

Precont® PN4SM

Pressure transmitter / Pressure switch with data memory for general applications

Technical information TI05.25



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

Main features

- Wide range of applications
- Finely graded measuring ranges from 400 mbar up to 1000 bar
- Wide process temperature range -40°C to $+125^{\circ}\text{C}$
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to $+70^{\circ}\text{C}$
- Metallic front-flush or internal diaphragm
- Highest accuracy – characteristic deviation to $\leq 0,15\%$ 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
- Connector plug M12
- High operating comfort
- Enclosure and display rotatable for optimal operability in each installation position
- Extensive diagnostic functions for system analysis

Description

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

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.

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

Analogue output – current 0...20mA

Operating range I_{Out} 0...20,5mA, max. 22mA
 Permitted load R_L ≤ (U_S - 9V) / 22mA
 Step response time T₉₀ ≤ 15 ms (t_d = 0s)
 Start-up time t_{On} ≤ 1s

Analogue output – current 4...20mA

Operating range I_{Out} 3,8...20,5mA, min. 3,6mA, max. 22mA
 Permitted load R_L ≤ (U_S - 9V) / 22mA
 Step response time T₉₀ ≤ 15 ms (t_d = 0s)
 Start-up time t_{On} ≤ 1s

Analogue output – voltage 0...10V

Operating range U_{Out} 0 ... 10,5 V, max. 11 V
 Permitted load R_L ≥ U_{Out} / 3mA
 Step response time T₉₀ ≤ 15 ms (t_d = 0s / R_L = 10kR)
 Start-up time t_{On} ≤ 1s

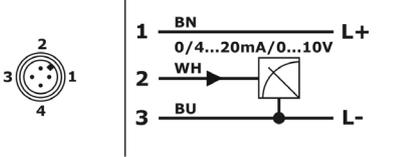
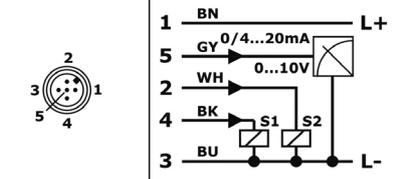
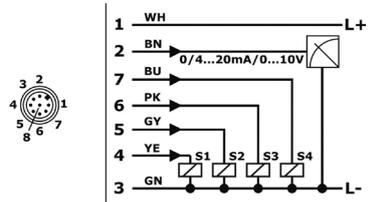
Switch output PNP S1 / S2 / S3 / S4

Function PNP switch to +L
 Output voltage U_{Out} U_{Out} ≥ U_S - 2V
 Output current I_L 0... ≤ 200mA, current limited, short circuit protected
 Step response time T₉₀ ≤ 25 ms (t_d = 0s)
 Rise time T₉₀ < 25µs (R_L < 3kR / I_{Out} > 4,5mA)
 Start-up time t_{On} ≤ 1s
 Switch cycles ≥ 100.000.000

