supported Function Codes ..... 3**
**7 Data Types ..... 3**
**8 Modbus Register Tables ..... 4**
8.1 Register TR1200IP (SIPROTEC) reading measured values and status values ..... 4
8.2 Reading measured values, status values and min./max. values ..... 6
8.3 Parameter read and write ..... 19
8.3.1 Permissible alarm limits for each configured sensor type ..... 24
8.4 Triggering the reset function ..... 25
**9 Function code 0x2B – read device information ..... 25**
9.1 Function code 0x2B - objects ..... 25
**10 Note for SIEMENS SIMATIC S7-1500 ..... 26**

# 1 Important Information

**Please also read the general operating manual of the UR840IP / UR420IP carefully and observe the safety instructions.**

# 2 Connection diagram RS485-BUS

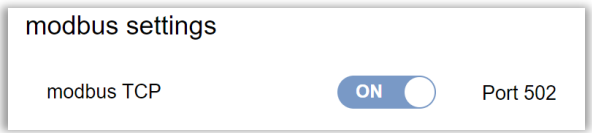



# 3 Interface Parameters

TCP Port: 502
From firmware 12820-1402-01 -> max. TCP connections: 5
Up to firmware 12820-1402-00 -> max. TCP connections: 3

**The Modbus TCP protocol must be activated via the integrated web server of the device:**

- Enter the IP address of the device in the web browser (on a computer in the same network)
- Select the menu tab „network“
- Activate Modbus TCP




# 4 RS485-BUS interface parameter

| BUS-Address | Baud rate | Data bits | Parity | Stop bit |
|---|---|---|---|---|
| 1 … 247 | 4800, 9600, 19200, 57600 | 8 | even, odd, none | 1, 2 |

The interface parameters are factory set to address 1, 9600 baud, 8 bits, even parity, 1 stop bit.

The UR840IP / UR420IP acts in BUS as a slave.
**The RTU mode is used.**
The parameters can be set directly on the internal website or on the device (see operating manual UR840IP or UR420IP).

# 5 Telegram Structure

According to Modbus specification.
For details, refer to the Modbus original documentation, available at: http://www.modbus.org

### 5.1 MODBUS Application Protocol header (MBAP)

| Byte no. | | Value (hex) | Designation | Description |
|---|---|---|---|---|
| 0<br>1 | Hi<br>Lo | 00<br>00 | Transaction Identifier | Identification number of a request<br>(at multiple requests at the same time) |
| 2<br>3 | Hi<br>Lo | 00<br>00 | Protocol Identifier | Always 0 (Modbus protocol) |
| 4<br>5 | Hi<br>Lo | 00<br>06 | Length | Number of following bytes<br>(High Byte is always 0) |
| 6 | | FF | Unit Identifier | Identification of a remote device (value meaningless) |

#### 5.1.1 Modbus function code 0x03 (Read Holding Registers)

| | | | | |
|---|---|---|---|---|
| 7 | | 03 | Function code | Modbus functions code (0x03, Read Holding Registers) |
| 8<br>9 | Hi<br>Lo | 00<br>00 | Start address | Address of the first (read) register |
| 10<br>11 | Hi<br>Lo | 00<br>06 | Number of registers | High Byte always 0,<br>Low Byte at Modbus: 1…125 |

#### 5.1.2 Modbus function code 0x10 (Write Multiple Registers)

| | | | | |
|---|---|---|---|---|
| 7 | | 10 | Function code | Modbus functions code (0x10, Write Multiple Registers) |
| 8<br>9 | Hi<br>Lo | 00<br>00 | Start address | Address of the first (write) register |
| 10<br>11 | Hi<br>Lo | 00<br>06 | Number of Registers | High Byte always 0,<br>Low Byte at Modbus: 1…123 |
| 12 | | 0C | Number of Bytes | Number of Registers * 2 |
| 13<br>14<br>.<br>. | Hi<br>Lo | | Registers | Registers to be written |

## 6 Supported Function Codes

| Function code | | Designation | Use |
|---|---|---|---|
| 3 | (0x03) | Read Holding Registers | Read data from registers |
| 16 | (0x10) | Write Multiple Registers | Write data to registers |
| 43 | (0x2B) | Read device identification | Read device identification information |

## 7 Data Types

The following data types are used in the Modbus registers:

| Data type | Size | Range of numbers |
|---|---|---|
| signed int | 16 Bit, register value | -32768 … 32767 |
| unsigned int | 16 Bit, register value | 0 … 65535 |
| signed long | 32 Bit, divided over two registers | -2147483648 … 2147483647 |
| unsigned long | 32 Bit, divided over two registers | 0 … 4294967296 |

# 8 Modbus Register Tables

## 8.1 Register TR1200IP (SIPROTEC) reading measured values and status values

- Modbus function code 0x03 (Read Holding Registers)

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 0001 | signed int 16 | | Measured value sensor 1T | -31500… | 31500<br>[Unit per sensor type]<br><br>32748 = Sensor off,<br>32749 = measured value too low,<br>32750 = measured value too high,<br>32764 = differential value error,<br>32766 = sensor interrupt,<br>32767 = sensor short circuit |
| 0002 | signed int 16 | | Measured value sensor 2T | | |
| 0003 | signed int 16 | | Measured value sensor 3T | | |
| 0004 | signed int 16 | | Measured value sensor 4T | | |
| 0005 | signed int 16 | | Measured value sensor 5T | | |
| 0006 | signed int 16 | | Measured value sensor 6T | | |
| 0007 | signed int 16 | | Measured value sensor 7T | | |
| 0008 | signed int 16 | | Measured value sensor 8T | | |
| 0009 | signed int 16 | | Measured value sensor 9T | | |
| 000A | signed int 16 | | Measured value sensor 10T | | |
| 000B | signed int 16 | | Measured value sensor 11T | | |
| 000C | signed int 16 | | Measured value sensor 12T | | |
| 000D | signed int 16 | | Measured value from max. sensor | | |
| 000E | signed int 16 | | Max. value sensor 1T | | |
| 000F | signed int 16 | | Max. value sensor 2T | | |
| 0010 | signed int 16 | | Max. value sensor 3T | | |
| 0011 | signed int 16 | | Max. value sensor 4T | | |
| 0012 | signed int 16 | | Max. value sensor 5T | | |
| 0013 | signed int 16 | | Max. value sensor 6T | | |
| 0014 | signed int 16 | | Max. value sensor 7T | | |
| 0015 | signed int 16 | | Max. value sensor 8T | | |
| 0016 | signed int 16 | | Max. value sensor 9T | | |
| 0017 | signed int 16 | | Max. value sensor 10T | | |
| 0018 | signed int 16 | | Max. value sensor 11T | | |
| 0019 | signed int 16 | | Max. value sensor 12T | | |
| 001A | signed int 16 | | Max. value max. sensor | | |
| 001B | signed int 16 | | Min. value sensor 1T | | |
| 001C | signed int 16 | | Min. value sensor 2T | | |
| 001D | signed int 16 | | Min. value sensor 3T | | |
| 001E | signed int 16 | | Min. value sensor 4T | | |
| 001F | signed int 16 | | Min. value sensor 5T | | |
| 0020 | signed int 16 | | Min. value sensor 6T | | |
| 0021 | signed int 16 | | Min. value sensor 7T | | |
| 0022 | signed int 16 | | Min. value sensor 8T | | |
| 0023 | signed int 16 | | Min. value sensor 9T | | |
| 0024 | signed int 16 | | Min. value sensor 10T | | |
| 0025 | signed int 16 | | Min. value sensor 11T | | |
| 0026 | signed int 16 | | Min. value sensor 12T | | |
| 0027 | signed int 16 | | Min. value min. sensor | | |
| 0028 | signed int 16 | | Internal fault | 0: no error, 2: Parameter error,<br>3: error A/D converter,<br>4: sensor error | |
| 0029 | signed int 16 | | Relay status K1 | 0: off, 1: on | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 002A | signed int 16 | | Connection type sensor 1 | -2: nc,<br>-1: 3-L,<br>0: 0 Ohm (2-L)<br>…<br>999: 99,9 Ohm (2-L) | |
| 002B | signed int 16 | | Connection type sensor 2 | | |
| 002C | signed int 16 | | Connection type sensor 3 | | |
| 002D | signed int 16 | | Connection type sensor 4 | | |
| 002E | signed int 16 | | Connection type sensor 5 | | |
| 002F | signed int 16 | | Connection type sensor 6 | | |
| 0030 | signed int 16 | | Connection type sensor 7 | | |
| 0031 | signed int 16 | | Connection type sensor 8 | | |
| 0032 | signed int 16 | | Connection type sensor 9 | | |
| 0033 | signed int 16 | | Connection type sensor 10 | | |
| 0034 | signed int 16 | | Connection type sensor 11 | | |
| 0035 | signed int 16 | | Connection type sensor 12 | | |
| 0036 | signed int 16 | | Relay function | -2: operating current mode,<br>-1: closed-circuit current mode | |
| 0037 | signed int 16 | | Firmware version | e.g. 0x0B01(hex)<br>-> 12820-1411-01 (dez) | |

## 8.2 Reading measured values, status values and min./max. values

- Modbus Function code 0x03 (Read Holding Registers)

