



Pressure measurement



Type:

Precont® PU4SC

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

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 50 mbar up to 20 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
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,05% 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 20 bar (gauge), measuring ranges from 0 bar to 20 bar (absolute), measuring spans from 50 mbar to 20 bar, process temperatures from -40°C to +125°C, environmental temperatures from -40°C to +100°C, process materials Al2O3-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, EN 1179-2 E, inner thread, front-flush), dairy coupling DIN 11851 (front-flush), Varivent® (front-flush), Clamp ISO 2852 / BS 4825 / DIN 32676 (front-flush), DRD (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.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

The device is suitable for the use at CIP/SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

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.

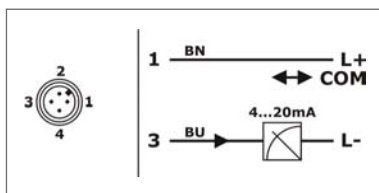
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device. Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

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 a material test certificate EN10204 3.1.



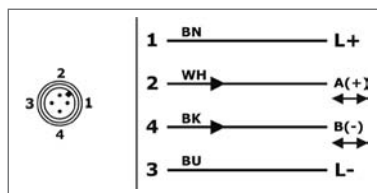
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
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:	≤ ±0,05% / ±0,1% / ±0,2% FS
Long term drift:	≤ ±0,15% FS / year
Temperature deviation	≤ ±0,015% FS / K / max. ±0,75 % (-20°C...+80°C) Span: ≤ ±0,015% FS / K / max. ±0,5 % (-20°C...+80°C / ≥ 0,4 bar) / max. ±0,8 % (-20°C...+80°C / < 0,4 bar)
Materials	
Diaphragm: (process wetted)	Measuring range ≤ 1bar: Ceramic Al ₂ O ₃ – 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al ₂ O ₃ – 96% (SIP suitable) Process connection N/M/P/L/S/T: Ceramic Al ₂ O ₃ – 99,9% (CIP/SIP suitable)
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) / EPDM – ethylene-propylene-dienmonomere, FDA-listed / FFKM – perfluorelastomere (e.g. Kalrez®) / FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	- 40°C...+100°C
Process temperature:	- 40°C...+100°C / 135°C
Process pressure:	50 mbar bis 20 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



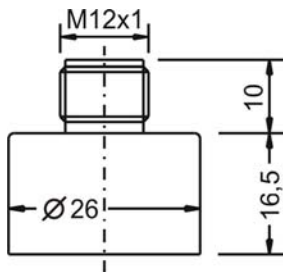
Electronic output – 2-wire, current 4...20mA
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

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

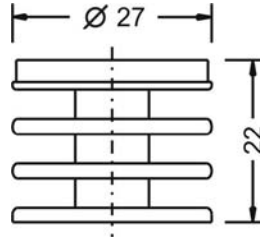


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

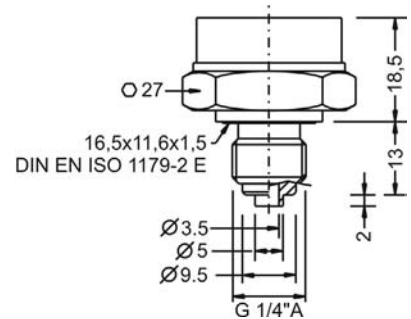
Terminal enclosure



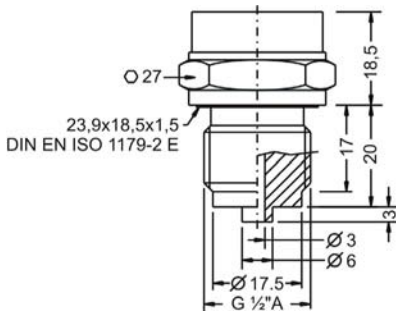
Temperature decoupler



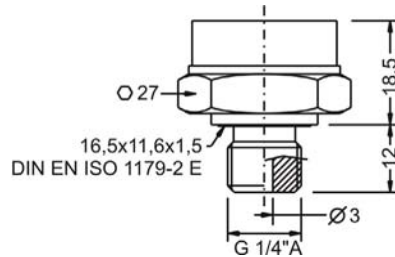
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



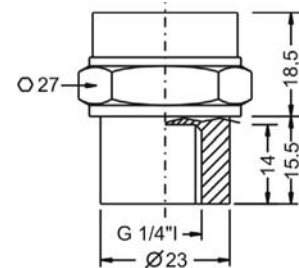
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



