



Pressure transmitter / Pressure switch with data memory 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 60 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°C
- Ceramic front-flush or internal diaphragm
- Highest accuracy – characteristic deviation to ≤ 0,05% of measuring range
- Integrated evaluation electronic: Graphic display, keyboard; 4x PNP switch output; 1x current output 0/4...20mA – voltage output 0...10V; Measure data memory for more than 500.000 measuring values; Battery powered data logger function ; Bluetooth-Interface; Connector plug M12
- High operating comfort: Enclosure and display rotatable for optimal operability in each installation position; High contrast high brightness TFT-LCD display for best readability; 3-key operation without additional assistance with tactile feedback; Easy handling by clear menu navigation; Extensive diagnostic functions for system analysis

### Description

The device is an electronic pressure transmitter / pressure switch 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 60 bar (gauge), measuring ranges from 0 bar to 60 bar (absolute), measuring spans from 50 mbar to 60 bar, process temperatures from -40°C to +125°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, 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, facility and building automation.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, 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.

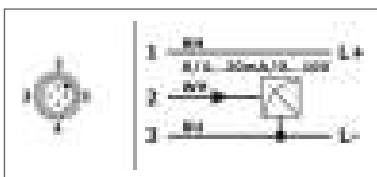


The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

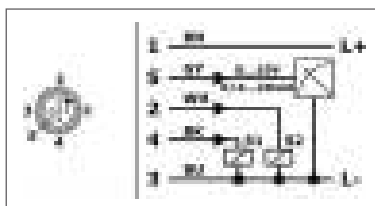


Technical data	
Supply voltage:	Setting output 0/4...20 mA: 9..30 VDC, reverse polarity protected Setting output 0...10 V: 14..30 VDC, reverse polarity protected
Analogue output	
Operating range:	current 0...20mA: 0...20,5mA, max. 22mA current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA voltage 0...10V: 0 ... 10,5 V, max. 11 V
Permitted load:	current 0...20mA / current 4...20mA: $\leq (U_S - 9V) / 22mA$ voltage 0...10V: $\geq U_{Out} / 3mA$
Step response time:	$\leq 15 \text{ ms (td = 0s)}$
Start-up time:	$\leq 1s$
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	IL 0... $\leq 200mA$ , current limited, short circuit protected
Step response time:	$\leq 25 \text{ ms (td = 0s)}$
Switch cycles:	$\geq 100.000.000$
Bluetooth Interface	
Version:	Bluetooth 2.1 + EDR
Specification:	Class 2
Transmit power:	$\leq 2,5mW/4dBm$
Range:	$\leq 10m$
Measuring accuracy	
Characteristic deviation:	$\leq \pm 0,05\% / \pm 0,1\% / \pm 0,2\% \text{ FS}$
Long term drift:	$\leq \pm 0,15\% \text{ FS / year}$
Temperature deviation:	Zero: $\leq \pm 0,015\% \text{ FS / K / max. } \pm 0,75\% (-20^\circ\text{C}...+80^\circ\text{C})$ Span: $\leq \pm 0,015\% \text{ FS / K / max. } \pm 0,5\% (-20^\circ\text{C}...+80^\circ\text{C} / > 0,4 \text{ bar})$ max. $\pm 0,8\% (-20^\circ\text{C}...+80^\circ\text{C} / \leq 0,4 \text{ bar})$
Materials	
Membrane (process wetted):	Measuring range $\leq 1\text{bar}$ : Ceramic $\text{Al}_2\text{O}_3$ - 99,7% (SIP suitable) Measuring range $\geq 1,6\text{bar}$ : Ceramic $\text{Al}_2\text{O}_3$ - 96% (SIP suitable) Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic $\text{Al}_2\text{O}_3$ - 99,9% (CIP/SIP suitable)
Process connection (process wetted):	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Control panel surface:	PES
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:	$-20^\circ\text{C}...+70^\circ\text{C}$
Process temperature:	$-40^\circ\text{C}...+100^\circ\text{C}$ resp. $125^\circ\text{C}$
Process pressure:	50 mbar up to 60 bar depending on type
Protection:	IP68 EN/IEC 60529

