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Operating Instructions

PUM01 / PUM02 / PUM03

Druckmessumformer

Contents

1 Introduction

Series PUM01-03 pressure transmitter are noted for their reliable function and easy operation. To obtain the greatest benefit from this device, please observe the following cautionary statement:
Persons who are responsible for setting up or operating this device must be sure to read the and understand the operating instructions and the safety information pertaining to it.

2 Safety Information

2.1 General Instructions

To ensure safe operation, the device must only be operated according to the information in the operating instructions. When the device is in use, the regulations and safety standards applicable to the specific application must also be observed. This statement also applies to the use of accessories.

2.2 Proper Usage

Series PUM01-03 pressure transmitters are designed to transform a pressure into an electrical output signal. Any application extending beyond this specific intended use does not constitute proper usage.
Series PUM01-03 pressure transmitters must not be employed as the sole means of avoiding hazardous conditions in machinery and installations.
The machinery and installations must be designed in such a manner that faulty conditions and malfunctions will not present hazardous situations for operating personnel.

2.3 Qualified Personnel

Series PUM01-03 must only be used by qualified, knowledgeable personnel trained in correct use of these devices. Qualified personnel are those persons familiar with setting up and assembling these devices, placing them in service and operating them. In addition, such personnel must also be qualified to perform the work associated with the application for which the device is being used.

3 Functional Description

The pressure is sensed in the transmitter by means of a piezo-resistive cell or a thin-film cell. The resulting resistance signal, varying with the pressure, is converted by an amplifier to a current or voltage signal.

4 Installation Instructions

4.1 General Information

The actual operating pressure and temperature of the installation must not exceed the maximum values specified. The pressure ports must only be opened with the system depressurized. Please note that in a given system, the component with the lowest maximum pressure rating will determine the maximum permissible operating pressure for the entire system.

4.2 Pressure Transmitter (high-pressure version)

For the proper tightening torques, please refer to the documentation from the supplier of your high-pressure piping.

5 Electrical Connection

For the pin assignment, please refer to the label on the transmitter.

6 Care and Maintenance

PKP pressure transmitters are maintenance-free.
Recommended recalibration interval: 1 year

PUM03

High-Precision Pressure Transmitter in Stainless Steel

- Accuracy class 0.25
- Measures relative or absolute pressure
- Optional flush-mounted stainless steel diaphragm
- Sturdy, heavy-duty design
- Current or voltage output

Description:

Model series PUM03 pressure sensors have a piezo-resistive sensor element for pressure ranges up to 16 bar. This element very accurately registers changes in pressure through the change in the electrical resistance of the piezo crystal caused by variation in the mechanical force exerted upon it. For higher measuring ranges, thin-film technology is used due to its fast reaction times. This method translates the changes in resistance in an extremely thin strip of expanding film into an output signal that is proportional to the mechanical force exerted upon the film. The combination of these two technologies allows this device to meet all DIN measuring ranges from -1/0 bar to 0/2500 bar with consistent accuracy.

Fields of Application:

The sturdy design of PUM03 pressure transmitters allows accurate measurement of gases and liquids in a process, even under rough service conditions. A stainless-steel diaphragm protects the transmitter measuring system from damage, allowing a great variety of media to be measured as long as they are not highly viscous or crystallizing. If necessary, the pressure transmitter can be fitted with a flush-mounted diaphragm which prevents these kinds of materials from entering the housing and hardening there. The electrical signal at the output can be remotely transmitted or used for direct display. For direct display of readings, we recommend the PKP AZ01 digital display, which can be easily installed between the transmitter and the plug connector. This display does not require a separate power supply.

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1/08

Designs:

PUM02 Pressure Transmitters, Class 0.25

Output signal: possible output signals are: Current signal 4 to 20 mA in two-wire circuitry or voltage signal 0 to 10 V in three-wire circuitry (other outputs available upon request)

Calibration: If desired, these devices can be calibrated up to a measuring range of 0 to 16 bar at absolute pressure.

