

Microelectronic pressure transmitters PTM-M Series

- **Main error**
±0,5 %
- **Operating pressure range**
from 0-0,1 to 0-250 MPa
- **Operating temperature range**
from -40 to +85 °C
- **Output signals**
4-20 mA
0,5-4,5 V(ratiometric)
- **Material in contact with
measuring medium - titanium alloy**



Applications

- ★ Industrial automatics
- ★ Oil and gas industry
- ★ Hydraulics/ Pneumatic
- ★ Pumping stations/ Compressors
- ★ Heat metering

- **The transmitters are intended for continuous conversion of pressure into unified analog electrical output signal**

Exclusive features

- ✓ Optimal metrological and operating performance of the transmitters, such as stability, reproducibility and interference resistance of the output signal, are achieved through the use of monocrystal silicon sensitive element located on a sapphire membrane and specialized electronic circuit with a high scale integration and digital signal processing.
- ✓ High overload capacity of the transmitters is achieved through the use of a two-layer sapphire-titanium membrane with monocrystal silicon resistance strain gages ("silicon-on-sapphire technology"). Monocrystal sapphire membrane is a perfect elastic element that due to connection with titanium acquires the best quality as to the deformation level.
- ✓ High degree of reliability of the sensitive element and the electronic circuit does not require correction of the output signal range during operation.
- ✓ Digital correction of the zero output signal.

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Datasheet

1 Nominal, overload and burst pressure

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
PTM1-M-0,1-...; PTM3-M-0,1-...	0...0,16	-0,1...0,48	0,64
PTM1-M-0,16-...; PTM3-M-0,16-...	0...0,16	-0,1...0,48	0,64
PTM1-M-0,25-...; PTM3-M-0,25-...	0...0,25	-0,1...0,75	1
PTM1-M-0,4-...; PTM3-M-0,4-...	0...0,4	-0,1...1,2	1,6
PTM1-M-0,6-...; PTM3-M-0,6-...	0...0,6	-0,1...1,8	2,4
PTM1-M-1-...; PTM3-M-1-...	0...1	-0,1...3	4
PTM1-M-1,6-...; PTM3-M-1,6-...	0...1,6	-0,1...4,8	6,4
PTM1-M-2,5-...; PTM3-M-2,5-...	0...2,5	-0,1...7,5	10
PTM1-M-4-...; PTM3-M-4-...	0...4	-0,1...12	16
PTM1-M-6-...; PTM3-M-6-...	0...6	-0,1...18	24
PTM1-M-10-...; PTM3-M-10-...	0...10	-0,1...30	40
PTM1-M-16-...; PTM3-M-16-...	0...16	-0,1...48	64
PTM1-M-25-...; PTM3-M-25-...	0...25	-0,1...75	100
PTM1-M-40-...; PTM3-M-40-...	0...40	-0,1...100	160
PTM1-M-60-...; PTM3-M-60-...	0...60	-0,1...120	150
PTM1-M-100-...; PTM3-M-100-...	0...100	-0,1...150	200
PTM1-M-160-...; PTM3-M-160-...	0...160	-0,1...175	240
PTM1-M-200-...; PTM3-M-200-...	0...200	-0,1...220	300
PTM1-M-250-...; PTM3-M-250-...	0...250	-0,1...275	375

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2 Operating temperature range

