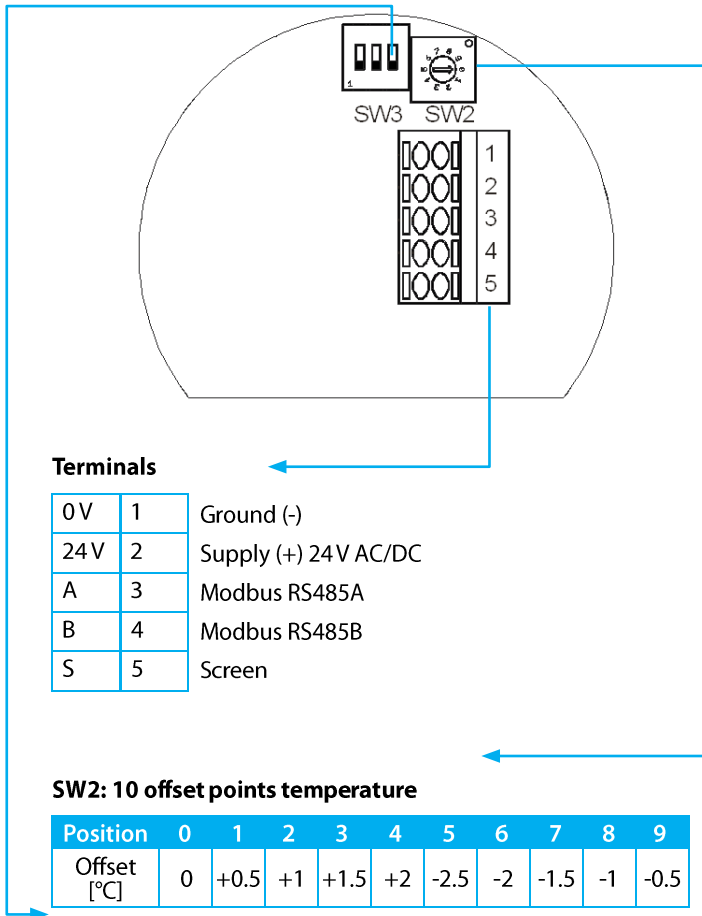




## Electrical connection / settings

### Modbus Transmitter with 5-point calibration

#### Modbus variant (TEW-MOD):



**Note:**  
We recommend our parameter programming tool PROG-MOD-01 to program Modbus parameters quickly.

## Menu display

### Valid from sensor firmware 0.28 and display firmware 0.56:

The device has got 3 hierarchical menu levels:

- main menu
- configuration menu (simple parameters)
- password level (complex parameters, 5P-calibration)

Use the ⏪ and ⏩ buttons to move through the menu.

In the main menu the following information is displayed:

Display	Description
Temp	Temperature
Unit	Temperature units °C or °F
MB Addr	Modbus address
Type	Hardware variant / sensor type
Ver Sen	Firmware version of the sensor
Ver Dis	Firmware version of the display

By simultaneously pressing the two ⏪ and ⏩ buttons for about 4 seconds, the configuration menu is started. By pressing the ⏪ button the currently displayed value can be changed.

The variable value will flash, it is changed with the ⏪ and ⏩ buttons. By pressing the ⏪ button again, the entered value is stored. The following data can be displayed or changed here:

Display	Description
Time s	Illumination time of the display in seconds (0 = illumination always on)
Contr.%	Display contrast (default 50 %)
Passwd	Password entry „0000“*

After correctly entering the password (by pressing the ⏪ button jumps to the next position, using the buttons ⏪ and ⏩ changed to the respective number) the following menu appears:

Display	Description
MB Mode	Modus (RTU or ASCII)
MB Baud	baud rate (9.6, 19.2, 38.4 oder 56.0)
MB Pari	Parity (Even, Odd or None)
MB Addr	Modbus address
CHX1 °C	calibration -> see page 10
...	
CTY5 °C	
Res. All	Reset to default settings

Buttons ⏪ and ⏩ are used to navigate the parameter menu. By pressing the button ⏪ for approx. 4 seconds (or if no button is pressed for approx. 1 minute), the device leaves the parameter menu and returns to the configuration menu. By pressing the button ⏪ again for 4 seconds (or if no button is pressed for approx. 1 minute), the device returns to the main menu.

\* In older firmware versions, only the password „0815“ is accepted.

## Menu display

### Bus Settings

### Modbus protocol

Mode:	Sensor setting (default RTU)	selectable RTU / ASCII
Baud rate:	Sensor setting (default 9.6 (= 9600))	selectable 9.6/19.2/38.4/56.0
Parity:	Sensor setting (default Even)	selectable Even/Odd/None
Address:	Sensor setting (default 1)	selectable 1 to 127

*CAUTION: Changes take effect immediately, without restarting the transmitter.*

Data bits:	8 (in RTU mode); 7 (in ASCII mode)
Stop bits:	1 (for parity even/odd); 2 (with no parity)
Function:	04 Read input registers (3x)

#### Register overview

Register	PWM-Address	Data type	Measurement unit	Description
10 (0x0A)	30011	Signed 16	1/10 °C	Temperature °C
11 (0x0B)	30012	Signed 16	1/10 °F	Temperature °F
16 (0x10)	30017	Signed 16	0 = No sensor error 1 = Sensor error	Error status

#### Request to the transmitter (RTU example)

Byte	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Description	Address	Function	Start address		Quantity register		CRC	
Example	01	04	000A		0002		...	
Meaning	Transmitter 1	Read input registers	Register 10 (PWM 30011)		2 Register		Checksum	

#### Reply from transmitter (RTU example)

	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Description	Address	Function	Quantity Data bytes	Temperature in 1/10 °C		Temperature in 1/10 °C		CRC	
Example	01	04	04	00EC		02E9		...	
Meaning	Transmitter 1	Read input registers	4 Data bytes	236 (=23.6 °C)		745 (=74.5 °F)		Checksum	
Data type				Signed 16		Signed 16			