

Precont® PU4SE

Universal pressure transmitter / pressure switch
for general industrial applications

Technical information TI06.25

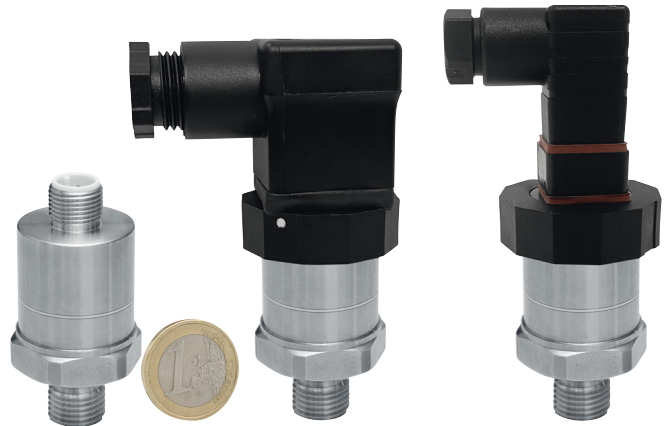


Application

- Machinery and plant engineering
- Air-conditioning and refrigeration plant engineering
- Hydraulic and pneumatic systems
- Process industry
- Environmental technology
- Facility and building automation

Main features

- Measuring ranges from 1 bar up to 100 bar
- Robust ceramic internal diaphragm
- Process temperature range -25°C to +100°C
- Fully welded robust steel enclosure
- High protection class IP69K/IP67
- High accuracy to $\leq 0,5\%$
- Electronic 4...20mA FSK / RS485 Modbus®-RTU / IO-Link® / 0...10V
- Electrical connection M12 plug or angled plug



Description

The device is an electronic pressure sensor for monitoring, control and continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to its high accuracy and the digital adjustability by FSK, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The long term stable and robust strain gauge ceramic measuring cell ensures reliable precise measuring values and allows the operation also at demanding environmental conditions, e.g. low temperatures, high shock and vibration loads or at problematic media.



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Technical Data

Measuring range										
Nom. pressure PN	[bar]	0...1	0...4	0...10	0...40	0...100	-	-	-	-
Output type A – Current 4...20mA FSK										
Analogue output 4...20mA	3,9...20,5mA, Measuring range [08] = 4...20mA, error ≤ 3,9mA / ≥ 20,5mA									
Time behaviour t90-min	≤ 5ms (td = 0s)									
Interface	FSK / 1200 Bit/s									
Output type A – Voltage 0...10V										
Analogue output	0...10,25V, Measuring range [08] = 0...10V, error 0V / ≥ 10,25V									
Time behaviour t90-min	≤ 5ms (td = 0s)									
Output type V – RS485 Modbus®-RTU										
Interface	RS485, bidirectional / Modbus®-RTU / 4,8...38,4 kBaud									
Input resistance	112kΩ									
Time behaviour t90-min	≤ 2ms (td = 0s)									
Output type L – IO-Link®										
Interface	IO-Link V1.1 / Port Class A / Com2 (38,4 kBaud), Com3 (230,4 kBaud)									
Switch output	2x PP (Push-Pull), switch to +L/-L									
Time behaviour t90-min	≤ 2ms (td = 0s)									
Auxiliary power										
Supply voltage Us / Input current Is / Ready delay time	Type A – 4...20mA FSK: 9...35VDC reverse polarity protected / Ripple voltage ≤ 2Vpp / ≤ 20,5mA / ≤ 0,1s (td = 0s) Type B – 0...10V: 14...35VDC reverse polarity protected / Ripple voltage ≤ 2Vpp / ≤ 25mA (Iuo = 0mA) / ≤ 0,1s (td = 0s) Type V – RS485 Modbus®-RTU: 6...35VDC reverse polarity protected / Ripple voltage ≤ 2Vpp / ≤ 10mA (Co = 0mA) / ≤ 0,1s (td = 0s) Type L – IO-Link® inactive: 9...35VDC reverse polarity protected / Ripple voltage ≤ 2Vpp / ≤ 20mA (Co / So / Io = 0mA) / ≤ 0,1s (td = 0s) Type L – IO-Link® active: 18...30VDC reverse polarity protected / Ripple voltage ≤ 2Vpp / ≤ 20mA (Co / So / Io = 0mA) / ≤ 0,1s (td = 0s)									
Measuring accuracy										
Characteristic deviation	≤ ±0,5%FSI									
Influence temperature	Tk ≤ ±0,05%FSI/K									
Long term drift zero	≤ ±0,2%FSI/year									
Process conditions										
Process temperature	-25°C...+100°C									
Pressure cycles	≥ 10 Mio. (1,2xPN)									
Environmental conditions										
Environmental temperature	-25°C...+100°C									
Protection level	IP69K/IP67 (EN/IEC 60529)									
MTTF	4...20mA: 745 years / 0-10V: 610 years / RS485 Modbus®-RTU: 561 years / IO-Link®: 601 years									