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1000 | signed int 16 | | device type | 1=UR840IP, 2=UR420IP | |
| 1001 | signed int 16 | | Measured value Sensor 1T | -31500… 31500<br>[Unit per sensor type]<br><br>32748 = Sensor off,<br>32749 = measured value too low,<br>32750 = measured value too high,<br>32760 = STWA4MH interface set wrong,<br>32761 = error STWA4MH,<br>32762 = error average,<br>32763 = error sum,<br>32764 = error differential value,<br>32766 = sensor interrupt,<br>32767 = sensor short circuit | |
| 1002 | signed int 16 | | Measured value Sensor 2T | | |
| 1003 | signed int 16 | | Measured value Sensor 3T | | |
| 1004 | signed int 16 | | Measured value Sensor 4T | | |
| 1005 | signed int 16 | | Measured value Sensor 5T | | |
| 1006 | signed int 16 | | Measured value Sensor 6T | | |
| 1007 | signed int 16 | | Measured value Sensor 7T | | |
| 1008 | signed int 16 | | Measured value Sensor 8T | | |
| 1009 | signed int 16 | | Measured value virtual Sensor V1 | | |
| 100A | signed int 16 | | Measured value virtual Sensor V2 | | |
| 100B | signed int 16 | | Measured value virtual Sensor V3 | | |
| 100C | signed int 16 | | Measured value virtual Sensor V4 | | |
| 100D | signed int 16 | | Measured value virtual Sensor V5 | | |
| 100E | signed int 16 | | Measured value virtual Sensor V6 | | |
| 100F | signed int 16 | | Measured value virtual Sensor V7 | | |
| 1010 | signed int 16 | | Measured value virtual Sensor V8 | | |
| 1011 | unsigned int 16 | | Error | ⇨ Switch Register to 0x11FF and 0x1200 | |
| 1012 | unsigned int 16 | | Measuring value- counter | 0 … | 65535 |
| 1013 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – Sensor 1<br>Status Alarm K1 – Sensor 2 | 0 = alarm off,<br><br>1 = delay alarm on,<br><br>2 = alarm on,<br><br>3 = delay alarm off,<br><br>4 = locked alarm,<br><br>5 = alarm 2 of X on,<br><br>6 = no function parameterized | |
| 1014 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – Sensor 3<br>Status Alarm K1 – Sensor 4 | | |
| 1015 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – Sensor 5<br>Status Alarm K1 – Sensor 6 | | |
| 1016 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – Sensor 7<br>Status Alarm K1 – Sensor 8 | | |
| 1017 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – virt. Sensor V1<br>Status Alarm K1 – virt. Sensor V2 | | |
| 1018 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – virt. Sensor V3<br>Status Alarm K1 – virt. Sensor V4 | | |
| 1019 | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – virt. Sensor V5<br>Status Alarm K1 – virt. Sensor V6 | | |
| 101A | unsigned int 16 | *Low*<br>*High* | Status Alarm K1 – virt. Sensor V7<br>Status Alarm K1 – virt. Sensor V8 | | |
| 101B | unsigned int 16 | *Low*<br>*High* | Status Alarm K2 – Sensor 1<br>Status Alarm K2 – Sensor 2 | | |
| 101C | unsigned int 16 | *Low*<br>*High* | Status Alarm K2 – Sensor 3<br>Status Alarm K2 – Sensor 4 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 101D | unsigned int 16 | *Low* | Status Alarm K2 – Sensor 5 | | |
| | | *High* | Status Alarm K2 – Sensor 6 | | |
| 101E | unsigned int 16 | *Low* | Status Alarm K2 – Sensor 7 | | |
| | | *High* | Status Alarm K2 – Sensor 8 | | |
| 101F | unsigned int 16 | *Low* | Status Alarm K2 – virt. Sensor V1 | | |
| | | *High* | Status Alarm K2 – virt. Sensor V2 | | |
| 1020 | unsigned int 16 | *Low* | Status Alarm K2 – virt. Sensor V3 | | |
| | | *High* | Status Alarm K2 – virt. Sensor V4 | | |
| 1021 | unsigned int 16 | *Low* | Status Alarm K2 – virt. Sensor V5 | | |
| | | *High* | Status Alarm K2 – virt. Sensor V6 | | |
| 1022 | unsigned int 16 | *Low* | Status Alarm K2 – virt. Sensor V7 | | |
| | | *High* | Status Alarm K2 – virt. Sensor V8 | | |
| 1023 | unsigned int 16 | *Low* | Status Alarm K3 – Sensor 1 | | |
| | | *High* | Status Alarm K3 – Sensor 2 | | |
| 1024 | unsigned int 16 | *Low* | Status Alarm K3 – Sensor 3 | | |
| | | *High* | Status Alarm K3 – Sensor 4 | | |
| 1025 | unsigned int 16 | *Low* | Status Alarm K3 – Sensor 5 | | |
| | | *High* | Status Alarm K3 – Sensor 6 | | |
| 1026 | unsigned int 16 | *Low* | Status Alarm K3 – Sensor 7 | | |
| | | *High* | Status Alarm K3 – Sensor 8 | | |
| 1027 | unsigned int 16 | *Low* | Status Alarm K3 – virt. Sensor V1 | | |
| | | *High* | Status Alarm K3 – virt. Sensor V2 | | |
| 1028 | unsigned int 16 | *Low* | Status Alarm K3 – virt. Sensor V3 | | |
| | | *High* | Status Alarm K3 – virt. Sensor V4 | | |
| 1029 | unsigned int 16 | *Low* | Status Alarm K3 – virt. Sensor V5 | 0 = alarm off,<br>1 = delay alarm on,<br>2 = alarm on,<br>3 = delay alarm off,<br>4 = locked alarm,<br>5 = alarm 2 of X on,<br>6 = no function parameterized | |
| | | *High* | Status Alarm K3 – virt. Sensor V6 | | |
| 102A | unsigned int 16 | *Low* | Status Alarm K3 – virt. Sensor V7 | | |
| | | *High* | Status Alarm K3 – virt. Sensor V8 | | |
| 102B | unsigned int 16 | *Low* | Status Alarm K4 – Sensor 1 | | |
| | | *High* | Status Alarm K4 – Sensor 2 | | |
| 102C | unsigned int 16 | *Low* | Status Alarm K4 – Sensor 3 | | |
| | | *High* | Status Alarm K4 – Sensor 4 | | |
| 102D | unsigned int 16 | *Low* | Status Alarm K4 – Sensor 5 | | |
| | | *High* | Status Alarm K4 – Sensor 6 | | |
| 102E | unsigned int 16 | *Low* | Status Alarm K4 – Sensor 7 | | |
| | | *High* | Status Alarm K4 – Sensor 8 | | |
| 102F | unsigned int 16 | *Low* | Status Alarm K4 – virt. Sensor V1 | | |
| | | *High* | Status Alarm K4 – virt. Sensor V2 | | |
| 1030 | unsigned int 16 | *Low* | Status Alarm K4 – virt. Sensor V3 | | |
| | | *High* | Status Alarm K4 – virt. Sensor V4 | | |
| 1031 | unsigned int 16 | *Low* | Status Alarm K4 – virt. Sensor V5 | | |
| | | *High* | Status Alarm K4 – virt. Sensor V6 | | |
| 1032 | unsigned int 16 | *Low* | Status Alarm K4 – virt. Sensor V7 | | |
| | | *High* | Status Alarm K4 – virt. Sensor V8 | | |
| 1033 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – Sensor 1 | | |
| | | *High* | Status Alarm URB40 K5 – Sensor 2 | | |
| 1034 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – Sensor 3 | | |
| | | *High* | Status Alarm URB40 K5 – Sensor 4 | | |
| 1035 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – Sensor 5 | | |
| | | *High* | Status Alarm URB40 K5 – Sensor 6 | | |
| 1036 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – Sensor 7 | | |
| | | *High* | Status Alarm URB40 K5 – Sensor 8 | | |
| 1037 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – virt. Sensor V1 | | |
| | | *High* | Status Alarm URB40 K5 – virt. Sensor V2 | | |
| 1038 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – virt. Sensor V3 | | |
| | | *High* | Status Alarm URB40 K5 – virt. Sensor V4 | | |
| 1039 | unsigned int 16 | *Low* | Status Alarm URB40 K5 – virt. Sensor V5 | | |
| | | *High* | Status Alarm URB40 K5 – virt. Sensor V6 | | |
| 103A | unsigned int 16 | *Low* | Status Alarm URB40 K5 – virt. Sensor V7 | | |
| | | *High* | Status Alarm URB40 K5 – virt. Sensor V8 | | |

