

Precont® PU4SC

Universal pressure transmitter / pressure switch
for general industrial applications

Technical information TI04.24



Application

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

Main features

- Measuring ranges from 50 mbar up to 20 bar
- Wide variety of process connections
- Robust ceramic front-flush or internal diaphragm
- Precise dry capacitive sensor
- Process temperature range -40°C to +125°C
- Fully welded robust steel enclosure
- High protection class IP69K/IP67
- Highest accuracy to $\leq 0,05\%$
- Electronic 4...20mA FSK / RS485 Modbus®-RTU / IO-Link®
- Certification ATEX / IECEx: Ex ia IIC Ga / Ex ia IIIC Da



Description

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process, also by CIP/SIP cleaning processes.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscose or also frequently changing media.

Due to its high accuracy and the digital adjustability by FSK, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

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- 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 or a factory certificate for drink water suitability.

Customer specific special versions can be realized short-term on request, e.g. special designs for the process connection or other process materials.



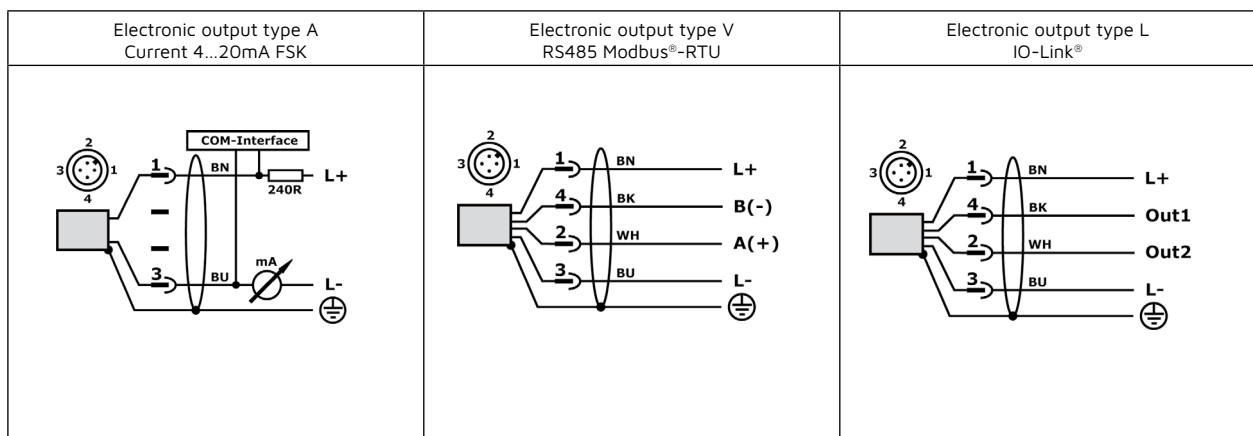
FEEL FREE TO
CONTACT US

Lauterbachstr. 57, D - 84307 Eggenfelden
info@acs-controlsystem.com
www.acs-controlsystem.com
+49 8721-96680

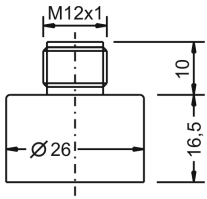
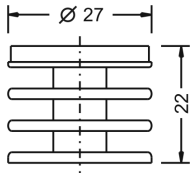
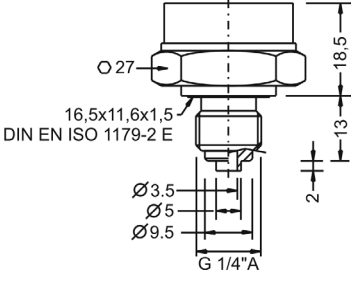
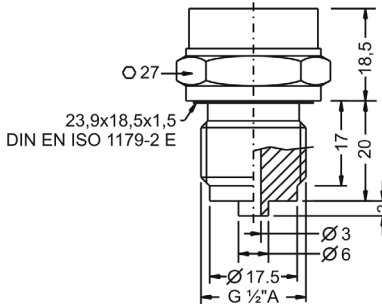
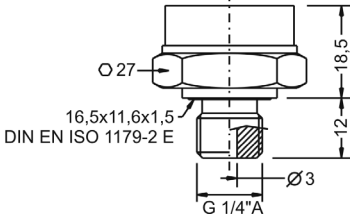
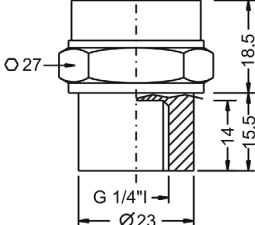
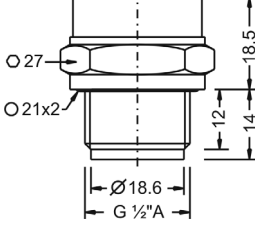
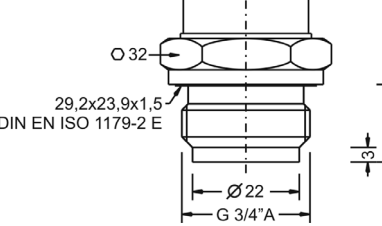
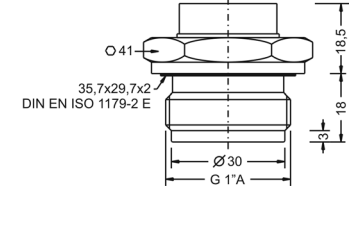
Technical Data

