Type:

Precont® PU4SK

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

In brief

HART | RS485 Modbus RTU | fast response time | Protection IP69K | process temperature 135°C | up to 600 bar pressure

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 250 mbar up to 600 bar
- Wide process temperature range –40°C to +135°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 ≤ 0,15% 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 600 bar (gauge), measuring ranges from 1 bar to 40 bar (absolute), measuring spans from 250 mbar to 600 bar, process temperatures from –40°C to +135°C, environmental temperatures from –40°C to +100°C and process materials Al2O3-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread connection ISO 228-1 (EN 837 manometer / inner thread / EN 1179-2 E / inner bore / 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, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as 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 SIP cleaning processes.
Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

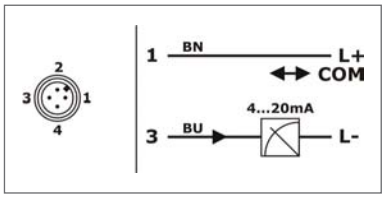
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

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.

Technical Data

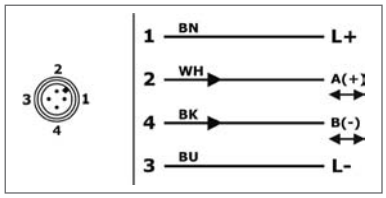
Technical Data		
Supply voltage:	9...35V_{DC}, reverse polarity protected	
Supply current:	≤ 22mA	Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA	Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU		
Interface	RS485, bidirectional	
Signal	Digital – Modbus RTU	
Address	001 (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 / year	
Temperature deviation	≤ ±0,05% FS / K	
Materials		
Diaphragm: (process wetted)	Ceramic aluminum oxide Al_2O_3 – 96%	
Process connection: (process wetted)	Steel 1.4404/316L	
Terminal enclosure:	CrNi-steel	
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed	
Environmental conditions		
Environmental temperature:	– 40°C...+100°C	
Process temperature:	– 40°C...+100°C / 135°C	
Process pressure:	-1...600 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.

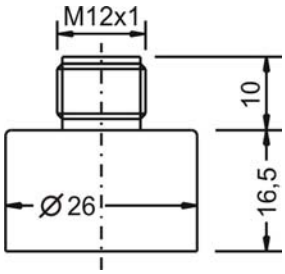


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12 – A-coded:
BN = brown, WH = white, BU = blue, BK = black

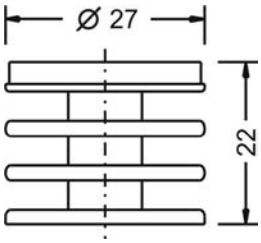
Dimension drawings

Type:
Precont® PU4SK

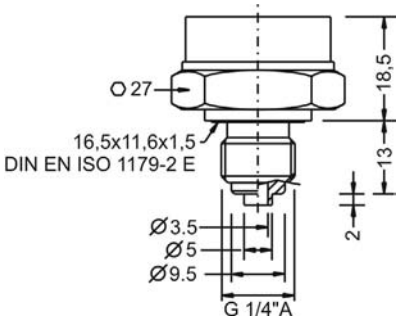
Terminal enclosure



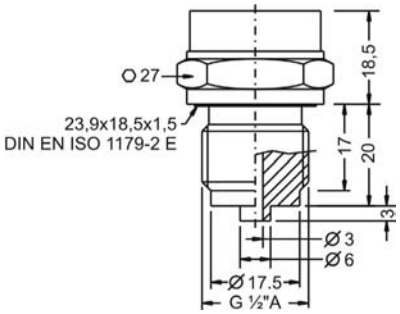
Temperature decoupler



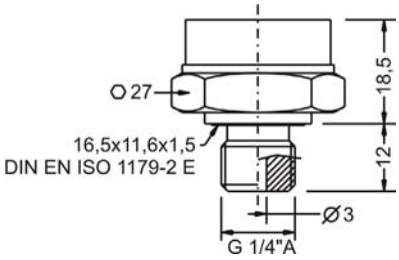
Type 6 – Thread ISO 228-1 – G¼”A, EN 837



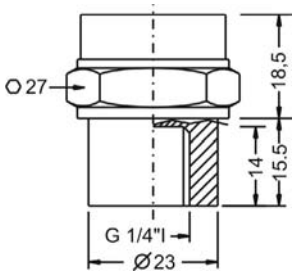
Type 1 – Thread ISO 228-1 – G½”A, EN 837



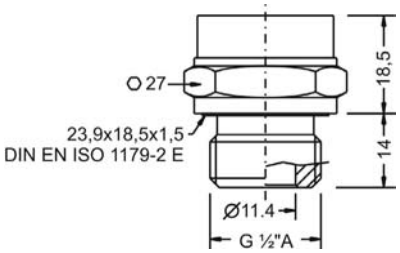
Type 3 – Thread ISO 228-1 – G¼“A, DIN EN ISO 1179-2 E



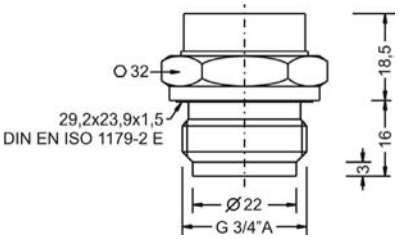
Type 4 – Thread ISO 228-1 – G¼” I, inner thread



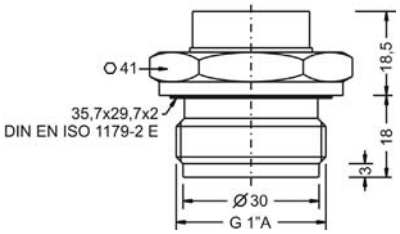
Type 2 – Thread ISO 228-1 – G½“A, DIN EN ISO 1179-2 E, inner bore



Type 8 – Thread ISO 228-1 – G¾”A, front-flush



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



Order code

Type
PU4S Standard

Measuring system – material diaphragm (process wetted) **/ sensor type**
K Ceramic Al_2O_3 96% / strain gauge

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
2 Thread ISO 228-1 – G½"A, DIN EN ISO 1179-2 E, inner bore
8 Thread ISO 228-1 – G¾"A, front-flush, ≤ 10 bar
5 Thread ISO 228-1 – G1"A, front-flush, ≤ 1 bar
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
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…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
16 -1…0 bar
17 -1…+1 bar
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…+135°C, temperature decoupler

Pressure type
R Gauge pressure
A Absolute pressure, ≥ 1bar … ≤ 40bar

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Precont®	PU4S	K				V	C			S				S

Stand 10/2017