

## Temperature measurement technology

### Temperature switch WTR 630

#### Brief description

- Resistance thermometer and temperature switch without screw-in thread, without neck tube
- Switching output PNP and RS485 Modbus RTU
- Fast response time without reduced measuring peak
- Two-point control via adjustable hysteresis
- Electrical connection with plug M12 5-pole (connection cables see accessories)
- Special designs on request



WTR 630-9-B-6-PT100-SA

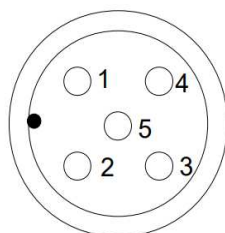
#### Technical specifications

Operating voltage	UB = 8...30 V DC
Current requirement	15 mA + switching output PNP
Switch-on delay	<0.3s
Measured value recording	PT100 class A
Measuring range	-50°C to +150°C
Measurement deviation (accuracy)	< ±0.1% of final value
Output Switching output	PNP, (active max. 60 mA, short-circuit proof)
Control behaviour	two-point controller
Factory setting of switching point	50°C
Factory setting hysteresis	1°C
Factory setting Modbus ID	1
Protection class	IP69K according to DIN 60529
Electrical connection	M12 5-pole
Interface	RS485 Modbus protocol for configuration as well as readout of the measurement results and statuses
Process connection	compression fitting (see accessories)
Material Protection pipe	Stainless steel 1.4571 (V4A)
Diameter	6 mm
Storage temperature	-20 to 60 °C
operating pressure	max. 10 bar
Humidity	0...95 % r. h.
Weight approx.	150 g

#### Product advantages

- Temperature measurement on pipelines and containers
- Compact, cost-optimised design
- Low attack surface for harsh environmental factors
- Quick and easy electrical connection via M12 connector
- Installation length flexibly adjustable with compression fitting
- Hygienic adaptation possible with ball compression fitting
- RS485 interface with Modbus RTU protocol for direct communication with PLC
- Freely configurable switching point and hysteresis
- Simple configuration also possible with RS485 to USB adapter via Windows software "pmtKonfigTool" possible

#### Connection

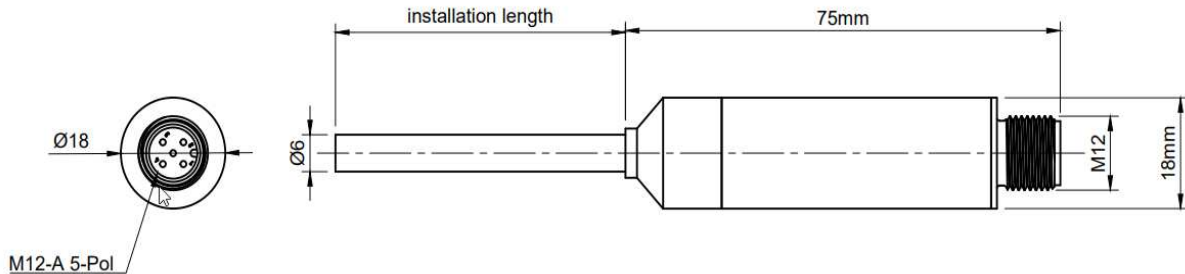


- 1: + Power supply
- 2: Output PNP
- 3: - Power supply
- 4: Interface RS485 (A)
- 5: Interface RS485 (B)

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### Technical drawing



### Modbus RTU

The WTR 630 has an RS485 interface and works with the Modbus RTU protocol. The interface can be used to read out the measured values and the status as well as carry out the configuration. All floating point numbers comply with the IEEE754 standard and are each divided into two registers for transmission. The temperature switch has the address "1" as standard (others on request). The address can be changed via register 0036d (permissible range for addresses: 1-247). By means of a simple RS485 to USB adapter and the in-house Windows software "pmtKonfigTool", configuration and evaluation can also be carried out on a PC.