| Add. Hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 103B | unsigned int 16 | *Low* | Status Alarm URB40 K6 – Sensor 1 | | |
| | | *High* | Status Alarm URB40 K6 – Sensor 2 | | |
| 103C | unsigned int 16 | *Low* | Status Alarm URB40 K6 – Sensor 3 | | |
| | | *High* | Status Alarm URB40 K6 – Sensor 4 | | |
| 103D | unsigned int 16 | *Low* | Status Alarm URB40 K6 – Sensor 5 | | |
| | | *High* | Status Alarm URB40 K6 – Sensor 6 | | |
| 103E | unsigned int 16 | *Low* | Status Alarm URB40 K6 – Sensor 7 | | |
| | | *High* | Status Alarm URB40 K6 – Sensor 8 | | |
| 103F | unsigned int 16 | *Low* | Status Alarm URB40 K6 – virt. Sensor V1 | | |
| | | *High* | Status Alarm URB40 K6 – virt. Sensor V2 | | |
| 1040 | unsigned int 16 | *Low* | Status Alarm URB40 K6 – virt. Sensor V3 | | |
| | | *High* | Status Alarm URB40 K6 – virt. Sensor V4 | | |
| 1041 | unsigned int 16 | *Low* | Status Alarm URB40 K6 – virt. Sensor V5 | | |
| | | *High* | Status Alarm URB40 K6 – virt. Sensor V6 | | |
| 1042 | unsigned int 16 | *Low* | Status Alarm URB40 K6 – virt. Sensor V7 | | |
| | | *High* | Status Alarm URB40 K6 – virt. Sensor V8 | | |
| 1043 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – Sensor 1 | | |
| | | *High* | Status Alarm URB40 K7 – Sensor 2 | | |
| 1044 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – Sensor 3 | 0 = alarm off,<br>1 = delay alarm on,<br>2 = alarm on,<br>3 = delay alarm off,<br>4 = locked alarm,<br>5 = alarm 2 of X on,<br>6 = no function parameterized | |
| | | *High* | Status Alarm URB40 K7 – Sensor 4 | | |
| 1045 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – Sensor 5 | | |
| | | *High* | Status Alarm URB40 K7 – Sensor 6 | | |
| 1046 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – Sensor 7 | | |
| | | *High* | Status Alarm URB40 K7 – Sensor 8 | | |
| 1047 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – virt. Sensor V1 | | |
| | | *High* | Status Alarm URB40 K7 – virt. Sensor V2 | | |
| 1048 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – virt. Sensor V3 | | |
| | | *High* | Status Alarm URB40 K7 – virt. Sensor V4 | | |
| 1049 | unsigned int 16 | *Low* | Status Alarm URB40 K7 – virt. Sensor V5 | | |
| | | *High* | Status Alarm URB40 K7 – virt. Sensor V6 | | |
| 104A | unsigned int 16 | *Low* | Status Alarm URB40 K7 – virt. Sensor V7 | | |
| | | *High* | Status Alarm URB40 K7 – virt. Sensor V8 | | |
| 104B | unsigned int 16 | *Low* | Status Alarm URB40 K8 – Sensor 1 | | |
| | | *High* | Status Alarm URB40 K8 – Sensor 2 | | |
| 104C | unsigned int 16 | *Low* | Status Alarm URB40 K8 – Sensor 3 | | |
| | | *High* | Status Alarm URB40 K8 – Sensor 4 | | |
| 104D | unsigned int 16 | *Low* | Status Alarm URB40 K8 – Sensor 5 | | |
| | | *High* | Status Alarm URB40 K8 – Sensor 6 | | |
| 104E | unsigned int 16 | *Low* | Status Alarm URB40 K8 – Sensor 7 | | |
| | | *High* | Status Alarm URB40 K8 – Sensor 8 | | |
| 104F | unsigned int 16 | *Low* | Status Alarm URB40 K8 – virt. Sensor V1 | | |
| | | *High* | Status Alarm URB40 K8 – virt. Sensor V2 | | |
| 1050 | unsigned int 16 | *Low* | Status Alarm URB40 K8 – virt. Sensor V3 | | |
| | | *High* | Status Alarm URB40 K8 – virt. Sensor V4 | | |
| 1051 | unsigned int 16 | *Low* | Status Alarm URB40 K8 – virt. Sensor V5 | | |
| | | *High* | Status Alarm URB40 K8 – virt. Sensor V6 | | |
| 1052 | unsigned int 16 | *Low* | Status Alarm URB40 K8 – virt. Sensor V7 | | |
| | | *High* | Status Alarm URB40 K8 – virt. Sensor V8 | | |
| 1053 | unsigned int 16 | *Low* | Status relay K1 | 0 = off, 1 = on,<br>2 = on, 3 = off (manually),<br>4 = on, 5 = off (relay test)<br>6 = on, 7 = off (simulation) | |
| | | *High* | Status relay K2 | | |
| 1054 | unsigned int 16 | *Low* | Status relay K3 | | |
| | | *High* | Status relay K4 | | |
| 1055 | unsigned int 16 | *Low* | Status relay URB40 K5 | | |
| | | *High* | Status relay URB40 K6 | | |
| 1056 | unsigned int 16 | *Low* | Status relay URB40 K7 | | |
| | | *High* | Status relay URB40 K8 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1057 | unsigned int 16 | | Analog output U1 [0,01 V] *1) | 0 ... | |
| 1058 | unsigned int 16 | | Analog output I1 [0,01 mA] *1) | 0 ... | |
| 1059 | signed int 16 | | RS485 – protocol *2) | -2 = Modbus, | |
| 105A | unsigned int 16 | | RS485 – address *2) | 1 … 247 | |
| 105B | signed int 16 | | RS485 – baud rate *2) | -1 = 4800 Bd,<br>-2 = 9600 Bd,<br>-3 = 19200 Bd,<br>-4 = 57600 Bd | |
| 105C | signed int 16 | | RS485 – parity *2) | -1 = no,<br>-2 = odd,<br>-3 = even | |
| 105D | signed int 16 | | RS485 – stop bits *2) | 1 … 2 | |
| 105E | signed int 16 | | min. measured value Sensor 1T | | |
| 105F | signed int 16 | | min. measured value Sensor 2T | | |
| 1060 | signed int 16 | | min. measured value Sensor 3T | | |
| 1061 | signed int 16 | | min. measured value Sensor 4T | | |
| 1062 | signed int 16 | | min. measured value Sensor 5T | | |
| 1063 | signed int 16 | | min. measured value Sensor 6T | | |
| 1064 | signed int 16 | | min. measured value Sensor 7T | | |
| 1065 | signed int 16 | | min. measured value Sensor 8T | | |
| 1066 | signed int 16 | | min. measured value virt. Sensor V1 | | |
| 1067 | signed int 16 | | min. measured value virt. Sensor V2 | | |
| 1068 | signed int 16 | | min. measured value virt. Sensor V3 | | |
| 1069 | signed int 16 | | min. measured value virt. Sensor V4 | | |
| 106A | signed int 16 | | min. measured value virt. Sensor V5 | | |
| 106B | signed int 16 | | min. measured value virt. Sensor V6 | | |
| 106C | signed int 16 | | min. measured value virt. Sensor V7 | | |
| 106D | signed int 16 | | min. measured value virt. Sensor V8 | -31500 … 31500<br>[Unit per sensor type] | |
| 106E | signed int 16 | | max. measured value Sensor 1T | | |
| 106F | signed int 16 | | max. measured value Sensor 2T | | |
| 1070 | signed int 16 | | max. measured value Sensor 3T | | |
| 1071 | signed int 16 | | max. measured value Sensor 4T | | |
| 1072 | signed int 16 | | max. measured value Sensor 5T | | |
| 1073 | signed int 16 | | max. measured value Sensor 6T | | |
| 1074 | signed int 16 | | max. measured value Sensor 7T | | |
| 1075 | signed int 16 | | max. measured value Sensor 8T | | |
| 1076 | signed int 16 | | max. measured value virt. Sensor V1 | | |
| 1077 | signed int 16 | | max. measured value virt. Sensor V2 | | |
| 1078 | signed int 16 | | max. measured value virt. Sensor V3 | | |
| 1079 | signed int 16 | | max. measured value virt. Sensor V4 | | |
| 107A | signed int 16 | | max. measured value virt. Sensor V5 | | |
| 107B | signed int 16 | | max. measured value virt. Sensor V6 | | |
| 107C | signed int 16 | | max. measured value virt. Sensor V7 | | |
| 107D | signed int 16 | | max. measured value virt. Sensor V8 | | |
| 107E<br>107F | unsigned int 32 | *Low*<br>*High* | Counter operating hour | [h] | |
| 1080<br>1081 | unsigned int 32 | *Low*<br>*High* | Serial number | | |
| 1082 | | | Hardware-Version | 0 … | |
| 1083 | | | Firmware-Version, Application | | |
| 1084 | | | Firmware-Version, Bootloader | e.g. 0x0B01(hex)<br>-> 12820-1411-01 (dez) | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1085 | signed int 16 | *Low*<br>*High* | Sensor typ 1T<br>Sensor typ 2T | -1 = off,<br>-2 = Pt100,<br>-3 = Pt1000,<br>-4 = PTC,<br>-5 = Thermocouple Typ B,<br>-6 = Thermocouple Typ E,<br>-7 = Thermocouple Typ J,<br>-8 = Thermocouple Typ K,<br>-9 = Thermocouple Typ L,<br>-10 = Thermocouple Typ N,<br>-11 = Thermocouple Typ R,<br>-12 = Thermocouple Typ S,<br>-13 = Thermocouple Typ T,<br>-14 = 0…10V,<br>-15 = 2…10V,<br>-16 = 0…20mA,<br>-17 = 4…20mA,<br>-18 = resistance 500 Ohm,<br>-19 = resistance 30 kOhm | |
| 1086 | signed int 16 | *Low*<br>*High* | Sensor typ 3T<br>Sensor typ 4T | | |
| 1087 | signed int 16 | *Low*<br>*High* | Sensor typ 5T<br>Sensor typ 6T | | |
| 1088 | signed int 16 | *Low*<br>*High* | Sensor typ 7T<br>Sensor typ 8T | | |
| 1089 | signed int 16 | | Sensor compensation 1T | -1 = 3-wire,<br>0 … 999 Ohm [XX,X] | |
| 108A | signed int 16 | | Sensor compensation 2T | | |
| 108B | signed int 16 | | Sensor compensation 3T | | |
| 108C | signed int 16 | | Sensor compensation 4T | | |
| 108D | signed int 16 | | Sensor compensation 5T | | |
| 108E | signed int 16 | | Sensor compensation 6T | | |
| 108F | signed int 16 | | Sensor compensation 7T | | |
| 1090 | signed int 16 | | Sensor compensation 8T | | |
| 1091 | signed int 16 | *Low*<br>*High* | Sensor scaling Sensor 1T<br>Sensor scaling Sensor 2T | -1 = off,<br>-2 = on | |
| 1092 | signed int 16 | *Low*<br>*High* | Sensor scaling Sensor 3T<br>Sensor scaling Sensor 4T | | |
| 1093 | signed int 16 | *Low*<br>*High* | Sensor scaling Sensor 5T<br>Sensor scaling Sensor 6T | | |
| 1094 | signed int 16 | *Low*<br>*High* | Sensor scaling Sensor 7T<br>Sensor scaling Sensor 8T | | |
| 1095 | signed int 16 | | Sensor scaling zero 1T | -31500 … 31500 | |
| 1096 | signed int 16 | | Sensor scaling zero 2T | | |
| 1097 | signed int 16 | | Sensor scaling zero 3T | -31500 … 31500 | |
| 1098 | signed int 16 | | Sensor scaling zero 4T | | |
| 1099 | signed int 16 | | Sensor scaling zero 5T | | |
| 109A | signed int 16 | | Sensor scaling zero 6T | | |
| 109B | signed int 16 | | Sensor scaling zero 7T | | |
| 109C | signed int 16 | | Sensor scaling zero 8T | | |
| 109D | signed int 16 | | Sensor scaling full scale 1T | | |
| 109E | signed int 16 | | Sensor scaling full scale 2T | | |
| 109F | signed int 16 | | Sensor scaling full scale 3T | | |
| 10A0 | signed int 16 | | Sensor scaling full scale 4T | | |
| 10A1 | signed int 16 | | Sensor scaling full scale 5T | | |
| 10A2 | signed int 16 | | Sensor scaling full scale 6T | | |
| 10A3 | signed int 16 | | Sensor scaling full scale 7T | | |
| 10A4 | signed int 16 | | Sensor scaling full scale 8T | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 10A5 | signed int 16 | *Low*<br>*High* | Sensor scaling decimal point1T<br>Sensor scaling decimal point2T | | |
| 10A6 | signed int 16 | *Low*<br>*High* | Sensor scaling decimal point3T<br>Sensor scaling decimal point4T | -1 = XXXX,<br>-2 = XXX.X,<br>-3 = XX.XX,<br>-4 = X.XXX | |
| 10A7 | signed int 16 | *Low*<br>*High* | Sensor scaling decimal point5T<br>Sensor scaling decimal point6T | | |
| 10A8 | signed int 16 | *Low*<br>*High* | Sensor scaling decimal point7T<br>Sensor scaling decimal point8T | | |
| 10A9 | signed int 16 | *Low*<br>*High* | Sensor unit 1T<br>Sensor unit 2T | -1 = °C,<br>-2 = V,<br>-3 = mV,<br>-4 = A,<br>-5 = mA,<br>-6 = Ohm,<br>-7 = kOhm,<br>-8 = user defined,<br>-9 = Hz,<br>-10 = hhmm | |
| 10AA | signed int 16 | *Low*<br>*High* | Sensor unit 3T<br>Sensor unit 4T | | |
| 10AB | signed int 16 | *Low*<br>*High* | Sensor unit 5T<br>Sensor unit 6T | | |
| 10AC | signed int 16 | *Low*<br>*High* | Sensor unit 7T<br>Sensor unit 8T | | |
| 10AD | signed int 16 | *Low*<br>*High* | Virtual sensor V1 function<br>Virtual sensor V2 function | -1 = aus,<br>-2 = Differenz,<br>-3 = Differenz absolut,<br>-4 = min. Wert,<br>-5 = max. Wert,<br>-6 = Summe,<br>-7 = Mittelwert,<br>-8 = STWA4MH,<br>-9 = Zeitfunktion | |
| 10AE | signed int 16 | *Low*<br>*High* | Virtual sensor V3 function<br>Virtual sensor V4 function | | |
| 10AF | signed int 16 | *Low*<br>*High* | Virtual sensor V5 function<br>Virtual sensor V6 function | | |
| 10B0 | signed int 16 | *Low*<br>*High* | Virtual sensor V7 function<br>Virtual sensor V8 function | | |
| 10B1 | signed int 16 | | Virtual sensor V1 assignment 1 | Bit 0 = Sensor 1T,<br>Bit 1 = Sensor 2T,<br>Bit 2 = Sensor 3T,<br>Bit 3 = Sensor 4T,<br>Bit 4 = Sensor 5T,<br>Bit 5 = Sensor 6T,<br>Bit 6 = Sensor 7T,<br>Bit 7 = Sensor 8T | |
| 10B2 | signed int 16 | | Virtual sensor V2 assignment 1 | | |
| 10B3 | signed int 16 | | Virtual sensor V3 assignment 1 | | |
| 10B4 | signed int 16 | | Virtual sensor V4 assignment 1 | | |
| 10B5 | signed int 16 | | Virtual sensor V5 assignment 1 | | |
| 10B6 | signed int 16 | | Virtual sensor V6 assignment 1 | | |
| 10B7 | signed int 16 | | Virtual sensor V7 assignment 1 | | |
| 10B8 | signed int 16 | | Virtual sensor V8 assignment 1 | | |
| 10B9 | signed int 16 | | Virtual sensor V1 assignment 2 | Bit 0 = Sensor 1T,<br>Bit 1 = Sensor 2T,<br>Bit 2 = Sensor 3T,<br>Bit 3 = Sensor 4T,<br>Bit 4 = Sensor 5T,<br>Bit 5 = Sensor 6T,<br>Bit 6 = Sensor 7T,<br>Bit 7 = Sensor 8T | |
| 10BA | signed int 16 | | Virtual sensor V2 assignment 2 | | |
| 10BB | signed int 16 | | Virtual sensor V3 assignment 2 | | |
| 10BC | signed int 16 | | Virtual sensor V4 assignment 2 | | |
| 10BD | signed int 16 | | Virtual sensor V5 assignment 2 | | |
| 10BE | signed int 16 | | Virtual sensor V6 assignment 2 | | |
| 10BF | signed int 16 | | Virtual sensor V7 assignment 2 | | |
| 10C0 | signed int 16 | | Virtual sensor V8 assignment 2 | | |
| 10C1 | signed int 16 | *Low*<br>*High* | Virtual sensor V1 unit<br>Virtual sensor V2 unit | -1 = °C,<br>-2 = V,<br>-3 = mV,<br>-4 = A,<br>-5 = mA,<br>-6 = Ohm,<br>-7 = kOhm,<br>-8 = user<br>-9 = Hz,<br>-10 = hhmm | |
| 10C2 | signed int 16 | *Low*<br>*High* | Virtual sensor V3 unit<br>Virtual sensor V4 unit | | |
| 10C3 | signed int 16 | *Low*<br>*High* | Virtual sensor V5 unit<br>Virtual sensor V6 unit | | |
| 10C4 | signed int 16 | *Low*<br>*High* | Virtual sensor V7 unit<br>Virtual sensor V8 unit | | |
| 10C5 | signed int 16 | | Alarm 1 assignment | Bit 0 = Sensor 1T, Bit 1 = Sensor 2T,<br>Bit 2 = Sensor 3T, Bit 3 = Sensor 4T,<br>Bit 4 = Sensor 5T, Bit 5 = Sensor 6T,<br>Bit 6 = Sensor 7T, Bit 7 = Sensor 8T<br>Bit 8 = Sensor V1, Bit 9 = Sensor V2,<br>Bit 10 = Sensor V3, Bit 11 = Sensor V4,<br>Bit 12 = Sensor V5, Bit 13 = Sensor V6,<br>Bit 14 = Sensor V7, Bit 15 = Sensor V8 | |
| 10C6 | signed int 16 | | Alarm 2 assignment | | |
| 10C7 | signed int 16 | | Alarm 3 assignment | | |
| 10C8 | signed int 16 | | Alarm 4 assignment | | |
| 10C9 | signed int 16 | | Alarm 5 assignment | | |
| 10CA | signed int 16 | | Alarm 6 assignment | | |
| 10CB | signed int 16 | | Alarm 7 assignment | | |
| 10CC | signed int 16 | | Alarm 8 assignment | | |
| 10CD | signed int 16 | *Low*<br>*High* | Alarm 1 2 of X<br>Alarm 2 2 of X | -1 = off,<br>-2 = on | |
| 10CE | signed int 16 | *Low*<br>*High* | Alarm 3 2 of X<br>Alarm 4 2 of X | | |
| 10CF | signed int 16 | *Low* | Alarm 5 2 of X | | |