Measuring range										
Process connection 1/3/4/5/6/8/9 – ISO 228-1, R – DIN 11851 DN25										
Nom. pressure PN rel.	[bar]	-0,1...0	-0,1,0,1	-1...0	-1...1	0...0,05	0...0,1	0...0,2	0...0,4	0...0,6
Process connection N/M – DIN 11851, P – Varivent®, L – DRD, S/T – Clamp ISO 2852										
Nom. pressure PN rel.	[bar]	-0,1...0	-0,1,0,1	-1...0	-1...1	0...0,05	0...0,1	0...0,2	0...0,4	0...0,6
Output type A – Current 4...20mA FSK										
Analogue output 4...20mA	3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$									
Time behavior	T90 $\leq 8\text{ms}$ ($t_d = 0\text{s}$) / $t_{on} \leq 0,2\text{s}$ ($t_d = 0\text{s}$)									
Interface	FSK / 1200 Bit/s									
Output type V – RS485 Modbus®-RTU										
Interface	RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)									
Input resistance	112k Ω									
Time behavior	T90 $\leq 2\text{ms}$ ($t_d = 0\text{s}$) / $t_{on} \leq 0,1\text{s}$ ($t_d = 0\text{s}$)									
Output type L – IO-Link®										
Interface	IO-Link® V1.1 / Com2 (38400 Baud)									
Analogue output	0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$ 4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$									
Time behavior	T90 $\leq 2\text{ms}$ ($t_d = 0\text{s}$) / $t_{on} \leq 0,1\text{s}$ ($t_d = 0\text{s}$)									
Switch output	2x PP (Push-Pull), switch to +L/-L									
Time behavior	T90 $\leq 2\text{ms}$ ($t_d = 0\text{s}$) / $t_{on} \leq 0,1\text{s}$ ($t_d = 0\text{s}$) / $t_{rise} < 30\mu\text{s}$ (RL < 3kR / IOut > 4,5mA)									
Auxiliary power										
Supply voltage Us polarity protected Residual ripple voltage Supply current	Type A – 4...20mA FSK: 9...35VDC / $\leq 2\text{Vpp}$ / $\leq 22\text{mA}$ Type A – 4...20mA FSK Ex: 9...30VDC / $\leq 2\text{Vpp}$ / $\leq 22\text{mA}$ Type V – RS485 Modbus®-RTU: 6...35VDC / $\leq 2\text{Vpp}$ / $\leq 10\text{mA}$ (no load) Type L – IO-Link®: 9...35VDC, without IO-Link® / $\leq 2\text{Vpp}$ / $\leq 20\text{mA}$ (no load) Type L – IO-Link®: 18...30VDC, with IO-Link® / $\leq 2\text{Vpp}$ / $\leq 20\text{mA}$ (no load)									
Measuring accuracy										
Characteristic deviation	$\leq \pm 0,05\% / \pm 0,1\% / \pm 0,2\%$ FSO (TD=1) (Hysteresis + Reproducibility negligible)									
Long term drift	$\leq \pm 0,15\%$ FSO/year (TD=1)									
Temperature deviation	Tk Zero (TD=1) $\leq \pm 0,015\%$ FSO/K, $\leq \pm 0,75\%$ FSO (-20°C...+80°C)									
	Tk Span (TD=1) $\leq \pm 0,015\%$ FSO/K $\leq \pm 0,5\%$ FSO (-20°C...+80°C/ $\neq 0,4\text{bar}$) / $\leq \pm 0,8\%$ FSO (-20°C...+80°C/ $< 0,4\text{bar}$)									
Process conditions										
Process temperature	Standard: -40°C...+100°C / ATEX/IECEx: see certificate Extended: -40°C...+125°C (+140°C - 1h) / ATEX/IECEx: see certificate Gasket FPM: max. -25°C...+140°C Gasket EPDM: max. -40°C...+140°C Gasket FFKM: max. -15°C...+140°C									
Pressure cycles	≥ 100 Mio. (1,2xPN)									
Environmental conditions										
Environmental temperature	-40°C...+100°C / ATEX/IECEx: see certificate									
Protection level	IP69K/IP67 (EN/IEC 60529)									
MTTF	463 years									

Electrical connection



Dimensions (mm)

<p>Terminal enclosure</p> 		<p>Temperature decoupler Extended temperature range</p> 
<p>Process connection type 6 Thread G$\frac{1}{4}$"A, EN 837</p>	<p>Process connection type 1 Thread G$\frac{1}{2}$"A, EN 837</p>	<p>Process connection type 3 Thread G$\frac{1}{4}$"A, DIN EN ISO 1179-2 E</p>
		
<p>Process connection type 4 Thread G$\frac{1}{4}$"I, inner thread</p>		
		
<p>Process connection type 9 Thread G$\frac{1}{2}$"A, front-flush</p>	<p>Process connection type 8 Thread G$\frac{3}{4}$"A, front-flush</p>	<p>Process connection type 5 Thread G1"A, front-flush</p>
		

Further dimensional drawings can be found in the operating instructions or in the technical information.

Order code

Type
PU4S Standard

C **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 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da (Output type – A)

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 – G½"A, front-flush
5 Thread ISO 228-1 – G1"A, front-flush
R Dairy coupling DIN 11851 – DN25, PN40
N Dairy coupling DIN 11851 – DN40, PN40
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / Ø68mm / 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, PN40
T Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN40
Y others

Material process 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...200 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 Current 4...20mA, FSK, 2-wire
V RS485 Modbus®-RTU, 4-wire
L IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire

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

Additional options
-SF LABS-free, silicone-free / paint compatible version
-ML Measurement point designation / TAG – Laser marking
-MZ Material test certificate – EN10204 3.1
-WT Factory certification – drink water suitability
-KF Configuration / Preset
-WK Factory calibration – calibration certificate

Precont® PU4S

C

V

C

S

S