

Precont® PU4SM

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 400 mbar up to 1000 bar
- Wide variety of process connections
- Metallic front-flush or internal diaphragm
- Process temperature range -40°C to +125°C
- Fully welded robust steel enclosure
- High protection class IP69K/IP67
- Highest accuracy to $\leq 0,15\%$
- Electronic 4...20mA FSK / RS485 Modbus®-RTU / IO-Link® / 0...10V
- Certification ATEX / IECEx: Ex ia IIC Ga / Ex ia IIIC Da
- 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.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

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 front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process, also by CIP/SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscous or also frequently changing media.

The robust design 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 rel.	[bar]	0..0,4	0..1	0..4	0..6	0..10	0...16	0..20	0..40	0..60
		0..100	0..160	0..250	0..320	0..400	0..600	0..100	-1..0	-1..1
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 behavior	≤ 5ms (td = 0s)									
Interface	FSK / 1200 Bit/s									
Output type V – RS485 Modbus®-RTU										
Interface	RS485, bidirektional / Modbus-RTU / 4,8...38,4 kBaud									
Input resistance	112kΩ									
Time behavior	≤ 2ms (td = 0s)									
Output type L – IO-Link®										
Interface	IO-Link V1.1 / Port Class A / Com2 (38,4 kBaud), Com3 (230,4 kBaud)									
Analogue output	3,8...20,5mA, measuring range [08] = 4...20mA, error ≤ 3,6mA / ≥ 21mA 0...20,5mA, measuring range [08] = 0...20mA, error ≤ 0,05mA / ≥ 21mA									
Time behavior	≤ 2ms (td = 0s)									
Switch output	2x PP (Push-Pull), switch to +L/-L									
Output type B - 0...10V										
Signal range	0...10,25V, Measuring range [08] = 0...10V, error 0V / ≥ 10,25V									
Time behaviour t90-min	≤ 5ms (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 A – 4...20mA FSK Ex: 9...30VDC / ≤ 2Vpp / ≤ 22mA 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	≤ ±0,05%FSI / ±0,1%FSI / ±0,2%FSI									
Long term drift zero	≤ ±0,15%FSI/year									
Influence temperature	Tk ≤ ±0,05%FSI/K									
Process conditions										
Process temperature	Standard: -40...+100°C (-40°F...+212°F) Extended: -40...+135°C (-40°F...+275°F) / +140°C (+284°F) – 1h NBR: -25...+140°C (-4°F...+284°F) FKM/FPM: -20...+100°C (-13°F...+212°F) EPDM: -40...+140°C (-40°F...+284°F) ATEX/IECEX: according to ATEX/IECEX certificate									
Pressure cycles	≥ 100 Mio. (1,2xPN)									
Environmental conditions										
Environmental temperature	-40°C...+100°C / ATEX/IECEX: see certificate									
Protection level	IP69K/IP67 (EN/IEC 60529)									

Electrical connection

Electronic output type A Current 4...20mA FSK Connection plug M12 – FSK interface 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]

Thread ISO 228-1 – G1/4", EN 837 [04-6]	Thread ISO 228-1 – G1/2", EN 837 [04-1]
Process pressure Pmax = 1000 bar Torque Mmax = 50Nm	Process pressure Pmax = 1000 bar Torque Mmax = 50Nm

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

Order code

Typ
e

PU4S
Standard

Measuring system – material diaphragm (process wetted) / sensor type CrNi-steel / strain gauge

Approval
Standard

S
ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIC Da (only Output type – A and Electrical connection – S)

Process connection

- 6 Thread ISO 228-1 – G¼"B, EN 837 manometer (without process gasket) Thread
- 1 ISO 228-1 – G½"B, EN 837 manometer (≥ 40 bar without process gasket)
- 0 Thread ISO 228-1 – G½"B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar / 0...1000 bar
- 5 Thread ISO 228-1 – G1"B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar
others

Material process gaskets (process wetted)

- 0 without / NBR – nitrile-butadiene-rubber
- 1 FPM – fluorelastomere (e.g. Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
others

Material process connection (process wetted) CrNi-steel

Material terminal enclosure CrNi-steel

Measuring range

- 03 0...400 mbar
- 05 0...1 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 13 0...40 bar
- 14 0...60 bar
- 19 0...100 bar
- 20 0...160 bar
- 21 0...250 bar
- 22 0...320 bar
- 23 0...400 bar
- 24 0...600 bar
- 25 0...1000 bar, only for process connection type 1, 6 – G½"B, G¼"B (EN 837)
- 16 -1...0 bar
- 17 -1...+1 bar
- YY Special measuring range

Electronic – output

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

Electronic function Standard

- Standard -40°C...+100°C
- 0 Extended -40°C...+125°C, temperature decoupler

Pressure type

- Gauge pressure
- Absolute pressure (≤ 25 bar)

Measuring system –

accuracy

- 0,5%
- Xcellence – 0,15%, linearization protocol

Electrical connection

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

Additional options

- LABS-free, silicone-free / paint compatible version
- Measurement point designation / TAG – Laser marking
- WT Factory certification – drink water suitability
- KF Configuration / Preset
- WK Factory calibration – calibration certificate

Precont®
PU4S

M V C S

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