| | | | | |
|---|---|---|---|---|
| | | *High* | Alarm 6 2 of X | |
| 10D0 | signed int 16 | *Low* | Alarm 7 2 of X | |
| | | *High* | Alarm 8 2 of X | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 10D1 | signed int 16 | | Alarm 1 alarm on sensor 1T | -31500 … 31500 | |
| 10D2 | signed int 16 | | Alarm 1 alarm on sensor 2T | | |
| 10D3 | signed int 16 | | Alarm 1 alarm on sensor 3T | | |
| 10D4 | signed int 16 | | Alarm 1 alarm on sensor 4T | | |
| 10D5 | signed int 16 | | Alarm 1 alarm on sensor 5T | | |
| 10D6 | signed int 16 | | Alarm 1 alarm on sensor 6T | | |
| 10D7 | signed int 16 | | Alarm 1 alarm on sensor 7T | | |
| 10D8 | signed int 16 | | Alarm 1 alarm on sensor 8T | | |
| 10D9 | signed int 16 | | Alarm 1 alarm on sensor V1 | | |
| 10DA | signed int 16 | | Alarm 1 alarm on sensor V2 | | |
| 10DB | signed int 16 | | Alarm 1 alarm on sensor V3 | | |
| 10DC | signed int 16 | | Alarm 1 alarm on sensor V4 | | |
| 10DD | signed int 16 | | Alarm 1 alarm on sensor V5 | | |
| 10DE | signed int 16 | | Alarm 1 alarm on sensor V6 | | |
| 10EF | signed int 16 | | Alarm 1 alarm on sensor V7 | | |
| 10E0 | signed int 16 | | Alarm 1 alarm on sensor V8 | | |
| 10E1 | signed int 16 | | Alarm 1 alarm off sensor 1T | -31500 … 31500 | |
| 10E2 | signed int 16 | | Alarm 1 alarm off sensor 2T | | |
| 10E3 | signed int 16 | | Alarm 1 alarm off sensor 3T | | |
| 10E4 | signed int 16 | | Alarm 1 alarm off sensor 4T | | |
| 10E5 | signed int 16 | | Alarm 1 alarm off sensor 5T | | |
| 10E6 | signed int 16 | | Alarm 1 alarm off sensor 6T | | |
| 10E7 | signed int 16 | | Alarm 1 alarm off sensor 7T | | |
| 10E8 | signed int 16 | | Alarm 1 alarm off sensor 8T | | |
| 10E9 | signed int 16 | | Alarm 1 alarm off sensor V1 | | |
| 10EA | signed int 16 | | Alarm 1 alarm off sensor V2 | | |
| 10EB | signed int 16 | | Alarm 1 alarm off sensor V3 | | |
| 10EC | signed int 16 | | Alarm 1 alarm off sensor V4 | | |
| 10ED | signed int 16 | | Alarm 1 alarm off sensor V5 | | |
| 10EE | signed int 16 | | Alarm 1 alarm off sensor V6 | | |
| 10EF | signed int 16 | | Alarm 1 alarm off sensor V7 | | |
| 10F0 | signed int 16 | | Alarm 1 alarm off sensor V8 | | |
| 10F1 | signed int 16 | | Alarm 2 alarm on sensor 1T | -31500 … 31500 | |
| 10F2 | signed int 16 | | Alarm 2 alarm on sensor 2T | | |
| 10F3 | signed int 16 | | Alarm 2 alarm on sensor 3T | | |
| 10F4 | signed int 16 | | Alarm 2 alarm on sensor 4T | | |
| 10F5 | signed int 16 | | Alarm 2 alarm on sensor 5T | | |
| 10F6 | signed int 16 | | Alarm 2 alarm on sensor 6T | | |
| 10F7 | signed int 16 | | Alarm 2 alarm on sensor 7T | | |
| 10F8 | signed int 16 | | Alarm 2 alarm on sensor 8T | | |
| 10F9 | signed int 16 | | Alarm 2 alarm on sensor V1 | | |
| 10FA | signed int 16 | | Alarm 2 alarm on sensor V2 | | |
| 10FB | signed int 16 | | Alarm 2 alarm on sensor V3 | | |
| 10FC | signed int 16 | | Alarm 2 alarm on sensor V4 | | |
| 10FD | signed int 16 | | Alarm 2 alarm on sensor V5 | | |
| 10FE | signed int 16 | | Alarm 2 alarm on sensor V6 | | |
| 10FF | signed int 16 | | Alarm 2 alarm on sensor V7 | | |
| 1100 | signed int 16 | | Alarm 2 alarm on sensor V8 | | |
| 1101 | signed int 16 | | Alarm 2 alarm off sensor 1T | -31500 … 31500 | |
| 1102 | signed int 16 | | Alarm 2 alarm off sensor 2T | | |
| 1103 | signed int 16 | | Alarm 2 alarm off sensor 3T | | |
| 1104 | signed int 16 | | Alarm 2 alarm off sensor 4T | | |
| 1105 | signed int 16 | | Alarm 2 alarm off sensor 5T | | |
| 1106 | signed int 16 | | Alarm 2 alarm off sensor 6T | | |
| 1107 | signed int 16 | | Alarm 2 alarm off sensor 7T | | |
| 1108 | signed int 16 | | Alarm 2 alarm off sensor 8T | | |
| 1109 | signed int 16 | | Alarm 2 alarm off sensor V1 | | |
| 110A | signed int 16 | | Alarm 2 alarm off sensor V2 | | |
| 110B | signed int 16 | | Alarm 2 alarm off sensor V3 | | |
| 110C | signed int 16 | | Alarm 2 alarm off sensor V4 | | |
| 110D | signed int 16 | | Alarm 2 alarm off sensor V5 | | |
| 110E | signed int 16 | | Alarm 2 alarm off sensor V6 | | |
| 110F | signed int 16 | | Alarm 2 alarm off sensor V7 | | |
| 1110 | signed int 16 | | Alarm 2 alarm off sensor V8 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1111 | signed int 16 | | Alarm 3 alarm on sensor 1T | -31500 … 31500 | |
| 1112 | signed int 16 | | Alarm 3 alarm on sensor 2T | | |
| 1113 | signed int 16 | | Alarm 3 alarm on sensor 3T | | |
| 1114 | signed int 16 | | Alarm 3 alarm on sensor 4T | | |
| 1115 | signed int 16 | | Alarm 3 alarm on sensor 5T | | |
| 1116 | signed int 16 | | Alarm 3 alarm on sensor 6T | | |
| 1117 | signed int 16 | | Alarm 3 alarm on sensor 7T | | |
| 1118 | signed int 16 | | Alarm 3 alarm on sensor 8T | | |
| 1119 | signed int 16 | | Alarm 3 alarm on sensor V1 | | |
| 111A | signed int 16 | | Alarm 3 alarm on sensor V2 | | |
| 111B | signed int 16 | | Alarm 3 alarm on sensor V3 | | |
| 111C | signed int 16 | | Alarm 3 alarm on sensor V4 | | |
| 111D | signed int 16 | | Alarm 3 alarm on sensor V5 | | |
| 111E | signed int 16 | | Alarm 3 alarm on sensor V6 | | |
| 111F | signed int 16 | | Alarm 3 alarm on sensor V7 | | |
| 1120 | signed int 16 | | Alarm 3 alarm on sensor V8 | | |
| 1121 | signed int 16 | | Alarm 3 alarm off sensor 1T | -31500 … 31500 | |
| 1122 | signed int 16 | | Alarm 3 alarm off sensor 2T | | |
| 1123 | signed int 16 | | Alarm 3 alarm off sensor 3T | | |
| 1124 | signed int 16 | | Alarm 3 alarm off sensor 4T | | |
| 1125 | signed int 16 | | Alarm 3 alarm off sensor 5T | | |
| 1126 | signed int 16 | | Alarm 3 alarm off sensor 6T | | |
| 1127 | signed int 16 | | Alarm 3 alarm off sensor 7T | | |
| 1128 | signed int 16 | | Alarm 3 alarm off sensor 8T | | |
| 1129 | signed int 16 | | Alarm 3 alarm off sensor V1 | | |
| 112A | signed int 16 | | Alarm 3 alarm off sensor V2 | | |
| 112B | signed int 16 | | Alarm 3 alarm off sensor V3 | | |
| 112C | signed int 16 | | Alarm 3 alarm off sensor V4 | | |
| 112D | signed int 16 | | Alarm 3 alarm off sensor V5 | | |
| 112E | signed int 16 | | Alarm 3 alarm off sensor V6 | | |
| 112F | signed int 16 | | Alarm 3 alarm off sensor V7 | | |
| 1130 | signed int 16 | | Alarm 3 alarm off sensor V8 | | |
| 1131 | signed int 16 | | Alarm 4 alarm on sensor 1T | -31500 … 31500 | |
| 1132 | signed int 16 | | Alarm 4 alarm on sensor 2T | | |
| 1133 | signed int 16 | | Alarm 4 alarm on sensor 3T | | |
| 1134 | signed int 16 | | Alarm 4 alarm on sensor 4T | | |
| 1135 | signed int 16 | | Alarm 4 alarm on sensor 5T | | |
| 1136 | signed int 16 | | Alarm 4 alarm on sensor 6T | | |
| 1137 | signed int 16 | | Alarm 4 alarm on sensor 7T | | |
| 1138 | signed int 16 | | Alarm 4 alarm on sensor 8T | | |
| 1139 | signed int 16 | | Alarm 4 alarm on sensor V1 | | |
| 113A | signed int 16 | | Alarm 4 alarm on sensor V2 | | |
| 113B | signed int 16 | | Alarm 4 alarm on sensor V3 | | |
| 113C | signed int 16 | | Alarm 4 alarm on sensor V4 | | |
| 113D | signed int 16 | | Alarm 4 alarm on sensor V5 | | |
| 113E | signed int 16 | | Alarm 4 alarm on sensor V6 | | |
| 113F | signed int 16 | | Alarm 4 alarm on sensor V7 | | |
| 1140 | signed int 16 | | Alarm 4 alarm on sensor V8 | | |
| 1141 | signed int 16 | | Alarm 4 alarm off sensor 1T | -31500 … 31500 | |
| 1142 | signed int 16 | | Alarm 4 alarm off sensor 2T | | |
| 1143 | signed int 16 | | Alarm 4 alarm off sensor 3T | | |
| 1144 | signed int 16 | | Alarm 4 alarm off sensor 4T | | |
| 1145 | signed int 16 | | Alarm 4 alarm off sensor 5T | | |
| 1146 | signed int 16 | | Alarm 4 alarm off sensor 6T | | |
| 1147 | signed int 16 | | Alarm 4 alarm off sensor 7T | | |
| 1148 | signed int 16 | | Alarm 4 alarm off sensor 8T | | |
| 1149 | signed int 16 | | Alarm 4 alarm off sensor V1 | | |
| 114A | signed int 16 | | Alarm 4 alarm off sensor V2 | | |
| 114B | signed int 16 | | Alarm 4 alarm off sensor V3 | | |
| 114C | signed int 16 | | Alarm 4 alarm off sensor V4 | | |
| 114D | signed int 16 | | Alarm 4 alarm off sensor V5 | | |
| 114E | signed int 16 | | Alarm 4 alarm off sensor V6 | | |
| 114F | signed int 16 | | Alarm 4 alarm off sensor V7 | | |
| 1150 | signed int 16 | | Alarm 4 alarm off sensor V8 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1151 | signed int 16 | | Alarm 5 alarm on sensor 1T | -31500 … 31500 | |
| 1152 | signed int 16 | | Alarm 5 alarm on sensor 2T | | |
| 1153 | signed int 16 | | Alarm 5 alarm on sensor 3T | | |
| 1154 | signed int 16 | | Alarm 5 alarm on sensor 4T | | |
| 1155 | signed int 16 | | Alarm 5 alarm on sensor 5T | | |
| 1156 | signed int 16 | | Alarm 5 alarm on sensor 6T | | |
| 1157 | signed int 16 | | Alarm 5 alarm on sensor 7T | | |
| 1158 | signed int 16 | | Alarm 5 alarm on sensor 8T | | |
| 1159 | signed int 16 | | Alarm 5 alarm on sensor V1 | | |
| 115A | signed int 16 | | Alarm 5 alarm on sensor V2 | | |
| 115B | signed int 16 | | Alarm 5 alarm on sensor V3 | | |
| 115C | signed int 16 | | Alarm 5 alarm on sensor V4 | | |
| 115D | signed int 16 | | Alarm 5 alarm on sensor V5 | | |
| 115E | signed int 16 | | Alarm 5 alarm on sensor V6 | | |
| 115F | signed int 16 | | Alarm 5 alarm on sensor V7 | | |
| 1160 | signed int 16 | | Alarm 5 alarm on sensor V8 | | |
| 1161 | signed int 16 | | Alarm 5 alarm off sensor 1T | -31500 … 31500 | |
| 1162 | signed int 16 | | Alarm 5 alarm off sensor 2T | | |
| 1163 | signed int 16 | | Alarm 5 alarm off sensor 3T | | |
| 1164 | signed int 16 | | Alarm 5 alarm off sensor 4T | | |
| 1165 | signed int 16 | | Alarm 5 alarm off sensor 5T | | |
| 1166 | signed int 16 | | Alarm 5 alarm off sensor 6T | | |
| 1167 | signed int 16 | | Alarm 5 alarm off sensor 7T | | |
| 1168 | signed int 16 | | Alarm 5 alarm off sensor 8T | | |
| 1169 | signed int 16 | | Alarm 5 alarm off sensor V1 | | |
| 116A | signed int 16 | | Alarm 5 alarm off sensor V2 | | |
| 116B | signed int 16 | | Alarm 5 alarm off sensor V3 | | |
| 116C | signed int 16 | | Alarm 5 alarm off sensor V4 | | |
| 116D | signed int 16 | | Alarm 5 alarm off sensor V5 | | |
| 116E | signed int 16 | | Alarm 5 alarm off sensor V6 | | |
| 116F | signed int 16 | | Alarm 5 alarm off sensor V7 | | |
| 1170 | signed int 16 | | Alarm 5 alarm off sensor V8 | | |
| 1171 | signed int 16 | | Alarm 6 alarm on sensor 1T | -31500 … 31500 | |
| 1172 | signed int 16 | | Alarm 6 alarm on sensor 2T | | |
| 1173 | signed int 16 | | Alarm 6 alarm on sensor 3T | | |
| 1174 | signed int 16 | | Alarm 6 alarm on sensor 4T | | |
| 1175 | signed int 16 | | Alarm 6 alarm on sensor 5T | | |
| 1176 | signed int 16 | | Alarm 6 alarm on sensor 6T | | |
| 1177 | signed int 16 | | Alarm 6 alarm on sensor 7T | | |
| 1178 | signed int 16 | | Alarm 6 alarm on sensor 8T | | |
| 1179 | signed int 16 | | Alarm 6 alarm on sensor V1 | | |
| 117A | signed int 16 | | Alarm 6 alarm on sensor V2 | | |
| 117B | signed int 16 | | Alarm 6 alarm on sensor V3 | | |
| 117C | signed int 16 | | Alarm 6 alarm on sensor V4 | | |
| 117D | signed int 16 | | Alarm 6 alarm on sensor V5 | | |
| 117E | signed int 16 | | Alarm 6 alarm on sensor V6 | | |
| 117F | signed int 16 | | Alarm 6 alarm on sensor V7 | | |
| 1180 | signed int 16 | | Alarm 6 alarm on sensor V8 | | |
| 1181 | signed int 16 | | Alarm 6 alarm off sensor 1T | -31500 … 31500 | |
| 1182 | signed int 16 | | Alarm 6 alarm off sensor 2T | | |
| 1183 | signed int 16 | | Alarm 6 alarm off sensor 3T | | |
| 1184 | signed int 16 | | Alarm 6 alarm off sensor 4T | | |
| 1185 | signed int 16 | | Alarm 6 alarm off sensor 5T | | |
| 1186 | signed int 16 | | Alarm 6 alarm off sensor 6T | | |
| 1187 | signed int 16 | | Alarm 6 alarm off sensor 7T | | |
| 1188 | signed int 16 | | Alarm 6 alarm off sensor 8T | | |
| 1189 | signed int 16 | | Alarm 6 alarm off sensor V1 | | |
| 118A | signed int 16 | | Alarm 6 alarm off sensor V2 | | |
| 118B | signed int 16 | | Alarm 6 alarm off sensor V3 | | |
| 118C | signed int 16 | | Alarm 6 alarm off sensor V4 | | |
| 118D | signed int 16 | | Alarm 6 alarm off sensor V5 | | |
| 118E | signed int 16 | | Alarm 6 alarm off sensor V6 | | |
| 118F | signed int 16 | | Alarm 6 alarm off sensor V7 | | |
| 1190 | signed int 16 | | Alarm 6 alarm off sensor V8 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1191 | signed int 16 | | Alarm 7 alarm on sensor 1T | -31500 … 31500 | |
| 1192 | signed int 16 | | Alarm 7 alarm on sensor 2T | | |
| 1193 | signed int 16 | | Alarm 7 alarm on sensor 3T | | |
| 1194 | signed int 16 | | Alarm 7 alarm on sensor 4T | | |
| 1195 | signed int 16 | | Alarm 7 alarm on sensor 5T | | |
| 1196 | signed int 16 | | Alarm 7 alarm on sensor 6T | | |
| 1197 | signed int 16 | | Alarm 7 alarm on sensor 7T | | |
| 1198 | signed int 16 | | Alarm 7 alarm on sensor 8T | | |
| 1199 | signed int 16 | | Alarm 7 alarm on sensor V1 | | |
| 119A | signed int 16 | | Alarm 7 alarm on sensor V2 | | |
| 119B | signed int 16 | | Alarm 7 alarm on sensor V3 | | |
| 119C | signed int 16 | | Alarm 7 alarm on sensor V4 | | |
| 119D | signed int 16 | | Alarm 7 alarm on sensor V5 | | |
| 119E | signed int 16 | | Alarm 7 alarm on sensor V6 | | |
| 119F | signed int 16 | | Alarm 7 alarm on sensor V7 | | |
| 11A0 | signed int 16 | | Alarm 7 alarm on sensor V8 | | |
| 11A1 | signed int 16 | | Alarm 7 alarm off sensor 1T | -31500 … 31500 | |
| 11A2 | signed int 16 | | Alarm 7 alarm off sensor 2T | | |
| 11A3 | signed int 16 | | Alarm 7 alarm off sensor 3T | | |
| 11A4 | signed int 16 | | Alarm 7 alarm off sensor 4T | | |
| 11A5 | signed int 16 | | Alarm 7 alarm off sensor 5T | | |
| 11A6 | signed int 16 | | Alarm 7 alarm off sensor 6T | | |
| 11A7 | signed int 16 | | Alarm 7 alarm off sensor 7T | | |
| 11A8 | signed int 16 | | Alarm 7 alarm off sensor 8T | | |
| 11A9 | signed int 16 | | Alarm 7 alarm off sensor V1 | | |
| 11AA | signed int 16 | | Alarm 7 alarm off sensor V2 | | |
| 11AB | signed int 16 | | Alarm 7 alarm off sensor V3 | | |
| 11AC | signed int 16 | | Alarm 7 alarm off sensor V4 | | |
| 11AD | signed int 16 | | Alarm 7 alarm off sensor V5 | | |
| 11AE | signed int 16 | | Alarm 7 alarm off sensor V6 | | |
| 11AF | signed int 16 | | Alarm 7 alarm off sensor V7 | | |
| 11B0 | signed int 16 | | Alarm 7 alarm off sensor V8 | | |
| 11B1 | signed int 16 | | Alarm 8 alarm on sensor 1T | -31500 … 31500 | |
| 11B2 | signed int 16 | | Alarm 8 alarm on sensor 2T | | |
| 11B3 | signed int 16 | | Alarm 8 alarm on sensor 3T | | |
| 11B4 | signed int 16 | | Alarm 8 alarm on sensor 4T | | |
| 11B5 | signed int 16 | | Alarm 8 alarm on sensor 5T | | |
| 11B6 | signed int 16 | | Alarm 8 alarm on sensor 6T | | |
| 11B7 | signed int 16 | | Alarm 8 alarm on sensor 7T | | |
| 11B8 | signed int 16 | | Alarm 8 alarm on sensor 8T | | |
| 11B9 | signed int 16 | | Alarm 8 alarm on sensor V1 | | |
| 11BA | signed int 16 | | Alarm 8 alarm on sensor V2 | | |
| 11BB | signed int 16 | | Alarm 8 alarm on sensor V3 | | |
| 11BC | signed int 16 | | Alarm 8 alarm on sensor V4 | | |
| 11BD | signed int 16 | | Alarm 8 alarm on sensor V5 | | |
| 11BE | signed int 16 | | Alarm 8 alarm on sensor V6 | | |
| 11BF | signed int 16 | | Alarm 8 alarm on sensor V7 | | |
| 11C0 | signed int 16 | | Alarm 8 alarm on sensor V8 | | |
| 11C1 | signed int 16 | | Alarm 8 alarm off sensor 1T | -31500 … 31500 | |
| 11C2 | signed int 16 | | Alarm 8 alarm off sensor 2T | | |
| 11C3 | signed int 16 | | Alarm 8 alarm off sensor 3T | | |
| 11C4 | signed int 16 | | Alarm 8 alarm off sensor 4T | | |
| 11C5 | signed int 16 | | Alarm 8 alarm off sensor 5T | | |
| 11C6 | signed int 16 | | Alarm 8 alarm off sensor 6T | | |
| 11C7 | signed int 16 | | Alarm 8 alarm off sensor 7T | | |
| 11C8 | signed int 16 | | Alarm 8 alarm off sensor 8T | | |
| 11C9 | signed int 16 | | Alarm 8 alarm off sensor V1 | | |
| 11CA | signed int 16 | | Alarm 8 alarm off sensor V2 | | |
| 11CB | signed int 16 | | Alarm 8 alarm off sensor V3 | | |
| 11CC | signed int 16 | | Alarm 8 alarm off sensor V4 | | |
| 11CD | signed int 16 | | Alarm 8 alarm off sensor V5 | | |
| 11CE | signed int 16 | | Alarm 8 alarm off sensor V6 | | |
| 11CF | signed int 16 | | Alarm 8 alarm off sensor V7 | | |
| 11D0 | signed int 16 | | Alarm 8 alarm off sensor V8 | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 11D1 | signed int 16 | | Alarm 1 delay alarm on | 00:00...59:59 mm:ss | |
| 11D2 | signed int 16 | | Alarm 2 delay alarm on | | |
| 11D3 | signed int 16 | | Alarm 3 delay alarm on | | |
| 11D4 | signed int 16 | | Alarm 4 delay alarm on | | |
| 11D5 | signed int 16 | | Alarm 5 delay alarm on | | |
| 11D6 | signed int 16 | | Alarm 6 delay alarm on | | |
| 11D7 | signed int 16 | | Alarm 7 delay alarm on | | |
| 11D8 | signed int 16 | | Alarm 8 delay alarm on | | |
| 11D9 | signed int 16 | | Alarm 1 delay alarm off | 00:00...59:59 mm:ss | |
| 11DA | signed int 16 | | Alarm 2 delay alarm off | | |
| 11DB | signed int 16 | | Alarm 3 delay alarm off | | |
| 11DC | signed int 16 | | Alarm 4 delay alarm off | | |
| 11DD | signed int 16 | | Alarm 5 delay alarm off | | |
| 11DE | signed int 16 | | delay alarm off | | |
| 11DF | signed int 16 | | delay alarm off | | |
| 11E0 | signed int 16 | | Alarm 8 delay alarm off | | |
| 11E1 | signed int 16 | *Low*<br>*High* | Alarm 1 relay function<br>Alarm 1 Alarm locked | **Relay function:**<br>-1 = on at alarm,<br>-2 = off at alarm,<br>-3 = manually on,<br>-4 = manually off<br><br>**Alarm locked:**<br>-1 = no,<br>-2 = yes | |
| 11E2 | signed int 16 | *Low*<br>*High* | Alarm 2 relay function<br>Alarm 2 Alarm locked | | |
| 11E3 | signed int 16 | *Low*<br>*High* | Alarm 3 relay function<br>Alarm 3 Alarm locked | | |
| 11E4 | signed int 16 | *Low*<br>*High* | Alarm 4 relay function<br>Alarm 4 Alarm locked | | |
| 11E5 | signed int 16 | *Low*<br>*High* | Alarm 5 relay function<br>Alarm 5 Alarm locked | | |
| 11E6 | signed int 16 | *Low*<br>*High* | Alarm 6 relay function<br>Alarm 6 Alarm locked | | |
| 11E7 | signed int 16 | *Low*<br>*High* | Alarm 7 relay function<br>Alarm 7 Alarm locked | | |
| 11E8 | signed int 16 | *Low*<br>*High* | Alarm 8 relay function<br>Alarm 8 Alarm locked | | |
| 11E9 | signed int 16 | *Low*<br>*High* | Alarm 1 alarm at sensor error<br>Alarm 1 alarm at device error | **Alarm at sensor error:**<br>Bit 0 = Sensor 1T,<br>Bit 1 = Sensor 2T,<br>Bit 2 = Sensor 3T,<br>Bit 3 = Sensor 4T,<br>Bit 4 = Sensor 5T,<br>Bit 5 = Sensor 6T,<br>Bit 6 = Sensor 7T,<br>Bit 7 = Sensor 8T<br><br>**Alarm at device error:**<br>-1 = off,<br>-2 = on | |
| 11EA | signed int 16 | *Low*<br>*High* | Alarm 2 alarm at sensor error<br>Alarm 2 alarm at device error | | |
| 11EB | signed int 16 | *Low*<br>*High* | Alarm 3 alarm at sensor error<br>Alarm 3 alarm at device error | | |
| 11EC | signed int 16 | *Low*<br>*High* | Alarm 4 alarm at sensor error<br>Alarm 4 alarm at device error | | |
| 11ED | signed int 16 | *Low*<br>*High* | Alarm 5 alarm at sensor error<br>Alarm 5 alarm at device error | | |
| 11EE | signed int 16 | *Low*<br>*High* | Alarm 6 alarm at sensor error<br>Alarm 6 alarm at device error | | |
| 11EF | signed int 16 | *Low*<br>*High* | Alarm 7 alarm at sensor error<br>Alarm 7 alarm at device error | | |
| 11F0 | signed int 16 | *Low*<br>*High* | Alarm 8 alarm at sensor error<br>Alarm 8 alarm at device error | | |
| 11F1 | signed int 16 | *Low*<br>*High* | Digital input Y1 type<br>Digital input Y2 type | -1 = normally closed,<br>-2 = normally open | |
| 11F2 | signed int 16 | *Low*<br>*High* | Digital input Y3 type<br>Digital input Y4 type | | |
| 11F3 | signed int 16 | *Low*<br>*High* | Digital input Y1 function<br>Digital input Y2 function | -1 = off,<br>-2 = reset locked alarm,<br>-3 = relay manually on,<br>-4 = relay manually off | |
| 11F4 | signed int 16 | *Low*<br>*High* | Digital input Y3 function<br>Digital input Y4 function | | |
| 11F5 | signed int 16 | *Low*<br>*High* | Digital input Y1 relay assignment<br>Digital input Y2 relay assignment | -1 = off,<br>-2 = on | |
| 11F6 | signed int 16 | *Low*<br>*High* | Digital input Y3 relay assignment<br>Digital input Y4 relay assignment | | |
| 11F7 | signed int 16 | *Low*<br>*High* | Analog out U1 range *1)<br>Analog out I1 range *1) | -1 = 0-10V/0-20 mA,<br>-2 = 2-10V/4-20mA | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 11F8 | signed int 16 | | Analog out U1 sensor assignment *1) | Bit 0 = Sensor 1T, Bit 1 = Sensor 2T, Bit 2 = Sensor 3T, Bit 3 = Sensor 4T, Bit 4 = Sensor 5T, Bit 5 = Sensor 6T, Bit 6 = Sensor 7T, Bit 7 = Sensor 8T Bit 8 = Sensor V1, Bit 9 = Sensor V2, Bit 10 = Sensor V3, Bit 11 = Sensor V4, Bit 12 = Sensor V5, Bit 13 = Sensor V6, Bit 14 = Sensor V7, Bit 15 = Sensor V8 | |
| 11F9 | signed int 16 | | Analog out I1 sensor assignment *1) | | |
| 11FA | signed int 16 | *Low*<br>*High* | Analog out U1 function *1)<br>Analog out I1 function *1) | -1 = max. value sensor,<br>-2 = min. value sensor | |
| 11FB | signed int 16 | | Analog out U1 scale zero point *1) | -31500 … 31500 | |
| 11FC | signed int 16 | | Analog out I1 scale zero point *1) | | |
| 11FD | signed int 16 | | Analog out U1 scale full scale *1) | | |
| 11FE | signed int 16 | | Analog out I1 scale full scale *1) | | |
| 11FF | unsigned int 32 | *Low* | Error | Bit 0 = sensor short circuit,<br>Bit 1 = interruption,<br>Bit 2 = Sensor error (Diff.-Temp.)<br>Bit 3 = AD converter,<br>Bit 4 = parameter,<br>Bit 5 = SD card,<br>Bit 6 = adjustment values,<br>Bit 7 = alarm values,<br>Bit 8 = Limit Alarm<br>Bit 9 = Error Senor Analogoutput<br>Bit 10 = URB Timeout<br>Bit 11 = URB wrong answer<br>Bit 12 = URB illegale address<br>Bit 13 = Communication Master <-> Slave<br>Bit 14 = Error Firmware version<br>Bit 15 = Error internal voltage,<br>Bit 16 = STWA4MH Timeout or CRC-error | |
| 1200 | | *High* | | | |
| 1201 | unsigned int 16 | *Low* | Virtual sensor V1 address STWA4MH | 1 … 246 | |
| | | *High* | Virtual sensor V2 address STWA4MH | | |
| 1202 | unsigned int 16 | *Low* | Virtual sensor V3 address STWA4MH | | |
| | | *High* | Virtual sensor V4 address STWA4MH | | |
| 1203 | unsigned int 16 | *Low* | Virtual sensor V5 address STWA4MH | | |
| | | *High* | Virtual sensor V6 address STWA4MH | | |
| 1204 | unsigned int 16 | *Low* | Virtual sensor V7 address STWA4MH | | |
| | | *High* | Virtual sensor V8 address STWA4MH | | |
| 1205 | signed int 16 | *Low* | Virtual sensor V1 register STWA4MH | -1 = I RMS,<br>-2 = I RMS 200ms,<br>-3 = I RMS 1s,<br>-4 = Frequency | |
| | | *High* | Virtual sensor V2 register STWA4MH | | |
| 1206 | signed int 16 | *Low* | Virtual sensor V3 register STWA4MH | | |
| | | *High* | Virtual sensor V4 register STWA4MH | | |
| 1207 | signed int 16 | *Low* | Virtual sensor V5 register STWA4MH | | |
| | | *High* | Virtual sensor V6 register STWA4MH | | |
| 1208 | signed int 16 | *Low* | Virtual sensor V7 register STWA4MH | | |
| | | *High* | Virtual sensor V8 register STWA4MH | | |
| 1209 | unsigned int 32 | *Low* | Virtual sensor V1 time on | 0 … 86399<br>00:00:00 … 23:59:59 hh:mm:ss | |
| 120A | | *High* | | | |
| 120B | unsigned int 32 | *Low* | Virtual sensor V2 time on | | |
| 120C | | *High* | | | |
| 120D | unsigned int 32 | *Low* | Virtual sensor V3 time on | | |
| 120E | | *High* | | | |
| 120F | unsigned int 32 | *Low* | Virtual sensor V4 time on | | |
| 1210 | | *High* | | | |

