

# Piezoresistive Pressure Transmitter

## Model P46 For General Industrial Applications



Stainless Steel Piezoresistive Pressure Sensor



### Product Overview

P46 is made from high-quality silicon piezoresistive sensor. The piezoresistive sensor is packaged in stainless steel housing. The P46 is precision engineered to fit most industrial pressure measurement. The compact and rugged design makes these pressure transmitter suitable for applications including process control systems, hydraulic systems and valves, refrigeration and HVAC controls, level measurement and test equipment.

A wide range of process connection and electrical connection options are available to meet almost requirement.

### Applications

- Process control systems
- Refrigeration and HVAC controls
- Hydraulic systems and valve
- Machine building
- Pumps and compressors

### Features

- Measuring ranges from 100mbar to 600bar
- Absolute, gauge and sealed gauge
- Accuracy:  $\pm 0.5\% \text{FSO}$  ,  $\pm 0.25\% \text{FSO}$
- Calibrated and temperature compensated
- Stainless steel construction
- Piezoresistive pressure sensor design
- Variety of Pressure & Electrical connections
- Output 4...20mA, 0...10V, 0...5V, 1.5mV/V

### Standard Pressure Ranges

| Nominal pressure | gauge | sealed gauge | absolute |
|------------------|-------|--------------|----------|
| -1...0bar        | •     |              |          |
| -0.35...0bar     | •     |              |          |
| -0.2...0bar      | •     |              |          |
| 0...0.1bar       | •     |              |          |
| 0...0.2bar       | •     |              |          |
| 0...0.35bar      | •     |              | •        |
| 0...0.7bar       | •     |              | •        |
| 0...1bar         | •     |              | •        |
| 0...1.6bar       | •     |              |          |
| 0...2.5bar       | •     |              | •        |
| 0...4bar         | •     |              | •        |
| 0...6bar         | •     |              | •        |
| 0...10bar        | •     | •            | •        |
| 0...16bar        | •     | •            | •        |
| 0...25bar        | •     | •            |          |
| 0...60bar        |       | •            |          |
| 0...100bar       |       | •            |          |
| 0...250bar       |       | •            |          |
| 0...400bar       |       | •            |          |
| 0...600bar       |       | •            |          |

Other pressure ranges available. Please consult the factory.

# Piezoresistive Pressure Transmitter

## Performance Specifications

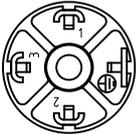
| Parameter                      | Value  | Units  | Notes          |
|--------------------------------|--|--------|----------------|
| <b>General</b>                 |  |        |                |
| Pressure Range                 | -1-0, ..., 0-0.1, ..., 600   | bar    | 1bar=14.5psi   |
| Overpressure                   | 1.5xFS   | bar    |                |
| <b>Environmental</b>           |  |        |                |
| Operating Temperature Range    | -20 to +80   | °C     | -4°F to 176°F  |
| Compensated Temperature Range  | 0 to +50   | °C     | 32°F to 122°F  |
| Storage Temperature Range      | -40 to +120  | °C     | -40°F to 248°F |
| Vibration                      | 10   | g      | 20 to 2000Hz   |
| Shock                          | 100  | g      | 10ms           |
| Cycles                         | 10x10 <sup>6</sup>   | cycles |                |
| <b>Electrical @25°C(77°F)</b>  |  |        |                |
| Output Signal                  | 4...20mA    0...5Vdc    1...5Vdc    0...10Vdc    0.5...4.5Vdc(ratiometric) |        |                |
| Power Supply(Vs)               | 12...28Vdc    12...28Vdc    12...28Vdc    15...28Vdc    5Vdc               |        |                |
| Load Resistance                | <(Vs-12)/0.02A (For current output), >10kΩ (For voltage output)            |        |                |
| Insulation Resistance          | 100MΩ@50Vdc  |        |                |
| <b>Physical Specifications</b> |  |        |                |
| Media Compatibility            | All media compatible with 316L stainless steel                             |        |                |
| Housing                        | 304 stainless steel  |        |                |
| Diaphragm                      | 316L stainless steel   |        |                |
| Seal Ring                      | Viton or NBR   |        |                |
| Oil Filling                    | Silicone oil   |        |                |
| Protection                     | IP65(Standard), IP66(only for cable outlet)                                |        |                |
| Net Weight                     | Approx. 175g   |        |                |

| Parameter           | Minimum | Typical | Maximum | Units     | Notes |
|---------------------|---------|---------|---------|-----------|-------|
| <b>Performance</b>  |         |         |         |           |       |
| Accuracy            |         | 0.25    | 0.5     | %FSO      | 1,2   |
| Temp Coeff - Zero   |         | ±0.75   | ±1.5    | %FSO      | 3     |
| Temp Coeff - Span   |         | ±0.75   | ±1.5    | %FSO      | 3     |
| Long-Term Stability |         | ±0.2    | ±0.3    | %FSO/year | 1     |

### Notes

- All values measured at 25°C(77°F)
  - Including non-linearity, hysteresis and repeatability.
  - 0°C to 50°C(32°F to 122°F) with reference to 25°C(77°F).
- The listed specifications and dimensions are subject to change without prior notice.