Electrical connection: standard DIN EN 175301-803 plug connector, model A with cable box. Permanently attached connection cable optional, standard length of 1m

Process connection: If desired, these devices can be supplied with a flush-mounted stainless-steel diaphragm for a measuring range up to 0 to 600 bar. This will be necessary for use with viscous or sticky fluids.

Electrical specifications:

Supply voltage:	10 to 30 VDC with current output 14 to 30 VDC with voltage output
Power consumption Max.:	20 mA
Output:	voltage output load ≥ 5 kOhm current output load ≤ (U-10V) / 0.02 A
Interference emission:	as per EN 61326
Noise immunity:	as per EN 61326
Protection type:	IP65 EN 60 529 / IEC 529
Electrical protection types:	incorrect polarity, overvoltage, and short-circuit protection

Technical details:

Process connection:	G1/2 B male thread, with flush-mounted G1 B diaphragm for measuring range of 0 to 1.6 bar M16x1.5 female thread for measuring range > 1600 bar
Optional connections:	G1/4,1/4" NPT and 1/2" NPT
Parts in contact with media:	stainless steel 1.4571 and 1.4542 (with flush-mounted diaphragm, 1.4571 only)
Max. pressure:	3.5 times the upper range value for measuring range up to 16 bar 2 times the upper range value for measuring range to 600 bar 1.5 times the upper range value for measuring range > 600 bar 1.2 times the upper range value for measuring range = 1600 bar 1.2 times the upper range value for measuring range = 2500 bar

Ordering Code:

order number: PUM03. 2. 1. 2. 1. 1. R76

Pressure transmitter, class 0.25

Output signal:
1 = 4 to 20 mA, 2-wire
2 = 0 to 10 V, 3-wire

Calibration:
1 = Relative pressure
2 = Absolute pressure

Electrical connection:
1 = Plug connector
2 = Permanently attached connection cable

Process connection:
1 = G1/2 B
2 = G 1 B (with flush-mounted diaphragm for measuring range of 0 to 1.6 bar)
3 = M16 X 1.5 female thread (for measuring range > 1600 bar)
4 = Special thread (G1/4, 1/4" NPT, 1/2" NPT)

Design:
1 = Internal diaphragm
2 = Flush-mounted diaphragm

Measuring range:

R = relative	A = absolute
R13 = -0.25 - 0 bar	
R14 = -0.4 - 0 bar	
R15 = -0.6 - 0 bar	
R16 = -1 - 0 bar	
R43 = -1 - 1.5 bar	
R45 = -1 - 5 bar	
R65 = 0 - 0.25 bar	A65 = 0 - 0.25 bar
R66 = 0 - 0.4 bar	A66 = 0 - 0.4 bar
R67 = 0 - 0.6 bar	A67 = 0 - 0.6 bar
R69 = 0 - 1 bar	A69 = 0 - 1 bar
R70 = 0 - 1.6 bar	A70 = 0 - 1.6 bar
R72 = 0 - 2.5 bar	A72 = 0 - 2.5 bar
R73 = 0 - 4 bar	A73 = 0 - 4 bar
R74 = 0 - 6 bar	A74 = 0 - 6 bar
R75 = 0 - 10 bar	A75 = 0 - 10 bar
R76 = 0 - 16 bar	A76 = 0 - 16 bar
R78 = 0 - 25 bar	
R79 = 0 - 40 bar	
R80 = 0 - 60 bar	
R81 = 0 - 100 bar	
R82 = 0 - 160 bar	
R84 = 0 - 250 bar	
R85 = 0 - 315 bar	
R86 = 0 - 400 bar	
R87 = 0 - 600 bar	
R88 = 0 - 1000 bar (without flush-mounted diaphragm)	
R89 = 0 - 1600 bar (without flush-mounted diaphragm)	
R90 = 0 - 2500 bar (without flush-mounted diaphragm)	