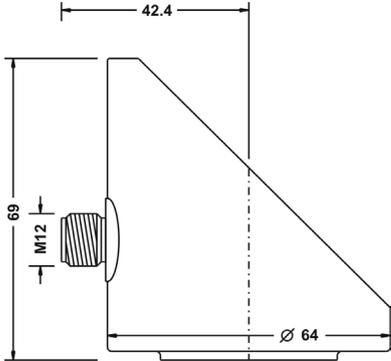
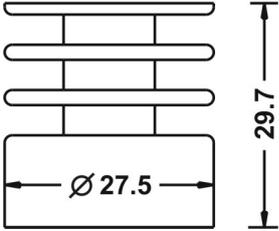
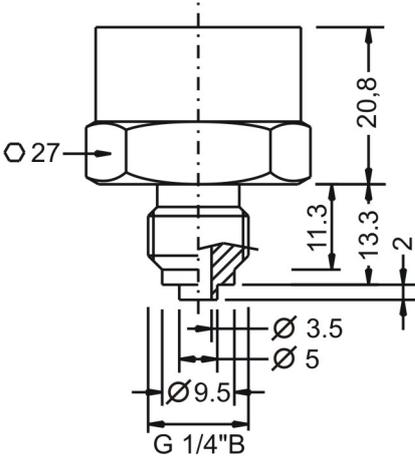
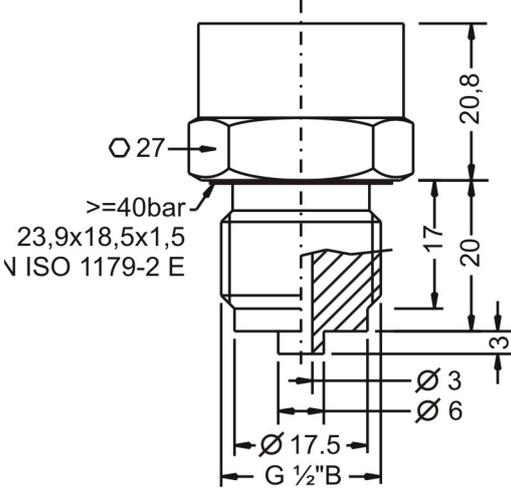
Environmental conditions

Environmental temperature -20°C...+70°C
 Limitation
 Backlight LCD ≥ 60% >> -20°C...+60°C
 Backlight LCD ≥ 80% >> -20°C...+50°C
 Protection IP65/IP67 (EN/IEC 60529)
 Climatic classification 4K4H (EN/IEC 60721-3-4)
 Shock classification 15g [11ms] (EN/IEC 60068-2-27)
 Vibration classification 4g [10...2000 Hz] (EN/IEC 60068-2-6)
 EM compatibility Operation device class B / Industrial range (EN/IEC 61326)
 Tightening torque ≤ 50Nm
 Weight 0,7

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
		

Dimensions (mm)

Terminal enclosure	Temperature decoupler
	
<p>Internal process membrane Type 6 – Thread ISO 228-1 – G$\frac{1}{4}$"B, EN 837</p>	<p>Internal process membrane Type 1 – Thread ISO 228-1 – G$\frac{1}{2}$"B, EN 837</p>
	

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

Order code

Version
PN4S standard

Sensor (process wetted)
M DMS - thin film/piezoresistive, 316Ti/630

Approval
S Standard

Process connection
6 Thread ISO 228-1 - G $\frac{1}{4}$ "A, EN 837 (manometer) (without process gasket)
1 Thread ISO 228-1 - G $\frac{1}{2}$ "A, EN 837 (manometer) (\geq 40 bar without process gasket)
0 Thread ISO 228-1 - G $\frac{1}{2}$ "B, front-flush, O-ring gasket, not for measuring ranges 03/05/16/25
5 Thread ISO 228-1 - G1"B, front-flush, O-ring gasket, not for measuring ranges 03/05/16

Material process seal (process wetted)
0 Without / NBR
1 FKM/FPM
3 EPDM - FDA, food applications

Material process connection (process wetted)
V 316Ti

Material terminal enclosure
C CrNi-steel N41, 304

Measuring range
03 0...400 mbar
05 0...1 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
25 0...1000 bar, only for process connection type 1, 6 - G $\frac{1}{2}$ "B, G $\frac{1}{4}$ "B (EN 837)
16 -1...0 bar
17 -1...+1 bar

Electronic - Output
M Current 0/4...20mA / voltage 0...10V, 3-wire
K Current 0/4...20mA / voltage 0...10V, 2x switch PNP, 3-...5-wire
R Current 0/4...20mA / voltage 0...10V, 4x switch PNP, 3-...7-wire

Electronic - Function
0 Data logger
2 Data logger with time stamp, backup battery

Process temperature
0 -40°C...+100°C
1 -40°C...+125°C, temperature decoupler

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

Measuring accuracy
4 $\leq \pm 0,5\%$
8 Xcellence: $\leq \pm 0,15\%$, linearization protocol

Electrical connection
S Plug M12-A-4P/5P/8P

Precont® PN4S

M S V C S