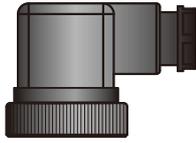
## Connection Diagrams

| Connector DIN43650  |                              | Cable outlet    |                        |                 |                   |       |
|---|------------------------------|-----------------|------------------------|-----------------|-------------------|-------|
|  | 2-wire(current)              | 3-wire(voltage) | 2-wire(current)        | 3-wire(voltage) | 5-wire(voltage)   |       |
|   | Supply+ 1                    | 1               |                        | Supply+red      | red               | red   |
|   | Signal+ 2                    | 3               |                        | Supply- -       | -                 | black |
|   | Gnd -                        | 2               |                        | Signal+ black   | yellow            | green |
|   | 4-wire(1.5mV/V) Supply:5~10V |                 | Signal- -              | -               | white             |       |
| Signal+ 1   |                              |                 | Gnd -                  | black           | bare(Shield wire) |       |
| Signal- 2   |                              |                 |                        |                 |                   |       |
| Supply+ 3   |                              |                 |                        |                 |                   |       |
| Supply- Gnd   |                              |                 |                        |                 |                   |       |
|   |                              |                 | Connector M12x1(4-pin) |                 |                   |       |
|   |                              |                 | 2-wire(current)        | 3-wire(voltage) |                   |       |
|   |                              |                 | Supply+ 1              | 1               |                   |       |
|   |                              |                 | Signal+ 2              | 3               |                   |       |
|   |                              |                 | Gnd -                  | 2               |                   |       |

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## Dimensions (in mm)

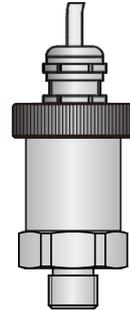
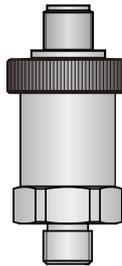
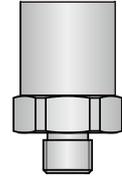
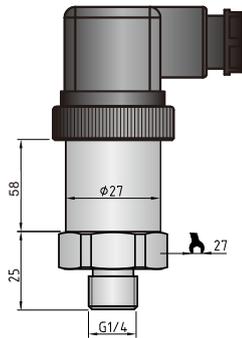
Connector DIN43650



M12x1 connector, 4-pin



Cable outlet



## Ordering Information

P46-□□-□□-□□-□□-□□-□□-□□

### Measuring Range:

|                    |                       |
|--------------------|-----------------------|
| N1 - -1...0 bar    | 09 - 0...10 bar       |
| N2 - -0.35...0 bar | 10 - 0...16 bar       |
| N3 - -0.2...0 bar  | 11 - 0...25 bar       |
| 01 - 0...0.1 bar   | 12 - 0...40 bar       |
| 02 - 0...0.35 bar  | 13 - 0...50 bar       |
| 03 - 0...0.7 bar   | 14 - 0...60 bar       |
| 04 - 0...1 bar     | 15 - 0...100 bar      |
| 05 - 0...1.6 bar   | 16 - 0...250 bar      |
| 06 - 0...2.5 bar   | 17 - 0...400 bar      |
| 07 - 0...4 bar     | 18 - 0...600 bar      |
| 08 - 0...6 bar     | xx - Customized range |

### Pressure Type:

- G - Gauge
- A - Absolute
- S - Sealed Gauge

### Option:

- 0 - No
- 1 - LED Digital Indicator(DP-4)
- 2 - LCD Digital Indicator(DP-3)
- 3 - LED Digital Indicator(DP-5)

### Process connection:

- M20 - M20x1.5 male thread
- G2 - G1/2 male thread
- G4 - G1/4 male thread
- N2 - 1/2NPT male thread
- N4 - 1/4NPT male thread
- P1 - PT1/2 male thread
- P2 - PT1/4 male thread
- R1 - R1/4 male thread
- R2 - R1/2 male thread
- Nx - Customized

### Electrical Connection:

- D - Connector DIN43650
- H - Cable outlet with PVC-cable,length=2m
- M - M12x1 connector, 4-pin

### Accuracy:

- E1 - 0.5%F.S
- E2 - 0.25%F.S

### Output signal:

- 42 - 4~20mA-2wire
- 05 - 0~5Vdc-3wire
- 15 - 1~5Vdc-3wire
- 25 - 1~5Vdc-5wire
- 10 - 0~10Vdc-3wire
- 45 - 0.5~4.5Vdc-3wire (ratiometric)
- 55 - 1.5mV/V- 4wire (Supply 5~10V)

Correct specification examples: P46-04-G-42-E1-D-G2-0

### Option:

Option1 LED Digital Indicator



Option2 LCD Digital Indicator



Option3 LED Digital Indicator