Electrical connection

Electronic output type A Current 4...20mA FSK Connection plug M12 Device within Ex-free area	Electronic output type V RS485 Modbus®-RTU	Electronic output type L IO-Link®	Electronic output type B Voltage 0...10V

Dimensions (mm)

Plug M12 [14-S]	Plug EN 175-301-803-C [14-C]	Plug EN 175-301-803-A [14-A]
Technical drawing of Plug M12 [14-S] showing dimensions: M12x1, 10, 26, 27, 16,5x11,6x1,5 ISO 1179-2 E, 13, 2, 3,5, 5, 9,5, G 1/4" A, 35, 57, 11-0, 11-1.	Technical drawing of Plug EN 175-301-803-C [14-C] showing dimensions: 28, 50, 26, 27, 16,5x11,6x1,5 ISO 1179-2 E, 13, 2, 3,5, 5, 9,5, G 1/4" A, 35, 57, 11-0, 11-1.	Technical drawing of Plug EN 175-301-803-A [14-A] showing dimensions: 36, 49, 26, 27, 16,5x11,6x1,5 ISO 1179-2 E, 13, 2, 3,5, 5, 9,5, G 1/4" A, 35, 57, 11-0, 11-1.

Thread ISO 228-1 – G1/4", EN 837 [04-6]	Thread ISO 228-1 – G1/2", EN 837 [04-1]
Process pressure P_{max} = 600 bar Torque M_{max} = 50Nm Technical drawing of Plug M12 [14-S] showing dimensions: M12x1, 10, 26, 27, 16,5x11,6x1,5 ISO 1179-2 E, 13, 2, 3,5, 5, 9,5, G 1/4" A, 35, 57, 11-0, 11-1.	Process pressure P_{max} = 600 bar Torque M_{max} = 50Nm Technical drawing of Plug M12 [14-S] showing dimensions: M12x1, 10, 26, 27, 23,9x18,5x1,5 ISO 1179-2 E, 17, 20, 3, 6, 17,5, G 1/2" A, 35, 57, 11-0, 11-1.

Further terminal assignment can be found in the operating instructions or in the technical information.

Order code

Type
PU4S Standard

Measuring system – material diaphragm (process wetted) / sensor type
E Ceramic Al2O3 96% / strain gauge

Approval
S Standard

Process connection
6 Thread ISO 228-1 – G¼"A, EN 837 manometer
1 Thread ISO 228-1 – G½"A, EN 837 manometer
Y others

Material process gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
05 0...1 bar
08 0...4 bar
10 0...10 bar
13 0...40 bar
19 0...100 bar
YY Special measuring range

Electronic – output
A Current 4...20mA, FSK, 2-wire
B Voltage 0-10V, 3-wire (only with Electrical connection – C or A)
V RS485 Modbus®-RTU, 4-wire (only with Electrical connection – S)
L IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire (only with Electrical connection – S)

Electronic – function
S Standard

Process temperature
O Standard –25°C...+100°C

Pressure type
R Gauge pressure

Measuring system – accuracy
4 0,5%

Electrical connection
S Plug M12x1
C Plug EN 175-301-803-C (DIN 43650-C)
A Plug EN 175-301-803-A (DIN 43650-A)

Additional options
-SF LABS-free, silicone-free / paint compatible version
-ML Measurement point designation / TAG – Laser marking
-MZ Material test certificate – EN10204 3.1
-KF Configuration / Preset
-WK Factory calibration – calibration certificate

Precont® PU4S

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