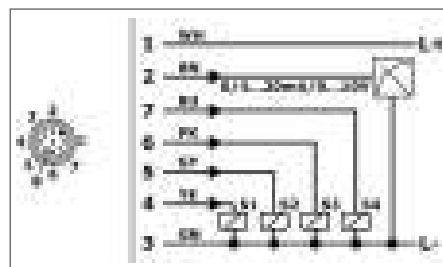
## Electrical connection



Electronic output type M  
1x signal 0/4...20mA-0...10V, supply 24VDC



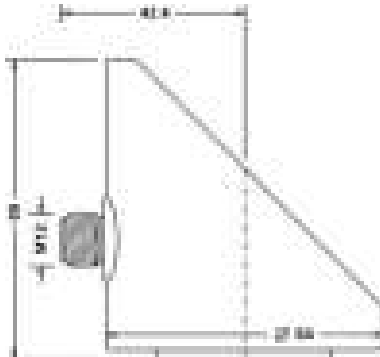
Electronic output type K  
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



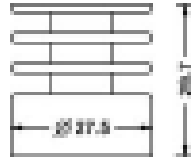
Electronic output type R  
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Conductor color standard connection cable M12 - A-coded:  
BN = brown, WH = white, BU = blue, BK = black, GY = grey, YE = yellow, GN = green, PK = pink

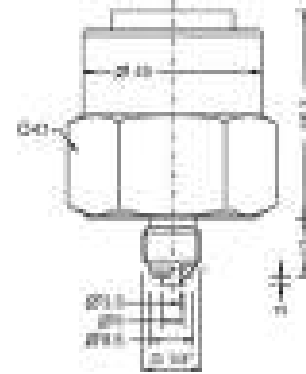
Terminal enclosure



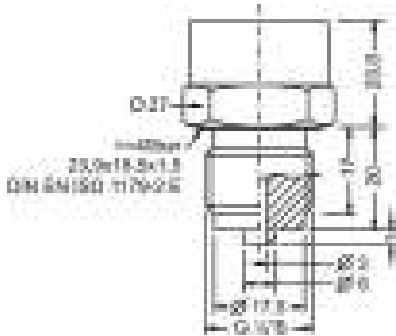
Temperature decoupler



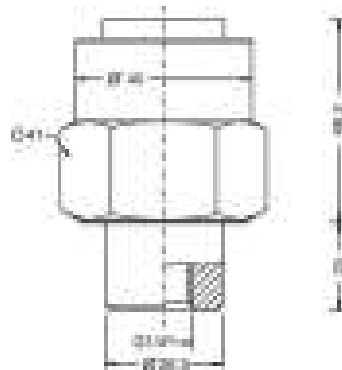
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



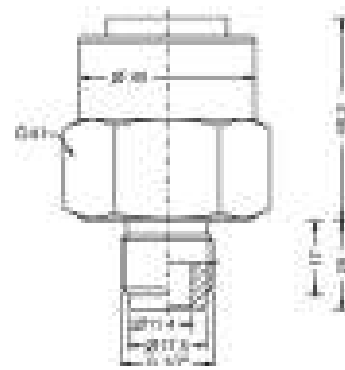
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



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



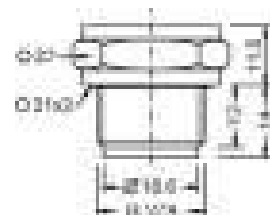
Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, inner bore



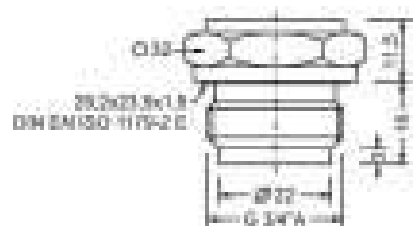
Type A – Thread ISO 228-1 – G $1\frac{1}{2}$ "A



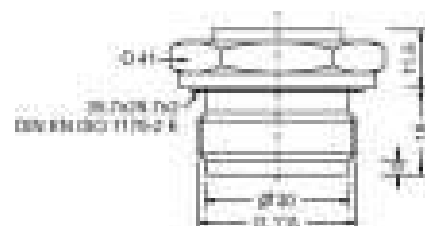
Type 9 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



