

Precont® PN4SM

Pressure transmitter / Pressure switch with data memory for general applications

Technical information TI05.25



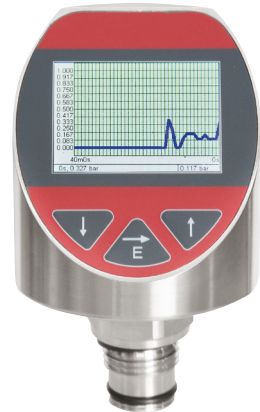
Application

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°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°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 $\leq (U_S - 9V) / 22mA$
 Step response time T₉₀ ≤ 15 ms (t_d = 0s)
 Start-up time t_{On} ≤ 1 s

Analogue output – current 4...20mA

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

Analogue output – voltage 0...10V

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

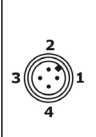
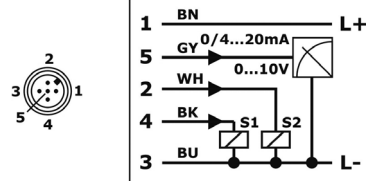
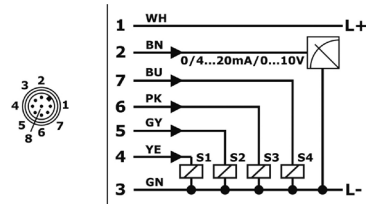
Switch output PNP S1 / S2 / S3 / S4

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

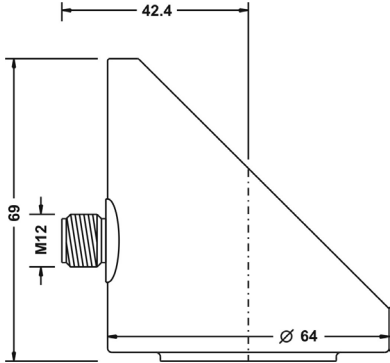
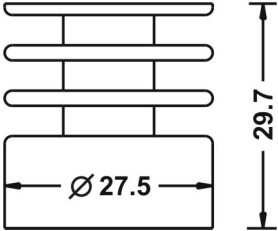
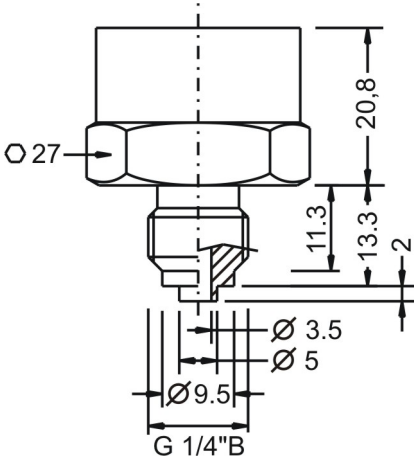
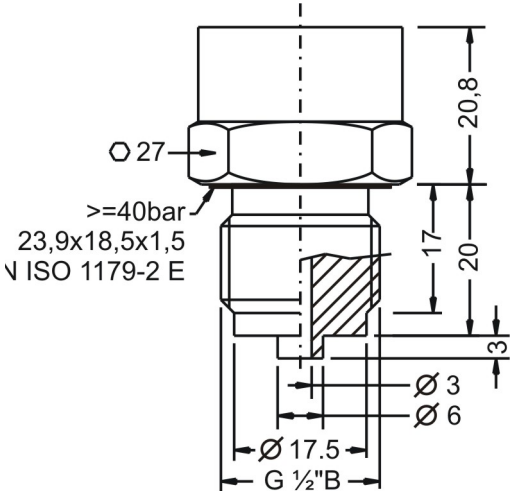
Environmental conditions

Environmental temperature -20°C...+70°C
 Limitation
 Backlight LCD $\geq 60\%$ $>> -20^\circ C...+60^\circ C$
 Backlight LCD $\geq 80\%$ $>> -20^\circ C...+50^\circ C$
 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 $\leq 50Nm$
 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
 1 BN 0/4...20mA/0...10V L+ 2 WH L- 3 BU L-	 1 BN 0/4...20mA/0...10V L+ 5 GY 0/4...20mA L+ 2 WH 0...10V L+ 4 BK S1 3 BU S2 L- S1, S2: PNP switches to L-	 1 WH 0/4...20mA/0...10V L+ 2 BN 0/4...20mA L+ 7 BU L+ 6 PK S1 5 GY S2 4 YE S3 3 GN S4 L- S1, S2, S3, S4: PNP switches to L-

Dimensions (mm)

Terminal enclosure	Temperature decoupler
	
Internal process membrane Type 6 – Thread ISO 228-1 – G¼" B, EN 837	Internal process membrane Type 1 – Thread ISO 228-1 – G½" B, EN 837
	

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

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