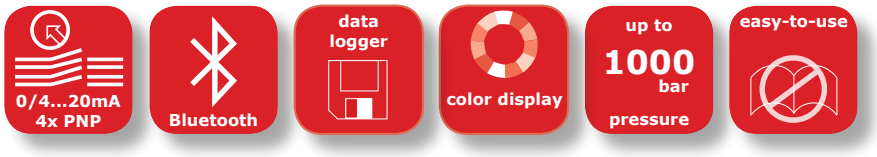
Type:

Precont® PN4SM

Pressure transmitter / Pressure switch with data memory for general applications up to 1000 bar
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 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 ≤ 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 ; 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 1000 bar (gauge), measuring ranges from 0 bar to 1000 bar (absolute), measuring spans from 400 mbar to 1000 bar, process temperatures from –40°C to +125°C, process material CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, 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.
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.

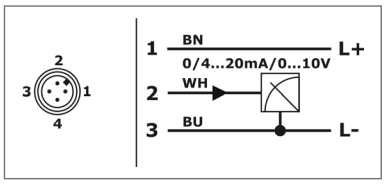
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water resp. food suitability.

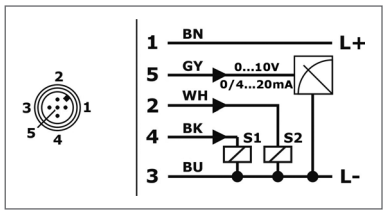
Technical Data

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: ≤ (US - 9V) / 22mA voltage 0...10V: ≥ UOut / 3mA
Step response time:	≤ 15 ms (td = 0s)
Start-up time:	≤ 1s
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	IL 0... ≤ 200mA, current limited, short circuit protected
Step response time:	≤ 25 ms (td = 0s)
Switch cycles:	≥ 100.000.000
Bluetooth Interface	
Version:	Bluetooth 2.1 + EDR
Specification:	Class 2
Transmit power:	≤ 2,5mW/4dBm
Range:	≤ 10m
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	≤ ±0,2% FS / year
Temperature deviation:	Measuring range ≤ 25 bar: ≤ ±0,02% FS / K (0...+80°C) / ≤ ±0,03% FS / K (-40...0°C / +80...+125°C) Measuring range ≥ 40 bar: ≤ ±0,02% FS / K (-40...+100°C) / ≤ ±0,03% FS / K (+100...+125°C)
Materials	
Membrane (process wetted):	Measuring range ≤ 1bar: Ceramic Al2O3 – 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al2O3 – 96% (SIP suitable) Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic Al2O3 – 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°C...+70°C
Process temperature:	– 40°C...+100°C resp. 125°C
Process pressure:	400 mbar up to 1000 bar depending on type
Protection:	IP68 EN/IEC 60529

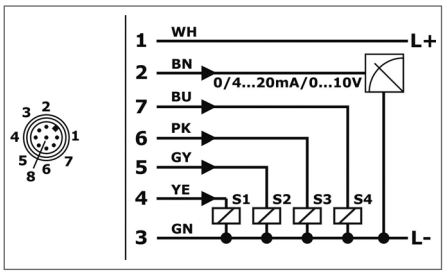
Electrical connection



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



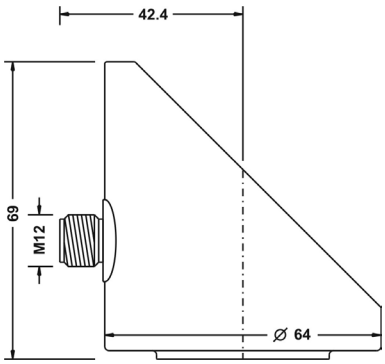
Electronic output type R
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

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

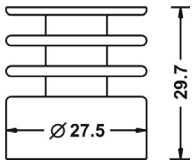
Dimension drawings

Type:
Precont® PN4SM

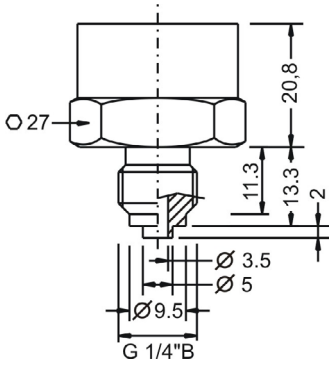
Terminal enclosure



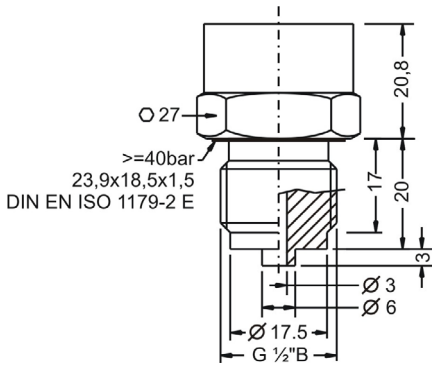
Temperature decoupler



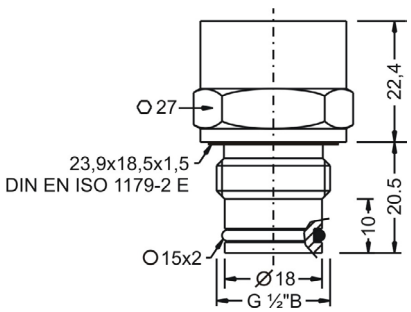
Type 6 – Thread ISO 228-1 – G¼"B, EN 837



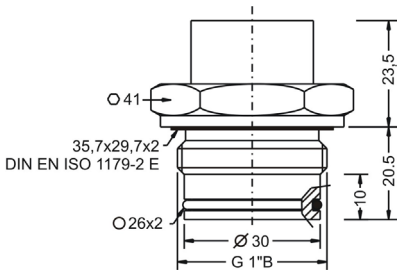
Type 1 – Thread ISO 228-1 – G½"B, EN 837



Type 0 – Thread ISO 228-1 – G½"B, front-flush



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



You will find further dimension drawings in the operating instructions.

Order code

Type
PN4S Standard

Measuring system – material diaphragm (process wetted) **/ sensor type**
M CrNi-steel / strain gauge

Approval
S Standard

Process connection
6 Thread ISO 228-1 – G¼”B, EN 837 manometer (without process gasket)
1 Thread ISO 228-1 – G½”B, EN 837 manometer (≥ 40 bar without process gasket)
0 Thread ISO 228-1 – G½”B, front-flush, O-ring gasket
not for measuring ranges 0…400 mbar / 0…1 bar / −1…0 bar / 0…1000 bar
5 Thread ISO 228-1 – G1”B, front-flush, O-ring gasket
for measuring ranges 0…400 mbar / 0…1 bar / −1…0 bar
Y others

Material gaskets (process wetted)
0 without / NBR – nitrile-butadiene-rubber
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
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…20 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 – G½”B, G¼”B (EN 837)
16 −1…0 bar
17 −1…+1 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 ≥ 100mbar)

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Order code

Precont®	PN4S	M	S			V	C						S

Stand 06/2017