STÜBBE

Pressure and Temperature Sensor PTM C4 / R / MD

Pressure measuring range 0–10 bar,
0–5 bar, 0–2 bar, 0–1 bar, 0–0.5 bar
Temperature measuring range -10–100 °C
Voltage supply 18–30 V DC

PVC-U PP PVDF

Features

- Programmable pressure and temperature sensor
- Ideal as a dry run protection device for pumps and for process monitoring
- Pressure range from 0.5 up to 10 bar
- Alternative signal output interfaces (current loop / relay / Modbus RTU)
- Compact version for space-saving installation
- Flex version for difficult-to-reach or heavily contaminated locations

Note

The display and control unit (UNI display) is required for setting the sensor in the relay and Modbus version!

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Pictogram Pressure and Temperature Sensor PTM C4 / R / MD

PTM Compact / Flex
R / C4 / MD

Pressure
0–0.5 bar
0–1 bar
0–2 bar
0–5 bar
0–10 bar

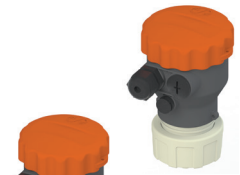
Temperature
-10–100 °C

Signal output

- C4 — Current: 4 wires, 2x 0/4...20mA; Operating voltage: 20...30 V DC
- R — Relay: 4 relays, 2 inputs, 1 Micro USB; Programmable NC/NO switching function; Operating voltage: 18...30 V DC
- MD — Modbus – RTU: 2 relays, 2 inputs; Change-over contact switching function; Operating voltage: 18...30 V DC

Optional: UNI display

PTM Compact



PTM Flex

Sensor / Housing
- 1 — PVC-U
- 2 — PP
- 3 — PVDF

Connection

Sealing
- EPDM
- FPM

- Socket
- Spigot

● available
○ not available

Connection Material (process connection)

1. **PVC-U** socket DIN
2. **PP** socket DIN
   spigot (IR) DIN
3. **PVDF** socket DIN
   spigot (IR) DIN

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Pressure and Temperature Sensor PTM C4 / R / MD

Application

- The PTM can be used as a dry run protection device for pumps and for process monitoring. A sensor measures the temperature of the medium in addition to the pressure.

Use

- Pressure and temperature transducers for installation in pipes
- Comprehensive operating and display possibilities with relay output, 0/4–20 mA signal output or Modbus RTU connection

Function

- The process pressure is registered by a ceramic transducer made of AL_2O_3. This system is additionally equipped with a temperature sensor. The values are converted in the connection housing.
- The output values can be indicated by the UNI display and/or transmitted via the respective outputs.
- Versions

  C4:

  The current module transmits pressure and temperature via normalised 0/4–20 mA signals.

  R:

  The relay module is equipped with four programmable relay outputs. It is particularly suitable for the direct control of sensitive plant components, e.g. for dry run protection of pumps.

  MD:

  The Modbus module enables data bus communication. It contains two additional freely programmable relay outputs which can be used for directly intervening in the process if necessary.

Type

- PTM Compact as a compact one-piece variant
- PTM Flex with the connection housing separate from the sensor housing, connected by a 3 m long sensor cable

Display and control unit (UNI display)

- Can be used for all measuring instruments of the UNI display platform (USF, PTM, HFT or UFM).
- Housing: ABS
- Cover: PA, transparent
- Display: illuminated LCD
- Operation: 4-key function
- Front film: polyester
- Data logger function with date stamp
- Firmware update possible
- Parameter settings can be saved and transmitted to other sensors.
- Storage function on a microSD card
- Battery: CR1220, 3 V
- The display unit can be removed from the sensor housing after the settings have been made.
- The display unit is required for setting the relay and Modbus version.