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 1211 | unsigned int 32 | *Low* | Virtual sensor V5 time on | 0 … 86399<br>00:00:00 … 23:59:59 hh:mm:ss | |
| 1212 | | *High* | | | |
| 1213 | unsigned int 32 | *Low* | Virtual sensor V6 time on | | |
| 1214 | | *High* | | | |
| 1215 | unsigned int 32 | *Low* | Virtual sensor V7 time on | | |
| 1216 | | *High* | | | |
| 1217 | unsigned int 32 | *Low* | Virtual sensor V8 time on | | |
| 1218 | | *High* | | | |
| 1219 | unsigned int 32 | *Low* | Virtual sensor V1 time off | 0 … 86399<br>00:00:00 … 23:59:59 hh:mm:ss | |
| 121A | | *High* | | | |
| 121B | unsigned int 32 | *Low* | Virtual sensor V2 time off | | |
| 121C | | *High* | | | |
| 121D | unsigned int 32 | *Low* | Virtual sensor V3 time off | | |
| 121E | | *High* | | | |
| 121F | unsigned int 32 | *Low* | Virtual sensor V4 time off | | |
| 1220 | | *High* | | | |
| 1221 | unsigned int 32 | *Low* | Virtual sensor V5 time off | | |
| 1222 | | *High* | | | |
| 1223 | unsigned int 32 | *Low* | Virtual sensor V6 time off | | |
| 1224 | | *High* | | | |
| 1225 | unsigned int 32 | *Low* | Virtual sensor V7 time off | | |
| 1226 | | *High* | | | |
| 1227 | unsigned int 32 | *Low* | Virtual sensor V8 time off | | |
| 1228 | | *High* | | | |

