

PRESSURE AND TEMPERATURE SENSOR PTM C4 / R / MD

Pressure measuring range 0–10 bar

Temperature measuring range -10–100 °C

Voltage supply 18–30 V DC

Features

- Programmable pressure and temperature sensor
- Ideal as a dry run protection device for pumps and for process monitoring
- Pressure range 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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Pressure and Temperature Sensor PTM C₄ / R / MD



PTM Compact
Version: Fitted to pipe

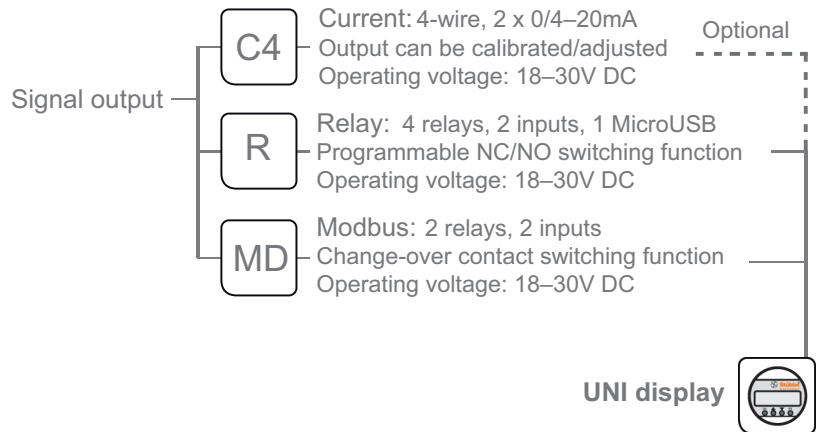
PTM Flex



Signal inputs:



Pressure
0–10 bar



Sensor: Al₂O₃ 96 %, sensor protective film (optional): Tantalum

Housing material

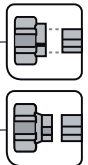


Connection

Sealing

Socket

Spigot



Connection material

- 1 **PVC-U** socket **DIN**
- 2 **PP** socket **DIN**
Spigot **DIN**
- 3 **PVDF** socket **DIN**
Spigot **DIN**
- 4 **Sealing**
 - » EPDM
 - » FPM
 - » PFA

● available
○ not available

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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 AL₂O₃. 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

Interfaces

- Signal output, current loop (C₄):
 0/4–20 mA
 Output can be calibrated/adjusted

- Signal output, relay (R):
 4 relays, 5 A / 230 V AC
 Programmable NC/NO switching function
 2 inputs
- Signal output, Modbus RTU (MD):
 RS485
 2 relays, 1 A / 30 V AC/DC
 2 DC isolated inputs

Operation

- 4-wire current version (C₄):
 using the integrated potentiometer,
 optionally using the display and control unit (UNI display)
- Relay version (R):
 using the display and control unit (UNI display)
- Modbus RTU version (MD):
 using the display and control unit (UNI display),
 relay / inputs via Modbus RTU

Measured variables

- Pressure and temperature

Device connection

- Socket end for solvent welding (PVC-U): d32
- Fusion socket end (PVDF or PP): d32
- Fusion spigot end (PVDF or PP): d32

Voltage supply

- U = 18–30 V DC

Cable connections

- Cable outside diameter: 5–11 mm
- Nominal cross-section, voltage supply: 0.25 mm²
- Nominal cross-section, relay outputs: 0.5 mm²
- Nominal cross-section, gate inputs: 0.25 mm²
- Nominal cross-section, Modbus: 0.35 mm²

Materials, wetted parts

- Sensor: AL₂O₃ 96 %
- Sensor housing: PVC-U, PVDF or PP
- Sensor seal: EPDM, FPM, PFA
- Union end and union nut: PVC-U, PVDF or PP
- Sealing: EPDM, FPM, PFA
- Optional sensor protective film: Tantalum

Materials, not wetted parts

- Housing: PP-GF
- Housing cover: PP-GF / PA transparent
- Cover seal: NBR
- Connection cable, sensor / display: TPE-V, UV resistant