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Pressure and Temperature Sensor PTM C4 / R / MD

Technical data

			Value					
			PTM-C4, R, MD Compact			PTM-C4, R, MD Flex		
			PVC-U	PP	PVDF	PVC-U	PP	PVDF
Measuring								
Measuring range pressure		bar	0–0.5, 0–1, 0–2, 0–5 or 0–10					
Measuring range temperature		°C	-10–100					
Measuring resolution pressure		mbar	≤ 1					
Measuring resolution temperature		kelvin	≤ 0.1					
Step response (10–90%)		ms	300					
Integration time adjustable		s	0–60					
Measuring deviation absolute		%	±1.5 at 25 °C, ±2.5 at 0–85 °C					
Power up		s	8					
Temperature compensation			Automatic					
Voltage supply								
Voltage supply		V DC	18–30					
Power consumption max.		W	2.5					
Signal output								
Current loop C4		mA	0/4–20					
Relay R			4 relays, 5 A / 230 V AC, 2 inputs					
Modbus RTU MD			2 relays, 1 A / 30 V DC 2 inputs, RS485					
Cable outside diameter		mm	5–11					
Nominal cross-section (max.)		mm²	0.3					
Connection			pluggable screw connectors					
Material coming into contact with the media								
Sensor			AL2O3					
Sensor housing			PVC-U	PP	PVDF	PVC-U	PP	PVDF
Sensor seal			FPM or EPDM					
Union nut			PVC-U	PP	PVDF	PVC-U	PP	PVDF
Process sealing			FPM or EPDM					
Material not coming into contact with the media								
Housing			PP-GF					
Housing cover			PP-GF / PA transparent					
Cover seal			NBR					
Connection cable sensor / display				–			TPE-V/U, UV resistant, 3 m	
Process conditions								
Ambient temperature		°C	-20–70					
Atmospheric ambient pressure		bar	0.8–1.1					
Relative humidity		%	20–85					
Process temperature		°C	0–50	0–70	-10–100	0–50	0–70	-10–80
Maximum pressure range		bar	2x nominal pressure					

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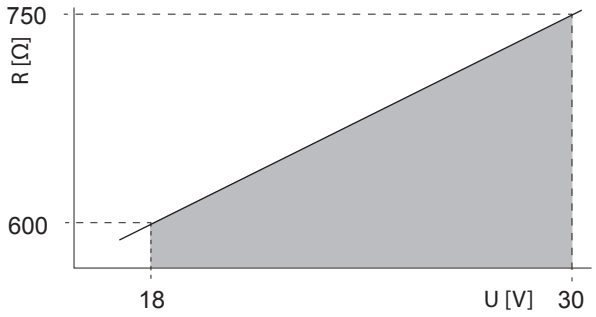
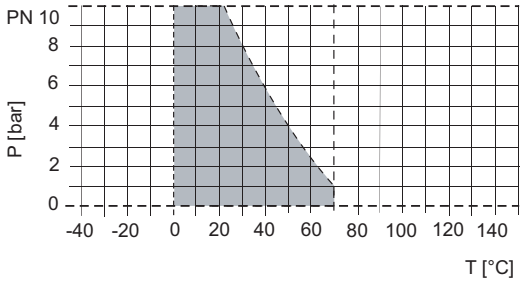
			Value					
			PTM-C4, R, MD Compact			PTM-C4, R, MD Flex		
			PVC-U	PP	PVDF	PVC-U	PP	PVDF
Mechanical data								
Weight of sensor		kg	0.4	0.3	0.4	0.6	0.5	0.6
Weight of connection cable		kg/m		–			0.1	
Mounting position			As required					
Connection thread (male thread)		inch	1 1/2“					
Type of protection			IP67					
Accessories			UNI display, PSU power pack, 1/2“ pressure gauge adapter					