*1) UR840IP only with activated analogue output
*2) UR420IP, UR840IP only with activated RS485

## 8.3 Parameter read and write

- Modbus Function code 0x03 (Read Holding Registers)
- Modbus Function code 0x10 (Write Multiple registers)

This function can only be activated via the menu on the device.
Modbus TCP: network -> modbus TCP write
Modbus RTU: RS485- Modbus -> interface -> modbus RTU write
On default this function is deactivated.

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 0240 | signed int 16 | | Alarm 1 assignment | Bit 0 = Sensor 1T, Bit 1 = Sensor 2T, Bit 2 = Sensor 3T, Bit 3 = Sensor 4T, Bit 4 = Sensor 5T, Bit 5 = Sensor 6T, Bit 6 = Sensor 7T, Bit 7 = Sensor 8T Bit 8 = Sensor V1, Bit 9 = Sensor V2, Bit 10 = Sensor V3, Bit 11 = Sensor V4, Bit 12 = Sensor V5, Bit 13 = Sensor V6, Bit 14 = Sensor V7, Bit 15 = Sensor V8 | |
| 0241 | signed int 16 | | Alarm 2 assignment | | |
| 0242 | signed int 16 | | Alarm 3 assignment | | |
| 0243 | signed int 16 | | Alarm 4 assignment | | |
| 0244 | signed int 16 | | Alarm 5 assignment | | |
| 0245 | signed int 16 | | Alarm 6 assignment | | |
| 0246 | signed int 16 | | Alarm 7 assignment | | |
| 0247 | signed int 16 | | Alarm 8 assignment | | |
| 0248 | signed int 16 | | reserved | | |
| 0249 | signed int 16 | | reserved | | |
| 024A | signed int 16 | | reserved | | |
| 024B | signed int 16 | | reserved | | |
| 024C | signed int 16 | | Alarm 1 alarm on sensor 1T *3) | -31500 … 31500 | |
| 024D | signed int 16 | | Alarm 1 alarm on sensor 2T *3) | | |
| 024E | signed int 16 | | Alarm 1 alarm on sensor 3T *3) | | |
| 024F | signed int 16 | | Alarm 1 alarm on sensor 4T *3) | | |
| 0250 | signed int 16 | | Alarm 1 alarm on sensor 5T *3) | | |
| 0251 | signed int 16 | | Alarm 1 alarm on sensor 6T *3) | | |
| 0252 | signed int 16 | | Alarm 1 alarm on sensor 7T *3) | | |
| 0253 | signed int 16 | | Alarm 1 alarm on sensor 8T *3) | | |
| 0254 | signed int 16 | | Alarm 1 alarm on sensor V1 *3) | | |
| 0255 | signed int 16 | | Alarm 1 alarm on sensor V2 *3) | | |
| 0256 | signed int 16 | | Alarm 1 alarm on sensor V3 *3) | | |
| 0257 | signed int 16 | | Alarm 1 alarm on sensor V4 *3) | | |
| 0258 | signed int 16 | | Alarm 1 alarm on sensor V5 *3) | | |
| 0259 | signed int 16 | | Alarm 1 alarm on sensor V6 *3) | | |
| 025A | signed int 16 | | Alarm 1 alarm on sensor V7 *3) | | |
| 025B | signed int 16 | | Alarm 1 alarm on sensor V8 *3) | | |
| 025C | signed int 16 | | Alarm 1 alarm off sensor 1T *3) | -31500 … 31500 | |
| 025D | signed int 16 | | Alarm 1 alarm off sensor 2T *3) | | |
| 025E | signed int 16 | | Alarm 1 alarm off sensor 3T *3) | | |
| 025F | signed int 16 | | Alarm 1 alarm off sensor 4T *3) | | |
| 0260 | signed int 16 | | Alarm 1 alarm off sensor 5T *3) | | |
| 0261 | signed int 16 | | Alarm 1 alarm off sensor 6T *3) | | |
| 0262 | signed int 16 | | Alarm 1 alarm off sensor 7T *3) | | |
| 0263 | signed int 16 | | Alarm 1 alarm off sensor 8T *3) | | |
| 0264 | signed int 16 | | Alarm 1 alarm off sensor V1 *3) | | |
| 0265 | signed int 16 | | Alarm 1 alarm off sensor V2 *3) | | |
| 0266 | signed int 16 | | Alarm 1 alarm off sensor V3 *3) | | |
| 0267 | signed int 16 | | Alarm 1 alarm off sensor V4 *3) | | |
| 0268 | signed int 16 | | Alarm 1 alarm off sensor V5 *3) | | |
| 0269 | signed int 16 | | Alarm 1 alarm off sensor V6 *3) | | |
| 026A | signed int 16 | | Alarm 1 alarm off sensor V7 *3) | | |
| 026B | signed int 16 | | Alarm 1 alarm off sensor V8 *3) | | |

*3) see 8.3.1 Permissible alarm limits for each configured sensor type

| Add. hex | Data type | | Register | | Range of values / description Min. | Max. |
|---|---|---|---|---|---|---|
| 026C | signed int 16 | | Alarm 2 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 026D | signed int 16 | | Alarm 2 alarm on sensor 2T | *3) | | |
| 026E | signed int 16 | | Alarm 2 alarm on sensor 3T | *3) | | |
| 026F | signed int 16 | | Alarm 2 alarm on sensor 4T | *3) | | |
| 0270 | signed int 16 | | Alarm 2 alarm on sensor 5T | *3) | | |
| 0271 | signed int 16 | | Alarm 2 alarm on sensor 6T | *3) | | |
| 0272 | signed int 16 | | Alarm 2 alarm on sensor 7T | *3) | | |
| 0273 | signed int 16 | | Alarm 2 alarm on sensor 8T | *3) | | |
| 0274 | signed int 16 | | Alarm 2 alarm on sensor V1 | *3) | | |
| 0275 | signed int 16 | | Alarm 2 alarm on sensor V2 | *3) | | |
| 0276 | signed int 16 | | Alarm 2 alarm on sensor V3 | *3) | | |
| 0277 | signed int 16 | | Alarm 2 alarm on sensor V4 | *3) | | |
| 0278 | signed int 16 | | Alarm 2 alarm on sensor V5 | *3) | | |
| 0279 | signed int 16 | | Alarm 2 alarm on sensor V6 | *3) | | |
| 027A | signed int 16 | | Alarm 2 alarm on sensor V7 | *3) | | |
| 027B | signed int 16 | | Alarm 2 alarm on sensor V8 | *3) | | |
| 027C | signed int 16 | | Alarm 2 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 027D | signed int 16 | | Alarm 2 alarm off sensor 2T | *3) | | |
| 027E | signed int 16 | | Alarm 2 alarm off sensor 3T | *3) | | |
| 027F | signed int 16 | | Alarm 2 alarm off sensor 4T | *3) | | |
| 0280 | signed int 16 | | Alarm 2 alarm off sensor 5T | *3) | | |
| 0281 | signed int 16 | | Alarm 2 alarm off sensor 6T | *3) | | |
| 0282 | signed int 16 | | Alarm 2 alarm off sensor 7T | *3) | | |
| 0283 | signed int 16 | | Alarm 2 alarm off sensor 8T | *3) | | |
| 0284 | signed int 16 | | Alarm 2 alarm off sensor V1 | *3) | | |
| 0285 | signed int 16 | | Alarm 2 alarm off sensor V2 | *3) | | |
| 0286 | signed int 16 | | Alarm 2 alarm off sensor V3 | *3) | | |
| 0287 | signed int 16 | | Alarm 2 alarm off sensor V4 | *3) | | |
| 0288 | signed int 16 | | Alarm 2 alarm off sensor V5 | *3) | | |
| 0289 | signed int 16 | | Alarm 2 alarm off sensor V6 | *3) | | |
| 028A | signed int 16 | | Alarm 2 alarm off sensor V7 | *3) | | |
| 028B | signed int 16 | | Alarm 2 alarm off sensor V8 | *3) | | |
| 028C | signed int 16 | | Alarm 3 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 028D | signed int 16 | | Alarm 3 alarm on sensor 2T | *3) | | |
| 028E | signed int 16 | | Alarm 3 alarm on sensor 3T | *3) | | |
| 028F | signed int 16 | | Alarm 3 alarm on sensor 4T | *3) | | |
| 0290 | signed int 16 | | Alarm 3 alarm on sensor 5T | *3) | | |
| 0291 | signed int 16 | | Alarm 3 alarm on sensor 6T | *3) | | |
| 0292 | signed int 16 | | Alarm 3 alarm on sensor 7T | *3) | | |
| 0293 | signed int 16 | | Alarm 3 alarm on sensor 8T | *3) | | |
| 0294 | signed int 16 | | Alarm 3 alarm on sensor V1 | *3) | | |
| 0295 | signed int 16 | | Alarm 3 alarm on sensor V2 | *3) | | |
| 0296 | signed int 16 | | Alarm 3 alarm on sensor V3 | *3) | | |
| 0297 | signed int 16 | | Alarm 3 alarm on sensor V4 | *3) | | |
| 0298 | signed int 16 | | Alarm 3 alarm on sensor V5 | *3) | | |
| 0299 | signed int 16 | | Alarm 3 alarm on sensor V6 | *3) | | |
| 029A | signed int 16 | | Alarm 3 alarm on sensor V7 | *3) | | |
| 029B | signed int 16 | | Alarm 3 alarm on sensor V8 | *3) | | |
| 029C | signed int 16 | | Alarm 3 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 029D | signed int 16 | | Alarm 3 alarm off sensor 2T | *3) | | |
| 029E | signed int 16 | | Alarm 3 alarm off sensor 3T | *3) | | |
| 029F | signed int 16 | | Alarm 3 alarm off sensor 4T | *3) | | |
| 02A0 | signed int 16 | | Alarm 3 alarm off sensor 5T | *3) | | |
| 02A1 | signed int 16 | | Alarm 3 alarm off sensor 6T | *3) | | |
| 02A2 | signed int 16 | | Alarm 3 alarm off sensor 7T | *3) | | |
| 02A3 | signed int 16 | | Alarm 3 alarm off sensor 8T | *3) | | |
| 02A4 | signed int 16 | | Alarm 3 alarm off sensor V1 | *3) | | |
| 02A5 | signed int 16 | | Alarm 3 alarm off sensor V2 | *3) | | |
| 02A6 | signed int 16 | | Alarm 3 alarm off sensor V3 | *3) | | |
| 02A7 | signed int 16 | | Alarm 3 alarm off sensor V4 | *3) | | |
| 02A8 | signed int 16 | | Alarm 3 alarm off sensor V5 | *3) | | |
| 02A9 | signed int 16 | | Alarm 3 alarm off sensor V6 | *3) | | |
| 02AA | signed int 16 | | Alarm 3 alarm off sensor V7 | *3) | | |
| 02AB | signed int 16 | | Alarm 3 alarm off sensor V8 | *3) | | |