2.1 Version 1from - 40 to + 85 °C

3 Accuracy parameters

3.1 Main error, % FS±0,5

for version with upper gauge pressure limit 0,1 MPa ±1

3.2 Variation, % FS0,15

3.3 Additional ambient temperature error, % FS/10 °C±0,45

for version with upper gauge pressure limit 0,1 MPa ±0,6

3.4 Additional vibration error, % FS±0,25

4 Electrical characteristics and parameters

4.1 Output signals:

4.1.1 For PTM1-M, mA4-20

4.1.2 For PTM3, V ratiometric output signal

.....(from 10 to 90 % $U_s=5$ V) 0,5-4,5

4.2 Load resistance (R_L), kOhm:

4.2.1 For PTM1-M, taking into account formula limitations

$R_L \leq (U_s-9 \text{ V})/0,02 \text{ A}$ 0-1

4.2.2 For PTM3-M 2-10

4.3 Insulation resistance at room temperature, MOhm20

4.4 Electrical insulation strength (AC voltage), V 100

4.5 Supply voltage U_s , V

4.5.1 For PTM1-M 9-30

4.5.2 For PTM3-M 4,5-5,5

5 Mechanical characteristics

5.1 Vibration resistance (sinusoidal vibration):

Frequency range, Hz from 10 to 150

Acceleration amplitude, m/s^2 50

6 Operating conditions

6.1 IP level IP65

6.2 Material in contact with measuring medium - titanium alloy.

6.3 Pressure media - gases, liquids and their mixtures

not aggressive to the titanium alloy (air, sea water,

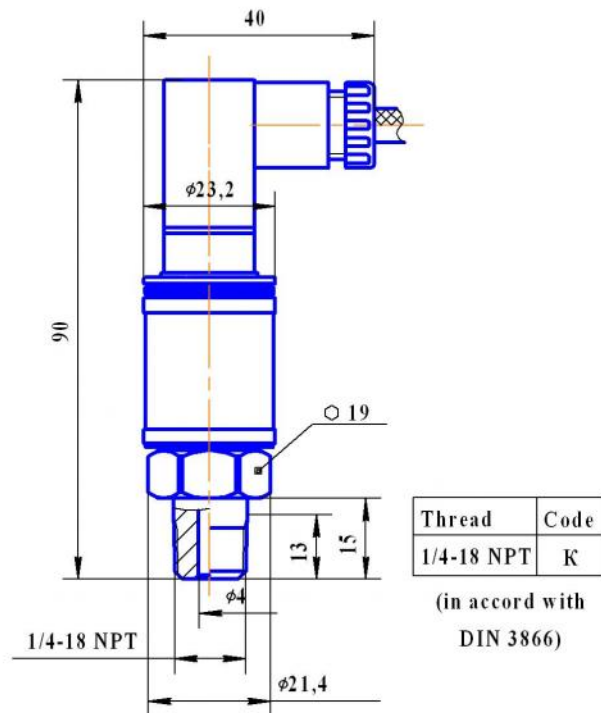
5 % vitriol acid , chlorine water, chloride solutions,

oils, acetylene etc)

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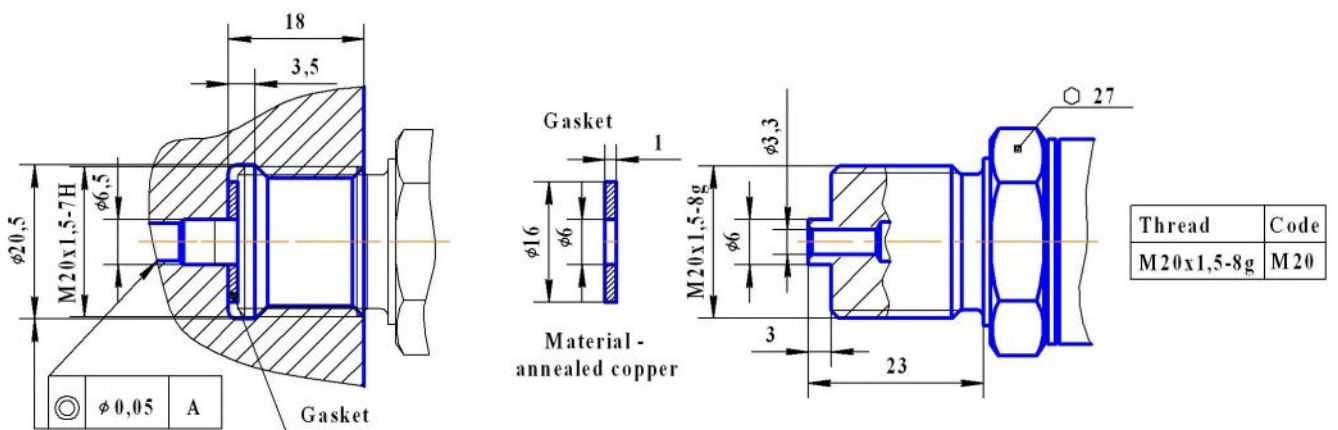
7 Overall and mounting dimensions



7.1 Thread design

Mounting diagrams

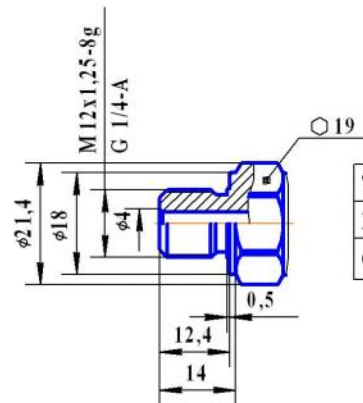
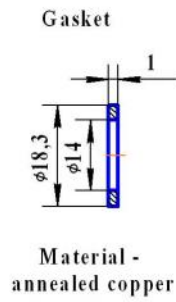
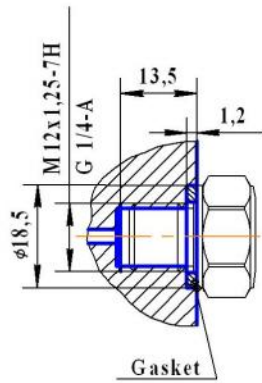
PTM1-M...-M20, PTM3-M...-M20