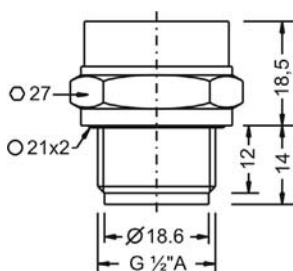
Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E



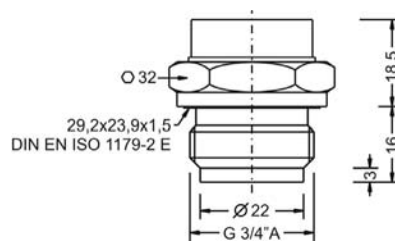
Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ " I, inner thread



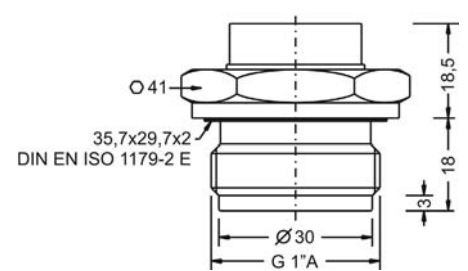
Type 9 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, front-flush



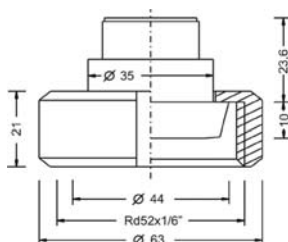
Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush



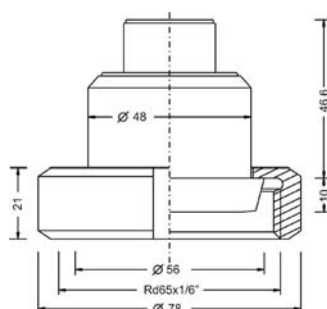
Type 5 – Thread ISO 228-1 – G1"A, front-flush



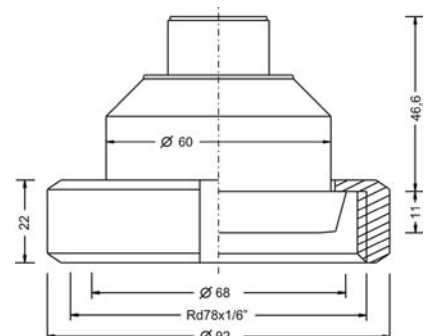
Type R – Dairy coupling DIN 11851 – DN25, PN40



Type N – Dairy coupling DIN 11851 – DN40, PN25



Type M – Dairy coupling DIN 11851 – DN50, PN25



You will find further dimension drawings in the operating instructions.

Type
PU4S Standard

Measuring system – material diaphragm (process wetted) / sensor type
Ceramic Al₂O₃ 96%/99,7%/99,9% / capacitive

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

Process connection
6 Thread ISO 228-1 – G¼"A, EN 837 manometer
1 Thread ISO 228-1 – G½"A, EN 837 manometer
3 Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E
4 Thread ISO 228-1 – G¼"I, inner thread
9 Thread ISO 228-1 – G½"A, front-flush
8 Thread ISO 228-1 – G¾"A, front-flush, ≤ 10 bar
5 Thread ISO 228-1 – G1"A, front-flush, ≤ 1 bar
R Dairy coupling DIN 11851 – DN25, PN40
N Dairy coupling DIN 11851 – DN40, PN25
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / tube DN40-162 / 1½"-6", PN40
L DRD – DN50 / Ø65mm, PN25
S Clamp ISO 2852 – DN25-38 / BS 4825 – 1"-1½" / DIN 32676 – DN25-38, PN25
T Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN25
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
4 FFKM – perfluorelastomere (e.g. Kalrez®)
6 FFKM hd – perfluorelastomere high density - gas applications
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
26 0...50 mbar
01 0...100 mbar
02 0...250 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...20 bar
15 -100...0 mbar
16 -1...0 bar
17 -1...+1 bar
18 -100...+100 mbar
YY Special measuring range

Electronic – output
A 4-wire, current 4...20mA, HART® compliant
V 4-wire, RS485, Modbus RTU

Electronic – function
S Standard

Process temperature
0 Standard –40°C...+100°C
1 Extended –40°C...+125°C, temperature decoupler

Pressure type
R Gauge pressure
A Absolute pressure (FS ≥ 100mbar)

Measuring system – accuracy
1 0,2%
3 0,1% (FS ≥ 100mbar),
linearization protocol
6 Xcellence – 0,05% (FS ≥ 200mbar),
linearization protocol

Electrical connection
S Plug M12x1

Precont®	PU4S	C	V	C	S	S
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