*3) see 8.3.1 Permissible alarm limits for each configured sensor type

| Add. hex | Data type | | Register | | Range of values / description Min. | Max. |
|---|---|---|---|---|---|---|
| 02AC | signed int 16 | | Alarm 4 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 02AD | signed int 16 | | Alarm 4 alarm on sensor 2T | *3) | | |
| 02AE | signed int 16 | | Alarm 4 alarm on sensor 3T | *3) | | |
| 02AF | signed int 16 | | Alarm 4 alarm on sensor 4T | *3) | | |
| 02B0 | signed int 16 | | Alarm 4 alarm on sensor 5T | *3) | | |
| 02B1 | signed int 16 | | Alarm 4 alarm on sensor 6T | *3) | | |
| 02B2 | signed int 16 | | Alarm 4 alarm on sensor 7T | *3) | | |
| 02B3 | signed int 16 | | Alarm 4 alarm on sensor 8T | *3) | | |
| 02B4 | signed int 16 | | Alarm 4 alarm on sensor V1 | *3) | | |
| 02B5 | signed int 16 | | Alarm 4 alarm on sensor V2 | *3) | | |
| 02B6 | signed int 16 | | Alarm 4 alarm on sensor V3 | *3) | | |
| 02B7 | signed int 16 | | Alarm 4 alarm on sensor V4 | *3) | | |
| 02B8 | signed int 16 | | Alarm 4 alarm on sensor V5 | *3) | | |
| 02B9 | signed int 16 | | Alarm 4 alarm on sensor V6 | *3) | | |
| 02BA | signed int 16 | | Alarm 4 alarm on sensor V7 | *3) | | |
| 02BB | signed int 16 | | Alarm 4 alarm on sensor V8 | *3) | | |
| 02BC | signed int 16 | | Alarm 4 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 02BD | signed int 16 | | Alarm 4 alarm off sensor 2T | *3) | | |
| 02BE | signed int 16 | | Alarm 4 alarm off sensor 3T | *3) | | |
| 02BF | signed int 16 | | Alarm 4 alarm off sensor 4T | *3) | | |
| 02C0 | signed int 16 | | Alarm 4 alarm off sensor 5T | *3) | | |
| 02C1 | signed int 16 | | Alarm 4 alarm off sensor 6T | *3) | | |
| 02C2 | signed int 16 | | Alarm 4 alarm off sensor 7T | *3) | | |
| 02C3 | signed int 16 | | Alarm 4 alarm off sensor 8T | *3) | | |
| 02C4 | signed int 16 | | Alarm 4 alarm off sensor V1 | *3) | | |
| 02C5 | signed int 16 | | Alarm 4 alarm off sensor V2 | *3) | | |
| 02C6 | signed int 16 | | Alarm 4 alarm off sensor V3 | *3) | | |
| 02C7 | signed int 16 | | Alarm 4 alarm off sensor V4 | *3) | | |
| 02C8 | signed int 16 | | Alarm 4 alarm off sensor V5 | *3) | | |
| 02C9 | signed int 16 | | Alarm 4 alarm off sensor V6 | *3) | | |
| 02CA | signed int 16 | | Alarm 4 alarm off sensor V7 | *3) | | |
| 02CB | signed int 16 | | Alarm 4 alarm off sensor V8 | *3) | | |
| 02CC | signed int 16 | | Alarm 5 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 02CD | signed int 16 | | Alarm 5 alarm on sensor 2T | *3) | | |
| 02CE | signed int 16 | | Alarm 5 alarm on sensor 3T | *3) | | |
| 02CF | signed int 16 | | Alarm 5 alarm on sensor 4T | *3) | | |
| 02D0 | signed int 16 | | Alarm 5 alarm on sensor 5T | *3) | | |
| 02D1 | signed int 16 | | Alarm 5 alarm on sensor 6T | *3) | | |
| 02D2 | signed int 16 | | Alarm 5 alarm on sensor 7T | *3) | | |
| 02D3 | signed int 16 | | Alarm 5 alarm on sensor 8T | *3) | | |
| 02D4 | signed int 16 | | Alarm 5 alarm on sensor V1 | *3) | | |
| 02D5 | signed int 16 | | Alarm 5 alarm on sensor V2 | *3) | | |
| 02D6 | signed int 16 | | Alarm 5 alarm on sensor V3 | *3) | | |
| 02D7 | signed int 16 | | Alarm 5 alarm on sensor V4 | *3) | | |
| 02D8 | signed int 16 | | Alarm 5 alarm on sensor V5 | *3) | | |
| 02D9 | signed int 16 | | Alarm 5 alarm on sensor V6 | *3) | | |
| 02DA | signed int 16 | | Alarm 5 alarm on sensor V7 | *3) | | |
| 02DB | signed int 16 | | Alarm 5 alarm on sensor V8 | *3) | | |
| 02DC | signed int 16 | | Alarm 5 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 02DD | signed int 16 | | Alarm 5 alarm off sensor 2T | *3) | | |
| 02DE | signed int 16 | | Alarm 5 alarm off sensor 3T | *3) | | |
| 02DF | signed int 16 | | Alarm 5 alarm off sensor 4T | *3) | | |
| 02E0 | signed int 16 | | Alarm 5 alarm off sensor 5T | *3) | | |
| 02E1 | signed int 16 | | Alarm 5 alarm off sensor 6T | *3) | | |
| 02E2 | signed int 16 | | Alarm 5 alarm off sensor 7T | *3) | | |
| 02E3 | signed int 16 | | Alarm 5 alarm off sensor 8T | *3) | | |
| 02E4 | signed int 16 | | Alarm 5 alarm off sensor V1 | *3) | | |
| 02E5 | signed int 16 | | Alarm 5 alarm off sensor V2 | *3) | | |
| 02E6 | signed int 16 | | Alarm 5 alarm off sensor V3 | *3) | | |
| 02E7 | signed int 16 | | Alarm 5 alarm off sensor V4 | *3) | | |
| 02E8 | signed int 16 | | Alarm 5 alarm off sensor V5 | *3) | | |
| 02E9 | signed int 16 | | Alarm 5 alarm off sensor V6 | *3) | | |
| 02EA | signed int 16 | | Alarm 5 alarm off sensor V7 | *3) | | |
| 02EB | signed int 16 | | Alarm 5 alarm off sensor V8 | *3) | | |

*3) see 8.3.1 Permissible alarm limits for each configured sensor type

| Add. hex | Data type | | Register | | Range of values / description Min. | Max. |
|---|---|---|---|---|---|---|
| 02EC | signed int 16 | | Alarm 6 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 02ED | signed int 16 | | Alarm 6 alarm on sensor 2T | *3) | | |
| 02EE | signed int 16 | | Alarm 6 alarm on sensor 3T | *3) | | |
| 02EF | signed int 16 | | Alarm 6 alarm on sensor 4T | *3) | | |
| 02F0 | signed int 16 | | Alarm 6 alarm on sensor 5T | *3) | | |
| 02F1 | signed int 16 | | Alarm 6 alarm on sensor 6T | *3) | | |
| 02F2 | signed int 16 | | Alarm 6 alarm on sensor 7T | *3) | | |
| 02F3 | signed int 16 | | Alarm 6 alarm on sensor 8T | *3) | | |
| 02F4 | signed int 16 | | Alarm 6 alarm on sensor V1 | *3) | | |
| 02F5 | signed int 16 | | Alarm 6 alarm on sensor V2 | *3) | | |
| 02F6 | signed int 16 | | Alarm 6 alarm on sensor V3 | *3) | | |
| 02F7 | signed int 16 | | Alarm 6 alarm on sensor V4 | *3) | | |
| 02F8 | signed int 16 | | Alarm 6 alarm on sensor V5 | *3) | | |
| 02F9 | signed int 16 | | Alarm 6 alarm on sensor V6 | *3) | | |
| 02FA | signed int 16 | | Alarm 6 alarm on sensor V7 | *3) | | |
| 02FB | signed int 16 | | Alarm 6 alarm on sensor V8 | *3) | | |
| 02FC | signed int 16 | | Alarm 6 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 02FD | signed int 16 | | Alarm 6 alarm off sensor 2T | *3) | | |
| 02FE | signed int 16 | | Alarm 6 alarm off sensor 3T | *3) | | |
| 02FF | signed int 16 | | Alarm 6 alarm off sensor 4T | *3) | | |
| 0300 | signed int 16 | | Alarm 6 alarm off sensor 5T | *3) | | |
| 0301 | signed int 16 | | Alarm 6 alarm off sensor 6T | *3) | | |
| 0302 | signed int 16 | | Alarm 6 alarm off sensor 7T | *3) | | |
| 0303 | signed int 16 | | Alarm 6 alarm off sensor 8T | *3) | | |
| 0304 | signed int 16 | | Alarm 6 alarm off sensor V1 | *3) | | |
| 0305 | signed int 16 | | Alarm 6 alarm off sensor V2 | *3) | | |
| 0306 | signed int 16 | | Alarm 6 alarm off sensor V3 | *3) | | |
| 0307 | signed int 16 | | Alarm 6 alarm off sensor V4 | *3) | | |
| 0308 | signed int 16 | | Alarm 6 alarm off sensor V5 | *3) | | |
| 0309 | signed int 16 | | Alarm 6 alarm off sensor V6 | *3) | | |
| 030A | signed int 16 | | Alarm 6 alarm off sensor V7 | *3) | | |
| 030B | signed int 16 | | Alarm 6 alarm off sensor V8 | *3) | | |
| 030C | signed int 16 | | Alarm 7 alarm on sensor 1T | *3) | -31500 … 31500 | |
| 030D | signed int 16 | | Alarm 7 alarm on sensor 2T | *3) | | |
| 030E | signed int 16 | | Alarm 7 alarm on sensor 3T | *3) | | |
| 030F | signed int 16 | | Alarm 7 alarm on sensor 4T | *3) | | |
| 0310 | signed int 16 | | Alarm 7 alarm on sensor 5T | *3) | | |
| 0311 | signed int 16 | | Alarm 7 alarm on sensor 6T | *3) | | |
| 0312 | signed int 16 | | Alarm 7 alarm on sensor 7T | *3) | | |
| 0313 | signed int 16 | | Alarm 7 alarm on sensor 8T | *3) | | |
| 0314 | signed int 16 | | Alarm 7 alarm on sensor V1 | *3) | | |
| 0315 | signed int 16 | | Alarm 7 alarm on sensor V2 | *3) | | |
| 0316 | signed int 16 | | Alarm 7 alarm on sensor V3 | *3) | | |
| 0317 | signed int 16 | | Alarm 7 alarm on sensor V4 | *3) | | |
| 0318 | signed int 16 | | Alarm 7 alarm on sensor V5 | *3) | | |
| 0319 | signed int 16 | | Alarm 7 alarm on sensor V6 | *3) | | |
| 031A | signed int 16 | | Alarm 7 alarm on sensor V7 | *3) | | |
| 031B | signed int 16 | | Alarm 7 alarm on sensor V8 | *3) | | |
| 031C | signed int 16 | | Alarm 7 alarm off sensor 1T | *3) | -31500 … 31500 | |
| 031D | signed int 16 | | Alarm 7 alarm off sensor 2T | *3) | | |
| 031E | signed int 16 | | Alarm 7 alarm off sensor 3T | *3) | | |
| 031F | signed int 16 | | Alarm 7 alarm off sensor 4T | *3) | | |
| 0320 | signed int 16 | | Alarm 7 alarm off sensor 5T | *3) | | |
| 0321 | signed int 16 | | Alarm 7 alarm off sensor 6T | *3) | | |
| 0322 | signed int 16 | | Alarm 7 alarm off sensor 7T | *3) | | |
| 0323 | signed int 16 | | Alarm 7 alarm off sensor 8T | *3) | | |
| 0324 | signed int 16 | | Alarm 7 alarm off sensor V1 | *3) | | |
| 0325 | signed int 16 | | Alarm 7 alarm off sensor V2 | *3) | | |
| 0326 | signed int 16 | | Alarm 7 alarm off sensor V3 | *3) | | |
| 0327 | signed int 16 | | Alarm 7 alarm off sensor V4 | *3) | | |
| 0328 | signed int 16 | | Alarm 7 alarm off sensor V5 | *3) | | |
| 0329 | signed int 16 | | Alarm 7 alarm off sensor V6 | *3) | | |
| 032A | signed int 16 | | Alarm 7 alarm off sensor V7 | *3) | | |
| 032B | signed int 16 | | Alarm 7 alarm off sensor V8 | *3) | | |