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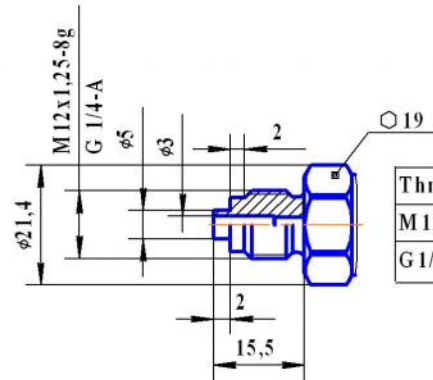
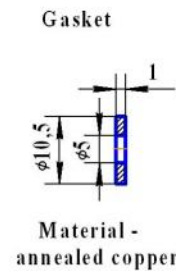
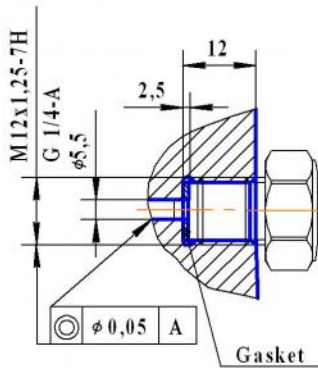
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**PTM1-M...-MK1, PTM1-M...-GK1,
PTM3-M...-MK1, PTM3-M...-GK1**



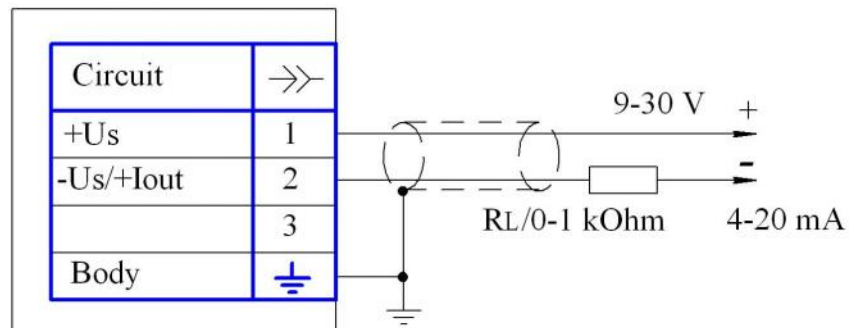
Thread	Code
M12x1,25-8g	MK1
G1/4-A	GK1

**PTM1-M...-MA1, PTM1-M...-GA1,
PTM3-M...-MA1, PTM3-M...-GA1**



Thread	Code
M12x1,25-8g	MA1
G1/4-A	GA1

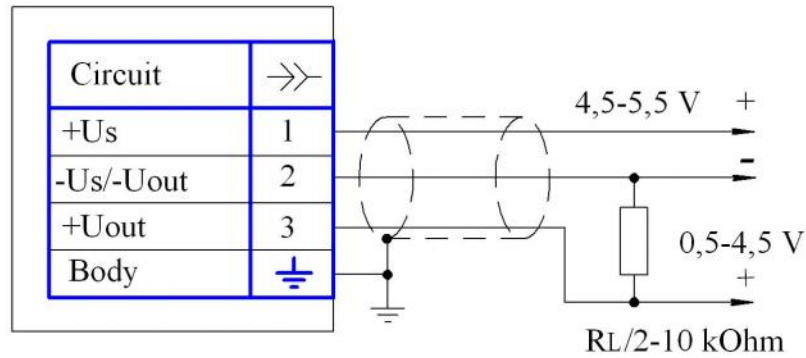
**8 Electrical connection diagram
Pressure transmitters PTM1-M**



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Pressure transmitters PTM-M Series

Pressure transmitters PTM3-M



9 Type designation

PTMX-M - XXX - XX - XXX

Series

Output signal version

1-M - 4-20 mA;
3-M - ratiometric output signal 0,5-4,5 V

Upper gauge pressure limit

0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6;
10; 16; 25; 40; 60; 100; 160; 200; 250 MPa

Limit main error

0,5 %;
1 % - for version with upper gauge pressure limit 0,1 MPa

Thread code

K - 1/4-18 NPT
M20 - M20x1,5-8g;
MK1 - M12x1,25-8g;
GK1 - G1/4-A
MA1 - M12x1,25-8g, end seal;
GA1 - G1/4-A, end seal

Order example of pressure transmitter

Pressure transmitter of PTM-M Series with characteristics: output signal 4-20 mA, upper gauge pressure limit 2,5 MPa, limit of main error $\pm 0,5\%$ and fitting thread M12x1,25-8g:

Pressure transmitter PTM1-M-2,5-0,5 %-MK1.

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