Max. media temp.:	-30…+100°C
Max. ambient temp.:	-20…+80°C
Max. storage temp.:	-40…+100°C
Compensated range:	0 to 80°C
Housing:	stainless steel, European standard no. 1.4301
Weight:	approx. 0.2 kg
Accuracy:	class 0.25
Reproducibility:	< +/- 0.05% f. s.
Response time:	1 ms (between 10%…90% f. s.)
Adjustability:	zero-point and measuring range up to 10%

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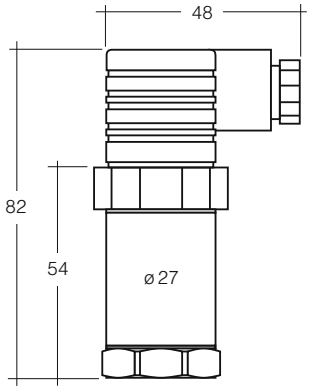
PUM02/PUM03 – Pressure Transmitters

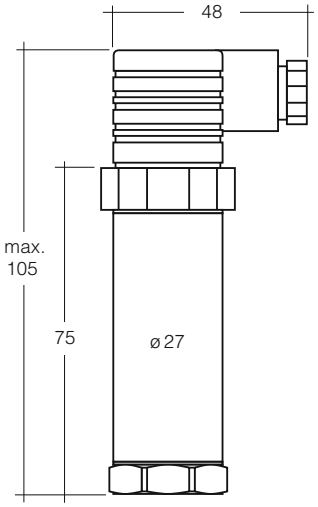
Dimensions

Housing – design with plug connector as per DIN43650

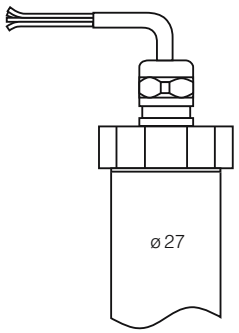
Short design



Long design

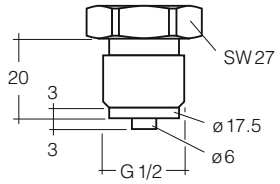


cable outlet

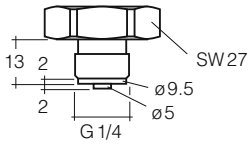


Pressure ports

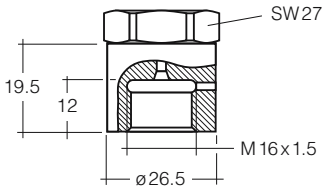
G 1/2 B



G 1/4 B

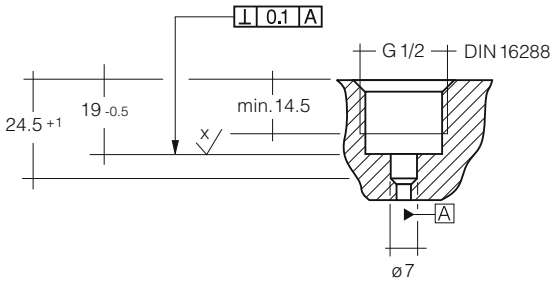


high-pressure threaded connection
M 16 x 1.5 female

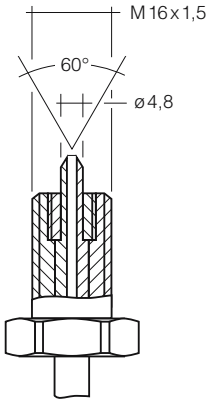


Tapped hole and/or thread adapter as per DIN16288

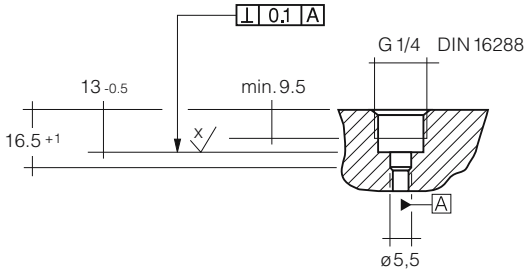
G 1/2



high-pressure threaded connection
M 16 x 1.5 female



G 1/4



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