**Important: To configure the temperature switch via the Windows software, an RS485 to USB adapter is required! to USB adapter is necessary!**

Holding Register					
Address		Datatype	Content	Description	Read/write permission
Hex	Dezimal				
0x0064	100	Float	Switching point 0	Switching point - first part of the floating point number according to IEEE754 standard	read/write
0x0065	101		Switching point 1	Switching point - second part of the floating point number according to IEEE754 standard	read/write
0x0066	102	Float	Hysteresis 0	Hysteresis - first part of the floating point number according to IEEE754 standard	read/write
0x0067	103		Hysteresis 1	Hysteresis - second part of the floating point number according to IEEE754 standard	read/write
0x0068	104	Int	Output logic	0: standard (temperature above switching point + hysteresis: output= high) 1: inverted (temperature above switching point + hysteresis: output= Low)	read/write
0x0069	105	Int	Modbus ID	Default: 1, Range: 1-247	read/write

Input Register					
Address		Datatype	Content	Description	Read/write permission
Hex	Dezimal				
0x0001	1	Char	Sensorbezeichnung	Sensorbezeichnung als ID WTR 630 = 0x1004	read
0x0002	2	Char	Production date	Day	read
0x0003-0x0004	3 - 4	Char	Production date	Month	read
0x0005	5	Char	Production date	Year	read
0x0006-0x0007	6 - 7	Char	Version number	Version number of the unit	read
0x0064	100	Int	Status	0: Sensor OK 1: Sensor broken	read
0x0065	101	Int	Temperatur INT	Measured temperature in 1:100	read
0x0066	102	Float	Temperature 0	Measured temperature - first part of floating point number according to IEEE754 standard	read
0x0067	103		Temperature 1	Measured temperature - second part of floating point number according to IEEE754 standard	read
0x0068	104	Int	Output status	0: Output=Low 1: Output=High	read

Order code WTR 630...

Order example: WTR 630-9-C-6-PT100-SA

**Connection type**

-9 Compact design, direct with M12 plug 5-pole, protection class IP69K

**Installation length**

-A 50 mm installation length  
 -B 100 mm installation length  
 -C 150 mm installation length  
 -D 200 mm installation length  
 -E 250 mm installation length  
 -F 300 mm installation length  
 -K Installation length on customer request

**Protective pipe**

-6 6 mm protection pipe diameter  
 -K Protection pipe diameter on customer request

**Measurement**

-PT100 1 x PT100 Temperature range -55°C...+150°C

**Output**

-SA Switching output and interface RS485 (Modbus RTU)

**Accessories**

Compression fitting

-99-000197 KVS6E-1/2" Compression fitting  
 -99-000199 KVS6E-1/2" Compression fitting, with screw-in thread, Teflon clamping ring, Material 1.4571 (Only for 6mm protection pipe)  
 -99-000512 KVS6E-1/4" Compression fitting  
 -99-000198 KVS6T-1/4" Compression fitting  
 -99-000196 KKVS6P Ball compression fitting, with PEEK sealing ring, Material 1.4404 (Only for 6mm protection pipe)

Immersion sleeves

-99-000456 THVA, 100mm, in G1/2", Dimension 9x1, diameter immersion sleeve 9mm, Inner diameter 7mm, material VA, with M4 screw in the hexagon  
 -99-001938 THVA-KVS 100mm, in G1/2", Sleeve dimension 9x1, diameter immersion sleeve 9mm, inner diameter 7mm, with compression fitting, with PTFE clamping ring (Only for 6mm protection pipe)  
 -99-002871 ESTHK, 50mm, Weld-in immersion sleeve, with compression fitting PEEK, Diameter sleeve 9x1, material stainless steel 1.4404

M12 connection cables

-113218 Connection cable M12 angled, 5-pin, 5m PUR cable, black  
 -110602 Connection cable M12 straight, 5-pin, 5m PUR cable, black

Programming adapter RS485 to USB

-99-003097 RS485 to USB programming adapter, serial communication, necessary for configuration of the temperature switch via Windows software

**Other lengths available on request.**

**For more accessories, see accessories data sheet.**