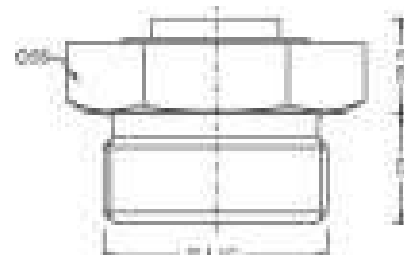
Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush



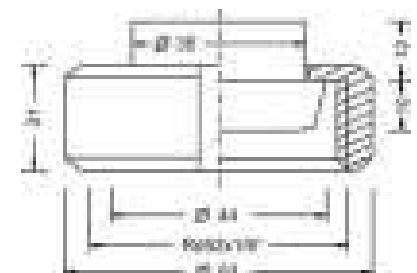
Type 5 – Thread ISO 228-1 – G $1$ "A, front-flush



Type 7 – Thread ISO 228-1 – G $1\frac{1}{2}$ "B, front-flush



Type R – Dairy coupling DIN 11851 – DN25, PN40



You will find further dimension drawings in the operating instructions.

**Type**  
PN4S Standard

**Measuring system – material diaphragm** (process wetted) / **sensor type**  
Ceramic Al<sub>2</sub>O<sub>3</sub> 96%/99,7%/99,9% / capacitive

**Approval**  
S Standard

**Process connection**

- 6 Thread ISO 228-1 – G $\frac{3}{4}$ "A, EN 837 manometer
- 1 Thread ISO 228-1 – G $\frac{3}{4}$ "A, EN 837 manometer
- 4 Thread ISO 228-1 – G $\frac{3}{4}$ "I, inner thread
- 2 Thread ISO 228-1 – G $\frac{3}{4}$ "A, inner bore
- A Thread ISO 228-1 – G1 $\frac{1}{2}$ "A
- 9 Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush,  $\leq$  20 bar
- 8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush,  $\leq$  20 bar
- 5 Thread ISO 228-1 – G1"A, front-flush,  $\leq$  20 bar
- 7 Thread ISO 228-1 – G1 $\frac{1}{2}$ "B, front-flush
- R Dairy coupling DIN 11851 – DN25, PN40,  $\leq$  20 bar
- N Dairy coupling DIN 11851 – DN40, PN25
- M Dairy coupling DIN 11851 – DN50, PN25
- P Varivent® – Type N / tube DN40-162 / 1 $\frac{1}{2}$ "-6", PN40
- L DRD – DN50 /  $\varnothing$ 65mm, PN25
- S Clamp ISO 2852 – DN25-38 / BS 4825 – 1"-1 $\frac{1}{2}$ " / 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             | 10 0...10 bar       |
| 01 0...100 mbar            | 11 0...16 bar       |
| 02 0...200 mbar            | 12 0...20 bar       |
| 03 0...400 mbar            | 13 0...40 bar       |
| 04 0...600 mbar            | 14 0...60 bar       |
| 05 0...1 bar               | 15 -100...0 mbar    |
| 06 0...1,6 bar             | 16 -1...0 bar       |
| 07 0...2,5 bar             | 17 -1...+1 bar      |
| 08 0...4 bar               | 18 -100...+100 mbar |
| 09 0...6 bar               |                     |
| YY Special measuring range |                     |

**Electronic – output**

- M 1x signal 0/4...20mA-0...10V, supply 24VDC
- K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC
- R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

**Electronic – function**

- 0 without
- 1 Bluetooth-Interface
- 2 Data logger with time stamp, battery powered
- 3 Bluetooth-Interface / Data logger with time stamp, battery powered
- Y others

**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  $\geq$  100mbar)

**Measuring system – accuracy**

- 1 0,2%
- 3 0,1% (FS  $\geq$  100 mbar), linearization protocol
- 6 Xcellence – 0,05% (FS  $\geq$  200mbar), linearization protocol

**Electrical connection**

- S Plug M12x1

Order code

<b>Precont®</b>	PN4S	C	S	V	C	S	S
-----------------	------	---	---	---	---	---	---

