



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 250 mbar up to 600 bar
- Wide process temperature range  $-40^{\circ}\text{C}$  to  $+135^{\circ}\text{C}$
- Wide variety of process connections
- High protection class IP69K
- Wide environmental temperature range  $-40^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation  $\leq 0,15\%$  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  $-40^{\circ}\text{C}$  to  $+135^{\circ}\text{C}$ , environmental temperatures from  $-40^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  and process materials Al<sub>2</sub>O<sub>3</sub>-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



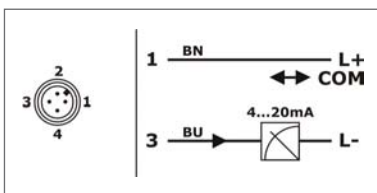
outdoors, extreme shock and vibration stress or aggressive media.

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.

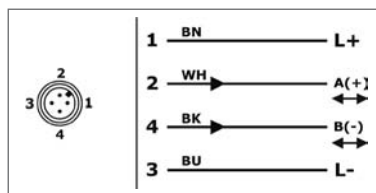
Technical Data	
Supply voltage:	9...35V <sub>DC</sub> , reverse polarity protected
Supply current:	≤ 22mA                      Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA                      Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
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 <sub>90</sub>	≤ 5ms (t <sub>d</sub> = 0s)
Start-up time t <sub>on</sub>	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U <sub>s</sub> - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA <sub>SS</sub> – 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 <sub>2</sub> O <sub>3</sub> – 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



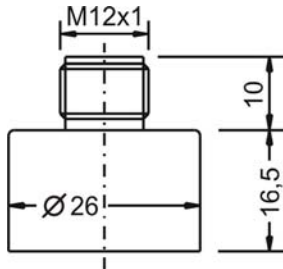
Electronic output – 2-wire, current 4...20mA  
Conductor color standard connection cable M12  
– A-coded:  
BN = brown, BU = blue

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

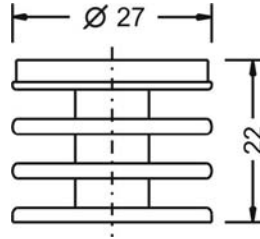


Electronic output – 4-wire, RS485  
Conductor color standard connection cable M12  
– A-coded:  
BN = brown, WH = white, BU = blue, BK = black

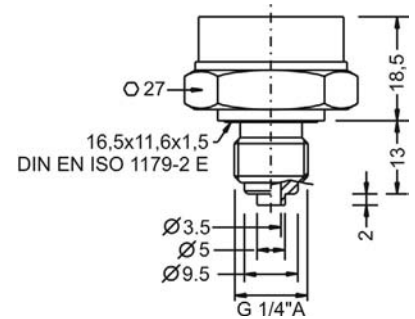
Terminal enclosure



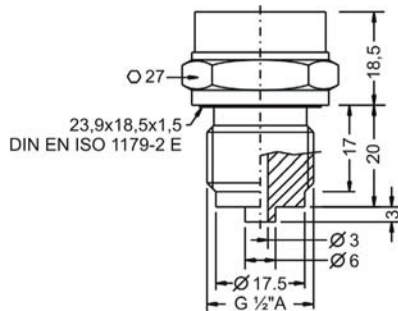
Temperature decoupler



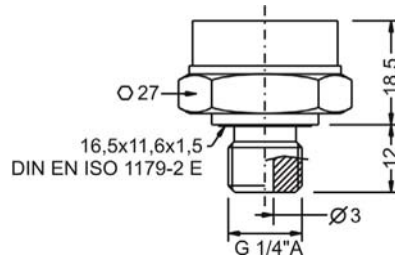
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



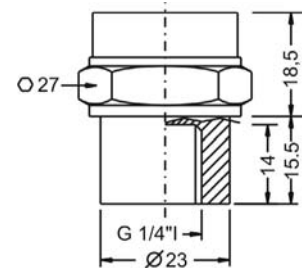
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



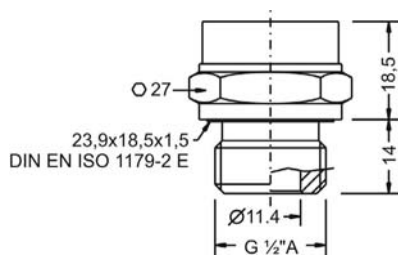
Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E



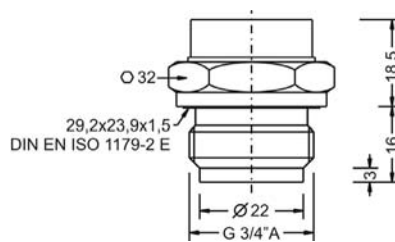
Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ " I, inner thread



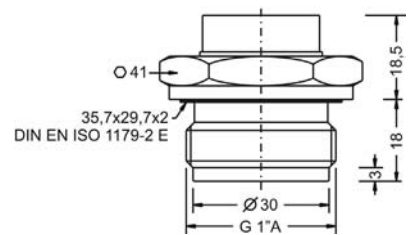
Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, DIN EN ISO 1179-2 E, inner bore



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



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



**Type**  
PU4S Standard

**Measuring system – material diaphragm (process wetted) / sensor type**  
Ceramic Al<sub>2</sub>O<sub>3</sub> 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 – G¼”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

<b>Precont®</b>	PU4S	K	V	C	S	S
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