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Operating Instructions

PUM01 / PUM02 / PUM03

Pressure Transmitter

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

PUM02

Pressure Transmitter for General Industrial Applications

- Accuracy class 0.5
- Stainless steel pressure port
- Sturdy, heavy-duty design
- High precision and linearity
- Compatible with a wide range of media
- Adjustable zero-point and measuring range

Description:

Model series PUM02 pressure sensors are high-quality, accurate and reliable transmitters. Depending on the pressure range, the PUM02 measures the applied pressure by means of a piezo-resistive cell or a thin-film cell. The combination of these two technologies covers all DIN measuring ranges from -1/0 bar to 0/2500 bar with consistent accuracy. The pressure-dependent resistance signal transmitted by these cells is converted by an amplifier to a current signal or voltage signal. The transmitter can be configured to output either a current signal of 4 to 20 mA in two-wire circuitry or a voltage signal of 0 to 10 V in three-wire circuitry. Other output signals are available upon request. PUM02 pressure sensors with flush-mounted stainless-steel diaphragms are especially suited for use with sticky or viscous fluids since such media cannot enter the device and damage or clog it. For difficult measuring tasks, such as level measurements with hydrostatic columns, two potentiometers allow the zero-point and the measuring range to be set as required.

Fields of Application:

PUM02 pressure transmitters are used to measure the pressure of liquid or gaseous media. All transmitter parts coming in contact with the pressurized media are made of stainless steel. This construction allows it to be used with a wide variety of media. For media that are particularly difficult to handle (caustic, corrosive, viscous, high-temperature), we recommend fitting the PUM02 with a diaphragm seal (commercially available models available upon request), so that flange connections, milk-pipe threaded fittings or Tri-Clamp connections can be used. The compact design, accuracy and material combination of PUM02 devices allow them to be used in numerous applications such as in the chemical or food industries.

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Designs:

PUM02 Pressure Transmitters, Class 0.5

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 from a measuring range of 0 to 0.25 bar 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 of 0 to 0.1 bar up to a measuring range of 0 to 600 bar. This will be necessary for use with viscous or sticky fluids.

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
Max. media temp.:	-30…+100°C
Max. ambient temp.:	-20…+80°C
Max. storage temp.:	-40…+100°C
Compensated range:	0…80°C
Housing:	stainless steel, European standard no. 1.4301
Weight:	approx. 0.2 kg
Accuracy:	class 0.5
Reproducibility:	< ± 0.05% f. s.
Response time:	1 ms (between 10%…90% f. s.)
Adjustability:	zero-point and measuring range up to 10%

Ordering Code:

order number: **PUM02. 2. 1. 2. 1. 1. R78**

Pressure transmitter, class 0.5

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 = G1 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
R11 = -0.1 - 0 bar (without flush-mounted diaphragm)	
R12 = -0.16 - 0 bar (without flush-mounted diaphragm)	
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	
R63 = 0 - 0.1 bar	
R64 = 0 - 0.16 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)	

Electrical specifications:

Supply voltage:	10 to 30 VDC for current output 14 to 30 VDC for voltage output
Power consumption max.:	20 mA
Output:	voltage output Load >= 5 kOhm Current output Load <= (U-10 V) / 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

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