Weights

- Basic weight: 0.6 kg
- Sensor cable: 0.1 kg/m

Type of protection

- IP 67

Output behaviour

- Power up: 10 s
- Step response (10–90%) < 300 ms
- Integration time: 0–60 s, adjustable

Sensor data (pressure)

- Measured variable: pressure
- Measuring range: 0–10 bar
- Precision:
 - at 25 °C: ±1 % (of the maximum value)
 - at 0–85 °C: ±2.4 % (of the maximum value)
- Resolution: 1.0 mbar
- Maximum overpressure: 20 bar

Sensor data (temperature)

- Measuring range: -10–100 °C
- Resolution: 0.1 K

Ambient conditions

- Ambient temperature: -20–70 °C
- Atmospheric ambient pressure: 0.8–1.1 bar
- Relative humidity: 20–85 %

Process temperature

- See pressure and temperature diagram

Process pressure

- See pressure and temperature diagram

Mounting position

- As required

Accessories

- Display and control unit (UNI display)

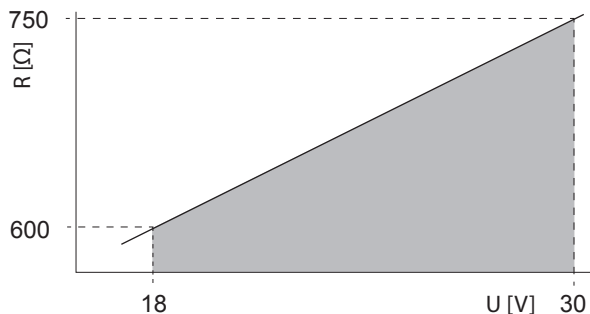
Display and control unit (UNI display)

- Can be used for all measuring instruments of the UNI display platform (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.

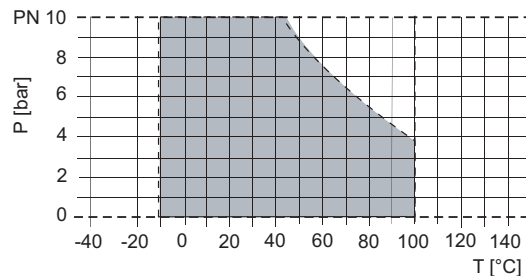


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Ohmic resistance



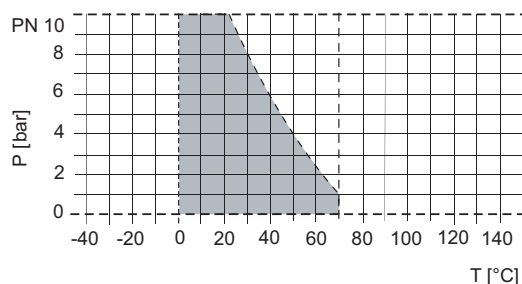
Description	
R	Max. ohmic resistance
U	Voltage supply



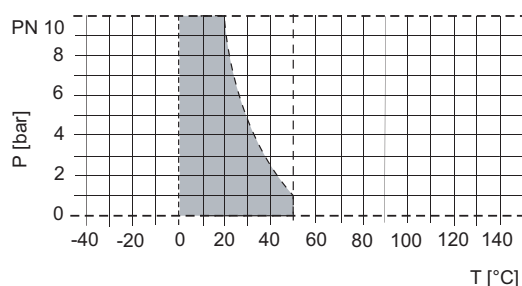
Pressure and temperature limits PVDF

Description	
P	Operating pressure
T	Temperature

Pressure and temperature diagram



Pressure and temperature limits PP



Pressure and temperature limits PVC-U

The pressure/temperature limits of the materials are applicable for the stated nominal pressures and a computed operating life factor of 25 years.

The values are a guide for harmless media (DIN 2403), to which the valve material is resistant.

For other fluids please refer to the ASV resistance guide. The operating life of the wear parts depends on the conditions of use.