Ohmic resistance

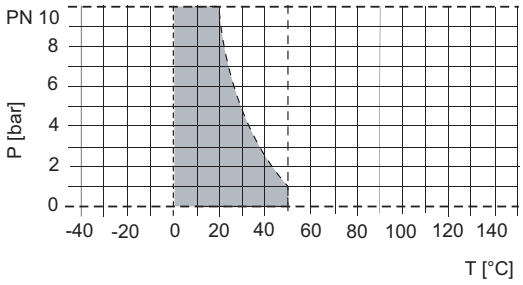


	Description
R	Max. ohmic resistance
U	Voltage supply

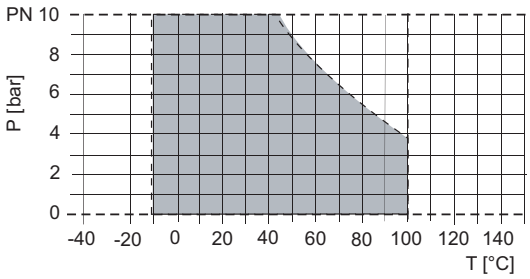
Pressure and temperature diagram



Pressure and temperature limits PP



Pressure and temperature limits PVC-U



Pressure and temperature limits PVDF

	Description
P	Operating pressure
T	Temperature

The pressure/temperature limits of the materials are valid for the stated nominal pressures and a service life of 25 years.
These values are guide values for flow medium types which do not negatively impact the physical and chemical characteristics of the valve material. It may be necessary to take diminution factors into consideration.
The operating life of the wear parts depends on the conditions of use.

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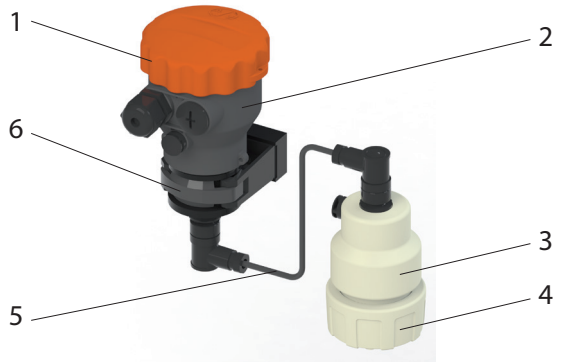
PTM Compact

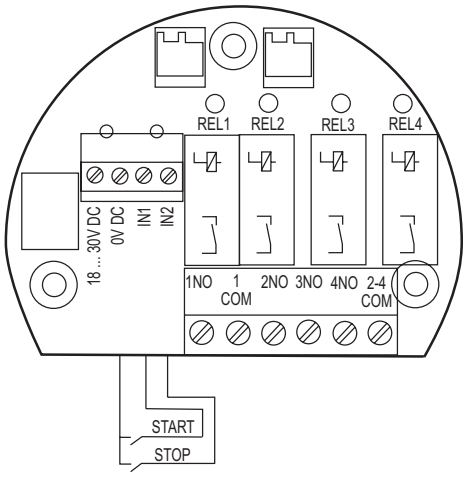
No.	Description
1	Housing cover
2	Connection housing
3	Sensor housing
4	Device connection

PTM Flex



No.	Description
1	Housing cover
2	Connection housing
3	Sensor housing
4	Device connection
5	Sensor cable
6	Mounting clip

Terminal connection plan, relay version



Terminal	Connection
18–30 V DC	Voltage supply (18–30 V DC)
0 V DC	Voltage supply (–)
IN1	Start button
IN2	Stop button
1NO	Relay 1 normally open contact
1COM	Relay 1 COM
2NO	Relay 2 normally open contact
3NO	Relay 3 normally open contact
4NO	Relay 4 normally open contact
2–4 COM	Relay 2–4 COM

