



# Pressure measurement



Type:

Precont® PN4LM

Pressure transmitter / Pressure switch with data memory for hygienic applications

Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

## In brief



## Application

- Hygienic and aseptic applications in
  - Food and beverage industry
  - Pharmaceutical industry
  - Biotechnology
  - Sterile process engineering

## Your benefits

- *Wide range of applications*
- Finely graded measuring ranges from 100 mbar up to 25 bar
- Wide process temperature range -20°C to +150°C
- Various hygienic and aseptic process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°C
- Metallic front-flush EHEDG conformal 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 25 bar (gauge), measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket, dairy coupling DIN 11851, Varivent® and DRD the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering. 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 device with 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. 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 particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

Low-maintenance and trouble-free



pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

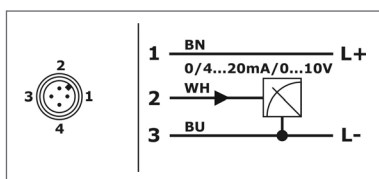
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.



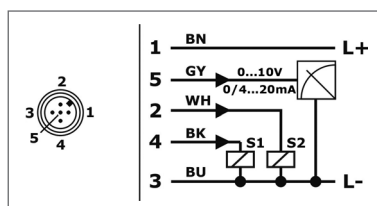
# Technical Data

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:	$\leq 15 \text{ ms}$ ( $t_d = 0s$ )
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:	$\leq 25 \text{ ms}$ ( $t_d = 0s$ )
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:	$\leq \pm 0,15\% / \pm 0,5\% \text{ FS}$
Long term drift:	$\leq \pm 0,2\% \text{ FS / year}$
Temperature deviation:	Measuring range $\leq 250 \text{ mbar}$ : $\leq \pm 0,04\% \text{ FS / K}$ (0...+80°C) / $\leq \pm 0,06\% \text{ FS / K}$ (-20...0°C / +80...+150°C) Measuring range $\geq 400 \text{ mbar}$ : $\leq \pm 0,02\% \text{ FS / K}$ (0...+80°C) / $\leq \pm 0,03\% \text{ FS / K}$ (-20...0°C / +80...+150°C)
Materials	
Membrane (process wetted):	Steel 1.4435/316L
Process connection (process wetted):	Steel 1.4435/316L
Terminal enclosure:	CrNi-steel
Control panel surface:	PES
Gaskets (process wetted):	FPM – fluorelastomere (e.g. Viton®), FDA-listed EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature:	- 20°C...+70°C
Process temperature:	- 20°C...+150°C
Process pressure:	100 mbar up to 25 bar depending on type
Protection:	IP68 EN/IEC 60529

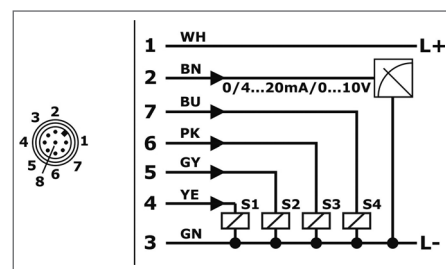
## Electrical connection



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



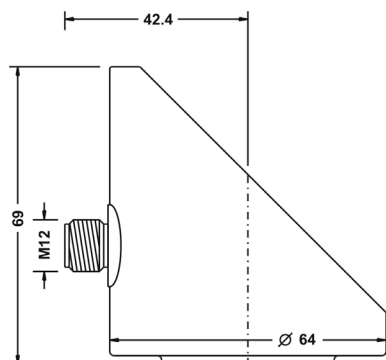
Electronic output type K  
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



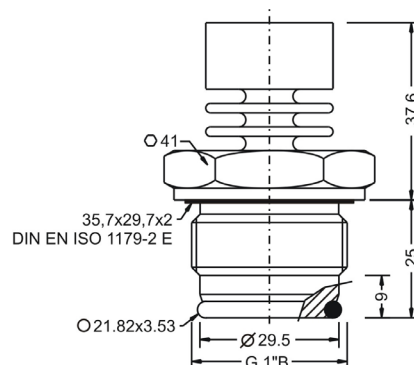
Electronic output type R  
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

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

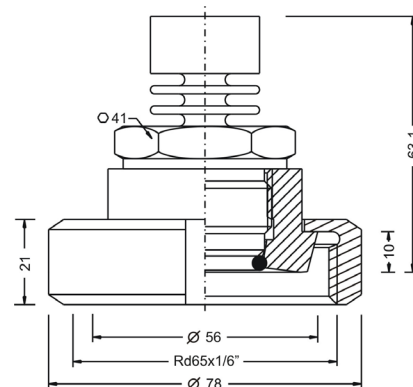
Terminal enclosure



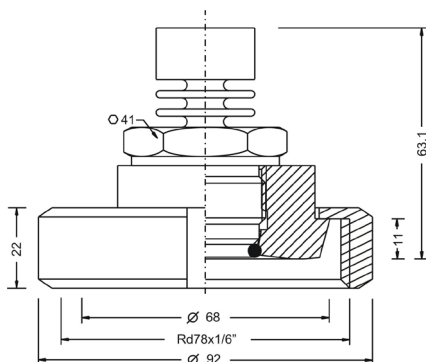
Type 5 – Thread ISO 228-1 – G1" B, front-flush



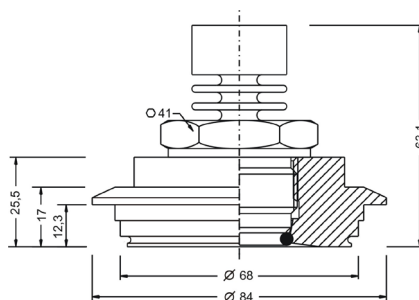
Type N – Dairy coupling DIN 11851 – DN40, PN25



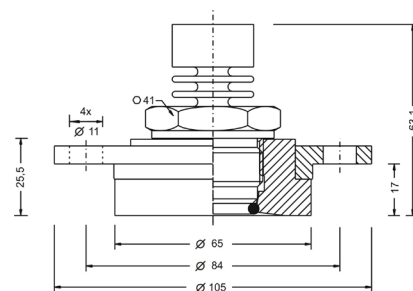
Type M – Dairy coupling DIN 11851 – DN50, PN25



Type P – Varivent® – Type N / tube DN40-162 / 1½"-6", PN40



Type L – DRD – DN50 / Ø65mm, PN25



You will find further dimension drawings in the operating instructions.