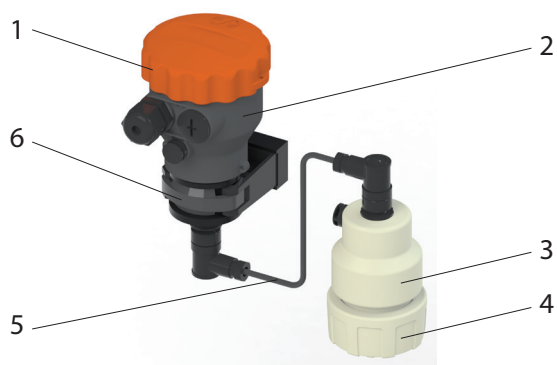
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PTM Compact



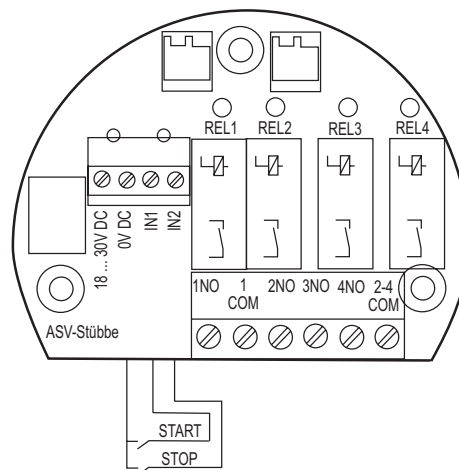
No.	Description
1	Housing cover
2	Connection housing
3	Sensor housing
4	Device connection

PTM Flex



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

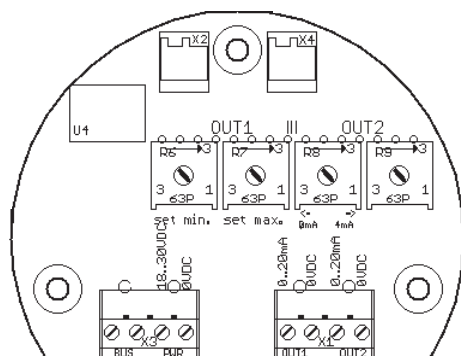
Terminal connection plan, relay version



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

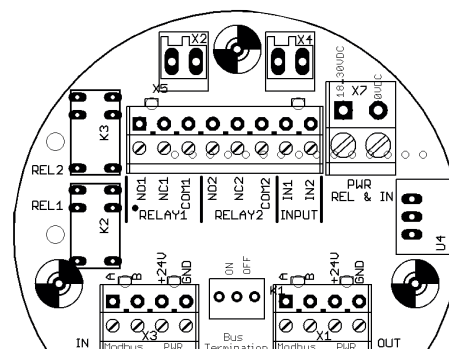
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Terminal connection plan, 4-wire current version



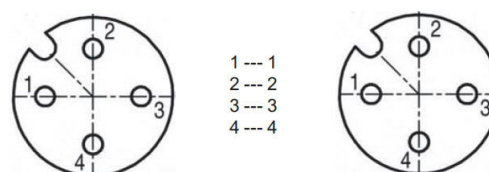
Terminal	Connection
Connector X₃	
PWR: 18–30 V DC	Voltage supply (18–30 V DC)
PWR: 0 V DC	Voltage supply (–)
Connector X₁	
OUT1: 0–20 V DC	0/4–20 mA pressure
OUT1: 0 V DC	Earth, pressure
OUT2: 0–20 V DC	0/4–20 mA temperature
OUT2: 0 V DC	Earth, temperature

Terminal connection plan, Modbus RTU version



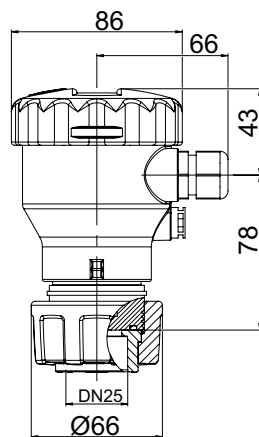
Terminal	Connection
Connector X₂ / X₄	
Plug-type connection	UNI display
Connector X₅	
IN1	Start button
IN2	Stop button
NO1	Relay 1 normally open contact
NC1	Relay 1 normally closed contact
COM1	Relay 1 COM
NO2	Relay 2 normally open contact
NC2	Relay 2 normally closed contact
COM2	Relay 2 COM
Connector 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

