



Pressure measurement

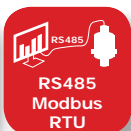
Pressure transmitter for general applications
Monitoring of absolute or relative pressure
in gases, vapors, liquids and dust



Type:

Precont® PU4SM

In brief



Application

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

Your benefits

- *Wide range of applications*
- Finely graded measuring ranges from 400 mbar up to 1000 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP69K
- Wide environmental temperature range -40°C to +100°C
- Metallic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,15% of measuring range
- Integrated evaluation electronic: Current output 4...20mA – HART® compliant (7.0); Digital output RS485 – Modbus RTU; Connector plug M12

Description

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

Due to the device construction with measuring ranges from -1 bar to 1000 bar (gauge), measuring ranges from 0 bar to 1000 bar (absolute), measuring spans from 400 mbar to 1000 bar, process temperatures from -40°C to +125°C, environmental temperatures from -40°C to +100°C, process material CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The device is suitable for demanding

measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications.

The front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the



device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

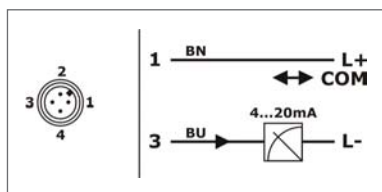
A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water resp. food suitability.



Technical Data

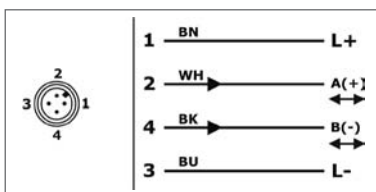
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (td = 0...<1s) ∞ (td = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	≤ ±0,2% FS / Jahr
Temperature deviation	Measuring range ≤ 25 bar: ≤ ±0,02% FS / K (0...+80°C) / ≤ ±0,03% FS / K (-40...0°C / +80...+125°C) Measuring range ≥ 40 bar: ≤ ±0,02% FS / K (-40...+100°C) / ≤ ±0,03% FS / K (+100...+125°C)
Materials	
Diaphragm: (process wetted)	Process connection type 0 / type 5 – front-flush / Process connection type 1 / type 6 – EN 837 / ≤ 25 bar: Steel 1.4571/316Ti Process connection type 1 / type 6 – EN 837 / ≥ 40 bar: Steel 1.4542/630 / Steel 1.4534/SI13800
Process connection: (process wetted)	Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	NBR – nitrile-butadiene-rubber FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere
Environmental conditions	
Environmental temperature:	– 40°C...+100°C
Process temperature:	– 40°C...+100°C / 125°C
Process pressure:	400 mbar up to 1000 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



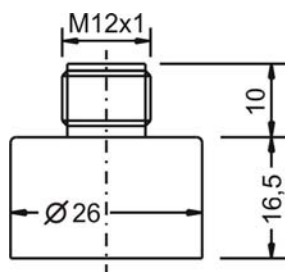
Electronic output – 2-wire, current 4...20mA
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART® interface a minimum communication resistance of 250Ω has to be taken into account.

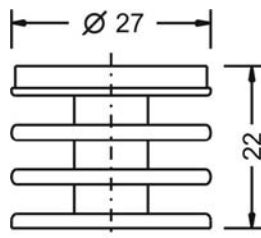


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

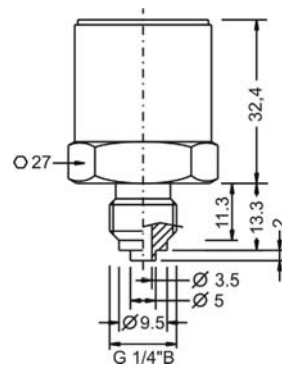
Terminal enclosure



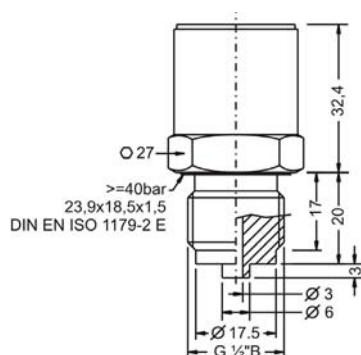
Temperature decoupler



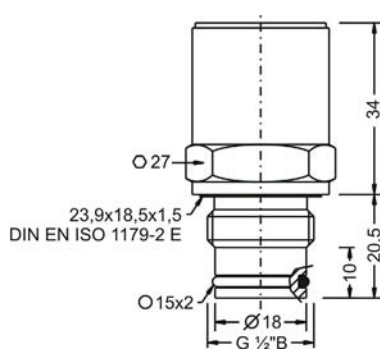
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837



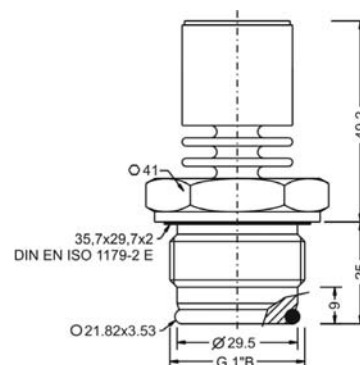
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837



Type 0 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



Type 5 – Thread ISO 228-1 – G1"B, front-flush





Type	PU4S	Standard
M	Measuring system – material diaphragm (process wetted) / sensor type CrNi-steel / strain gauge	
S	Approval S Standard X ATEX II 1 G / IECEx Ex ia IIC T6...T1 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Tx Da	
6	Process connection 6 Thread ISO 228-1 – G¼"B, EN 837 manometer (without process gasket) 1 Thread 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 Y others	
1	Material gaskets (process wetted) 1 FPM – fluorelastomere (e.g. Viton®) 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed Y others	
V	Material process connection (process wetted) V CrNi-steel	
C	Material terminal enclosure C CrNi-steel	
03	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	
A	Electronic – output A 4-wire, current 4...20mA, HART® compliant V 4-wire, RS485, Modbus RTU	
S	Electronic – function S Standard	
0	Process temperature 0 Standard –40°C...+100°C 1 Extended –40°C...+125°C, temperature decoupler	
R	Pressure type R Gauge pressure A Absolute pressure (FS ≥ 100mbar)	
4	Measuring system – accuracy 4 0,5% 8 Xcellence – 0,15%, linearization protocol	
S	Electrical connection S Plug M12x1	