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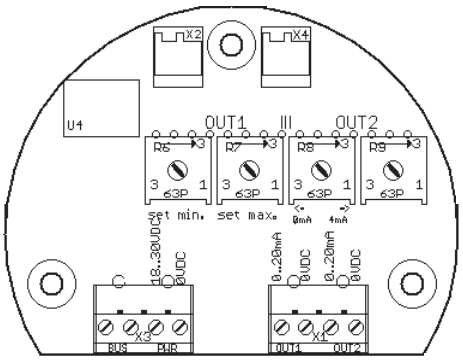
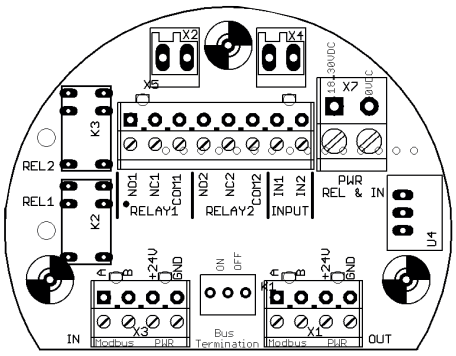
Terminal connection plan, 4-wire current version



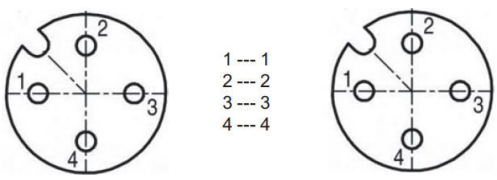
Terminal	Connection
Connector X3	
PWR: 18–30 V DC	Voltage supply (18–30 V DC)
PWR: 0 V DC	Voltage supply (–)
Connector X1	
OUT1: 0–20 mA	0/4–20 mA signal
OUT1: 0 V DC	Earth, signal
OUT2: 0–20 mA	0/4–20 mA temperature
OUT2: 0 V DC	Earth, temperature

Terminal connection plan, Modbus RTU version



Terminal	Connection
Connector X2 / X4	
Plug-type connection	UNI display
Connector X5	
IN1	Start button
IN2	Stop button
NO1	Relay 1 normally open contact
NC1	Relay 1 normally closed contact
COM1	Relay 1 COM
NO2	Relay 2 normally open contact
NC2	Relay 2 normally closed contact
COM2	Relay 2 COM
Connector X7	
PWR: 18-30 V DC	External voltage supply (inputs / relays)
PWR: 0 V DC	External earth
Connector X3 / X1	
A	RS485 A
B	RS485 B
PWR: +24 V	Operating voltage supply, sensor
PWR: GND	Operating voltage supply, sensor (earth)

Pin assignment, 4 pole



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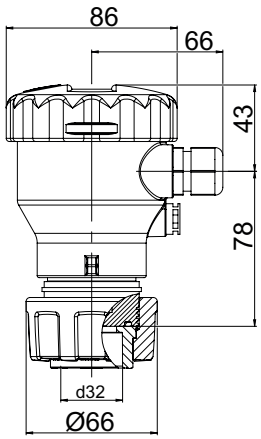
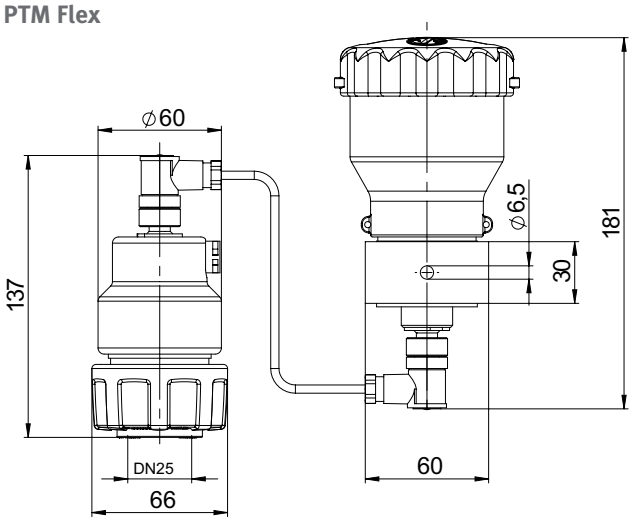
PTM Compact



PTM Flex