*3) see 8.3.1 Permissible alarm limits for each configured sensor type

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 032C | signed int 16 | | Alarm 8 alarm on sensor 1T *3) | -31500 … 31500 | |
| 032D | signed int 16 | | Alarm 8 alarm on sensor 2T *3) | | |
| 032E | signed int 16 | | Alarm 8 alarm on sensor 3T *3) | | |
| 032F | signed int 16 | | Alarm 8 alarm on sensor 4T *3) | | |
| 0330 | signed int 16 | | Alarm 8 alarm on sensor 5T *3) | | |
| 0331 | signed int 16 | | Alarm 8 alarm on sensor 6T *3) | | |
| 0332 | signed int 16 | | Alarm 8 alarm on sensor 7T *3) | | |
| 0333 | signed int 16 | | Alarm 8 alarm on sensor 8T *3) | | |
| 0334 | signed int 16 | | Alarm 8 alarm on sensor V1 *3) | | |
| 0335 | signed int 16 | | Alarm 8 alarm on sensor V2 *3) | | |
| 0336 | signed int 16 | | Alarm 8 alarm on sensor V3 *3) | | |
| 0337 | signed int 16 | | Alarm 8 alarm on sensor V4 *3) | | |
| 0338 | signed int 16 | | Alarm 8 alarm on sensor V5 *3) | | |
| 0339 | signed int 16 | | Alarm 8 alarm on sensor V6 *3) | | |
| 033A | signed int 16 | | Alarm 8 alarm on sensor V7 *3) | | |
| 033B | signed int 16 | | Alarm 8 alarm on sensor V8 *3) | | |
| 033C | signed int 16 | | Alarm 8 alarm off sensor 1T *3) | -31500 … 31500 | |
| 033D | signed int 16 | | Alarm 8 alarm off sensor 2T *3) | | |
| 033E | signed int 16 | | Alarm 8 alarm off sensor 3T *3) | | |
| 033F | signed int 16 | | Alarm 8 alarm off sensor 4T *3) | | |
| 0340 | signed int 16 | | Alarm 8 alarm off sensor 5T *3) | | |
| 0341 | signed int 16 | | Alarm 8 alarm off sensor 6T *3) | | |
| 0342 | signed int 16 | | Alarm 8 alarm off sensor 7T *3) | | |
| 0343 | signed int 16 | | Alarm 8 alarm off sensor 8T *3) | | |
| 0344 | signed int 16 | | Alarm 8 alarm off sensor V1 *3) | | |
| 0345 | signed int 16 | | Alarm 8 alarm off sensor V2 *3) | | |
| 0346 | signed int 16 | | Alarm 8 alarm off sensor V3 *3) | | |
| 0347 | signed int 16 | | Alarm 8 alarm off sensor V4 *3) | | |
| 0348 | signed int 16 | | Alarm 8 alarm off sensor V5 *3) | | |
| 0349 | signed int 16 | | Alarm 8 alarm off sensor V6 *3) | | |
| 034A | signed int 16 | | Alarm 8 alarm off sensor V7 *3) | | |
| 034B | signed int 16 | | Alarm 8 alarm off sensor V8 *3) | | |
| 034C | signed int 16 | | Alarm 1 delay alarm on | 00:00...59:59 mm:ss | |
| 034D | signed int 16 | | Alarm 2 delay alarm on | | |
| 034E | signed int 16 | | Alarm 3 delay alarm on | | |
| 034F | signed int 16 | | Alarm 4 delay alarm on | | |
| 0350 | signed int 16 | | Alarm 5 delay alarm on | | |
| 0351 | signed int 16 | | Alarm 6 delay alarm on | | |
| 0352 | signed int 16 | | Alarm 7 delay alarm on | | |
| 0353 | signed int 16 | | Alarm 8 delay alarm on | | |
| 0354 | signed int 16 | | Alarm 1 delay alarm off | 00:00...59:59 mm:ss | |
| 0355 | signed int 16 | | Alarm 2 delay alarm off | | |
| 0356 | signed int 16 | | Alarm 3 delay alarm off | | |
| 0357 | signed int 16 | | Alarm 4 delay alarm off | | |
| 0358 | signed int 16 | | Alarm 5 delay alarm off | | |
| 0359 | signed int 16 | | Alarm 6 delay alarm off | | |
| 035A | signed int 16 | | Alarm 7 delay alarm off | | |
| 035B | signed int 16 | | Alarm 8 delay alarm off | | |
| 035C | signed int 16 | *Low*<br>*High* | Alarm 1 relay function<br>Alarm 1 Alarm locked | **Relay function:**<br>-1 = on at alarm,<br>-2 = off at alarm,<br>-3 = manually on,<br>-4 = manually off<br><br>**Alarm locked:**<br>-1 = no,<br>-2 = yes | |
| 035D | signed int 16 | *Low*<br>*High* | Alarm 2 relay function<br>Alarm 2 Alarm locked | | |
| 035E | signed int 16 | *Low*<br>*High* | Alarm 3 relay function<br>Alarm 3 Alarm locked | | |
| 035F | signed int 16 | *Low*<br>*High* | Alarm 4 relay function<br>Alarm 4 Alarm locked | | |
| 0360 | signed int 16 | *Low*<br>*High* | Alarm 5 relay function<br>Alarm 5 Alarm locked | | |
| 0361 | signed int 16 | *Low*<br>*High* | Alarm 6 relay function<br>Alarm 6 Alarm locked | | |
| 0362 | signed int 16 | *Low*<br>*High* | Alarm 7 relay function<br>Alarm 7 Alarm locked | | |
| 0363 | signed int 16 | *Low*<br>*High* | Alarm 8 relay function<br>Alarm 8 Alarm locked | | |

*3) see 8.3.1 Permissible alarm limits for each configured sensor type

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 0364 | signed int 16 | *Low*<br>*High* | Alarm 1 alarm at sensor error<br>Alarm 1 alarm at device error | **Alarm at sensor error:**<br>Bit 0 = Sensor 1T,<br>Bit 1 = Sensor 2T,<br>Bit 2 = Sensor 3T,<br>Bit 3 = Sensor 4T,<br>Bit 4 = Sensor 5T,<br>Bit 5 = Sensor 6T,<br>Bit 6 = Sensor 7T,<br>Bit 7 = Sensor 8T<br><br>**Alarm at device error:**<br>-1 = off,<br>-2 = on | |
| 0365 | signed int 16 | *Low*<br>*High* | Alarm 2 alarm at sensor error<br>Alarm 2 alarm at device error | | |
| 0366 | signed int 16 | *Low*<br>*High* | Alarm 3 alarm at sensor error<br>Alarm 3 alarm at device error | | |
| 0367 | signed int 16 | *Low*<br>*High* | Alarm 4 alarm at sensor error<br>Alarm 4 alarm at device error | | |
| 0368 | signed int 16 | *Low*<br>*High* | Alarm 5 alarm at sensor error<br>Alarm 5 alarm at device error | | |
| 0369 | signed int 16 | *Low*<br>*High* | Alarm 6 alarm at sensor error<br>Alarm 6 alarm at device error | | |
| 036A | signed int 16 | *Low*<br>*High* | Alarm 7 alarm at sensor error<br>Alarm 7 alarm at device error | | |
| 036B | signed int 16 | *Low*<br>*High* | Alarm 8 alarm at sensor error<br>Alarm 8 alarm at device error | | |

### 8.3.1 Permissible alarm limits for each configured sensor type

| Sensor type | | Range of values Min. | Max. |
|---|---|---|---|
| Pt100 | [0,1 °C] | -1999 | 8000 |
| Pt1000 | [0,1 °C] | -1999 | 8000 |
| Thermoelement Typ B | [0,1 °C] | 0 | 18200 |
| Thermoelement Typ E | [0,1 °C] | -2700 | 10000 |
| Thermoelement Typ J | [0,1 °C] | -2100 | 12000 |
| Thermoelement Typ K | [0,1 °C] | -2000 | 13720 |
| Thermoelement Typ L | [0,1 °C] | -2000 | 9000 |
| Thermoelement Typ N | [0,1 °C] | -2700 | 13000 |
| Thermoelement Typ R | [0,1 °C] | -500 | 17700 |
| Thermoelement Typ S | [0,1 °C] | -500 | 17700 |
| Thermoelement Typ T | [0,1 °C] | -2700 | 4000 |
| 0 … 10V | [0,001 V] | 0 | 10000 |
| 2 … 10V | [0,001 V] | 2000 | 10000 |
| 0 … 20mA | [0,001 mA] | 0 | 20000 |
| 4 … 20mA | [0,001 mA] | 4000 | 20000 |
| 500Ω | [0,1 Ω] | 0 | 5000 |
| 30kΩ | [0,001 kΩ] | 0 | 30000 |

Insert limit values **without unit** and **without decimal** point. E.g. 45,8°C -> 458 -> 0x01CA.

**If limit values outside the permissible limits for each configured sensor type are written to the device, a parameter error will appear.**

## 8.4 Triggering the reset function

- Modbus function code 0x10 (Write Multiple Registers)

| Add. hex | Data type | | Register | Range of values / description Min. | Max. |
|---|---|---|---|---|---|
| 0100 | signed int 16 | | Reset locked alarms | 0000 (no reset) … 0001 (reset) | |
| 0101 | signed int 16 | | Reset min/max values 1T…8T, V1…V8 | 0000 (no reset) … 0001 (reset) | |

# 9 Function code 0x2B – read device information

| Byte no. | | value (hex) | Designation | Description |
|---|---|---|---|---|
| 0<br>1 | Hi<br>Lo | 00<br>00 | Transaction Identifier | Identification number of a request<br>(at multiple requests at the same time) |
| 2<br>3 | Hi<br>Lo | 00<br>00 | Protocol Identifier | always 0 (Modbus protocol) |
| 4<br>5 | Hi<br>Lo | 00<br>05 | Length | Number of following bytes<br>(high Byte is always 0) |
| 6 | | FF | Unit Identifier | Identification of a remote device (value meaningless) |
| 7 | | 03 | Function code | Modbus function code (0x2B, read device information) |
| 8 | | 0E | MEI Type | always 0x0E *1 |
| 9 | | 01 | Read Device ID code *2 | |
| 10 | | 00 | Object ID | see function code 0x2B - objects |

*1 MEI = MODBUS Encapsulated Interface (see Modbus documentation, http://www.modbus.org)

*2 0x01: Query of “Basic” device information (stream access)
0x02: Query of “ Regular” device information (stream access)
0x03: Query of “ Extended” device information (stream access)
0x04: Query individual device information (individual access)

## 9.1 Function code 0x2B - objects

| Object Id | Object name / Description | Content | Type | Category |
|---|---|---|---|---|
| 0x00 | Manufacturer name | ZIEHL industrie-elektronik GmbH + Co KG | ASCII String | Basic |
| 0x01 | Product- (article-) number | T224353 / T224354 | | |
| 0x02 | Revision Firmware | 12820-0402-xx | | |
| 0x03 | Manufacture URL | www.ziehl.com | ASCII String | Regular |
| 0x04 | Product name | Universal relay | | |
| 0x05 | Product description | UR840IP / UR420IP | | |
| 0x80 | Serial number | xxxxxxxx | ASCII String | Extended |
| 0x81 | Revision Hardware | xx (e.g. „04“) | | |
| 0x82 | Revision Bootloader | 12750-1400-xx | | |

# 10 Note for SIEMENS SIMATIC S7-1500

The following values must be set on the communication block:
MODE = 0
DATA_ADDR with number range 40001-49999 List Hold-Register with function code 3
Example: read the hold register in the ZIEHL device:
Temperature 1: DATA_ADDR = 40002 == Ziehl Holdregister 1
Temperature 2: DATA_ADDR = 40003 == Ziehl Holdregister 2
to
Temperature 6: DATA_ADDR = 40007 == Ziehl Holdregister 6
The data length (DATA_LEN) must be set to 1 word,
Otherwise, you get an error message.