

# Mini pressure switch Stainless steel switch enclosure Model PXS

WIKA data sheet PV 34.36



Process Mini Series

## Applications

- Pressure monitoring and control of processes
- Safety-critical applications in general process instrumentation, especially in the chemical and petrochemical industries, oil and gas industries, power generation incl. nuclear power plants, water/wastewater industries, mining
- For gaseous and liquid, aggressive and highly viscous or contaminated media, also in aggressive ambience
- For measuring points with limited space, e.g. control panels

## Special features

- No power supply needed for switching of electrical loads
- Robust switch enclosure from stainless steel 316L, IP66, NEMA 4X
- Setting ranges from 1 ... 2.5 bar to 200 ... 1,000 bar
- Intrinsic safety Ex ia available
- 1 set point, SPDT, high switching power up to AC 250 V, 5 A



Mini pressure switch model PXS

## Description

These high-quality pressure switches have been developed especially for safety-critical applications. The high quality of the products and manufacturing in accordance with ISO 9001 ensure reliable monitoring of your plant. In production, the switches are traced by quality assurance software at every step and subsequently are 100 % tested.

In order to ensure as flexible operation as possible, the pressure switches are fitted with micro switches, which enable the switching of an electrical load of up to AC 250 V, 20 A directly.

For lower switching power ratings, such as for PLC applications, argon gas-filled micro switches with gold-plated contacts can be selected as an option.

All wetted materials are from stainless steel as a standard. For applications with special requirements on the wetted parts, versions with materials from Hastelloy are available. Moreover the snap-acting behaviour of the Belleville spring increases stability and vibration resistance.

## Standard version

### Switch enclosure

Stainless steel 316

Tamper-proof

Laser-engraved product label from stainless steel

### Ingress protection

IP66 per EN/IEC 60529, NEMA 4X

### Permissible temperature

Ambient  $T_{amb}$ : -40 ... +85 °C

Medium  $T_M$ : See table on next page.

Depending on measuring element.

### Switch contact

Hermetically sealed micro switches with fixed dead band.

- 1 x SPDT (single pole double throw)

| Contact version |  | Electrical rating (resistive load) |           | Suitable for Ex ia option |
|-----------------|--|------------------------------------|-----------|---------------------------|
|                 |  | AC                                 | DC        |                           |
| E               | 1 x SPDT, silver, hermetically sealed      | 250 V, 5 A                         | 24 V, 5 A | Yes                       |
| J               | 1 x SPDT, gold-plated, hermetically sealed | 250 V, 0.5 A                       | 24 V, 1 A | Yes                       |

### Set point adjustment

The set point can be specified by the customer or factory-set within the setting range. Subsequent adjustment of the set point on site is made using the adjustment screw, which is covered by the access cover plate with lead seal option.

### Repeatability of the set point

≤ 1 % of span

### Please specify:

Set point, switching direction for the contact, e.g.:

Set point: 5 bar, rising

After removing the access cover plate, set point adjustment can be made using the adjustment screw.

The set point is selectable within the entire setting range.

For optimal performance we suggest to adjust the set point between 25 ... 75 % of the setting range.

### Example

Setting range: 1 ... 2.5 bar with one switch contact

Repeatability: 1 % of 1.5 bar = 0.015 bar

Dead band: 0.3 bar (see table setting ranges)

2 x repeatability + dead band = 2 x 0.015 bar + 0.3 bar = 0.33 bar

Rising pressure: Adjust set point between 1.33 ... 2.5 bar.

Falling pressure: Adjust set point between 1 ... 2.17 bar.

### Ignition protection type (option)

- Ex ia I Ma (mines)
- Ex ia IIC T6/T4 <sup>1)</sup> Ga (gas)
- Ex ia IIIIC T85/T135 <sup>1)</sup> Da (dust)

<sup>1)</sup> The temperature class is related to the ambient temperature range. See the type examination certificate for further details.

### Safety-related maximum values

(only for Ex ia versions)

| Maximum values             |         |
|----------------------------|---------|
| Voltage $U_i$              | DC 30 V |
| Current $I_i$              | 100 mA  |
| Power $P_i$                | 0.75 W  |
| Internal capacitance $C_i$ | 0 μF    |
| Internal inductance $L_i$  | 0 mH    |

### Process connection (A)

Stainless steel 316L

- ¼ NPT female (standard)
- ½ NPT, G ½ A, G ¼ A male via adapter
- ½ NPT, G ¼ female via adapter
- M20 x 1.5 male via adapter

### Electrical connection

- Connection cable

Length: 1.5 m

Wire cross-section: 0.5 mm<sup>2</sup> (20 AWG)

Insulation material: Silicone

### Threaded connection (B)

Material: AISI 316

- ½ NPT male (standard)
- M20 x 1.5 male (adapter)
- M20 x 1.5 female (adapter)
- ½ NPT female (adapter)
- ¾ NPT female (adapter)

- Terminal box

### Dielectric strength

Safety class I (IEC 61298-2: 2008)

### Mounting option

- Direct
- Wall bracket from stainless steel
- Option: Mounting bracket for 2" pipe mounting

### Weight

- 0.6 kg (standard)
- 1.1 kg, with terminal box

## Measuring element

| Measuring element |  | Wetted parts                                   | Permissible medium temperature (T <sub>M</sub> ) |
|-------------------|--|--|--|
| M                 | Welded diaphragm with antagonist spring            | Hastelloy® C276                                | -40 ... +200 °C                                  |
| G                 | Piston with antagonist spring and welded diaphragm | Hastelloy® C276                                | -40 ... +140 °C                                  |
| P                 | Piston with antagonist spring                      | Stainless steel 316L, O-ring FPM <sup>1)</sup> | 0 ... 200 °C                                     |

1) The measuring element is a piston, therefore particularly suited for liquid media.

## Setting range

| Measuring range<br>in bar   | Measuring element | Setting range depending on the switching direction in bar |             | Working range<br>in bar | Proof pressure<br>in bar | Max. dead band<br>in bar |
|-----------------------------|-------------------|---|-------------|-------------------------|--------------------------|--------------------------|
|                             |                   | rising  | falling     |                         |                          |                          |
| 1 ... 2.5                   | M                 | 1.3 ... 2.5   | 1 ... 2.2   | 0 ... 10                | 16                       | 0.3                      |
| 1.6 ... 4                   | M                 | 2.1 ... 4   | 1.6 ... 3.5 | 0 ... 10                | 16                       | 0.5                      |
| 2.5 ... 10                  | M                 | 3.5 ... 10  | 2.5 ... 9   | 0 ... 10                | 16                       | 1.0                      |
| 6 ... 20                    | M                 | 7.5 ... 20  | 6 ... 18.5  | 0 ... 40                | 60                       | 1.5                      |
| 14 ... 40                   | M                 | 17 ... 40   | 14 ... 37   | 0 ... 40                | 60                       | 3.0                      |
| 20 ... 100                  | P, G              | 35 ... 100  | 20 ... 85   | 0 ... 500               | 750                      | 15                       |
| 40 ... 160                  | P, G              | 65 ... 160  | 40 ... 135  | 0 ... 500               | 750                      | 25                       |
| 50 ... 400                  | P, G              | 85 ... 400  | 50 ... 365  | 0 ... 500               | 750                      | 35                       |
| 150 ... 700 <sup>2)</sup>   | P                 | 250 ... 700   | 150 ... 600 | 0 ... 1,000             | 1,500                    | 100                      |
| 200 ... 1,000 <sup>2)</sup> | P                 | 345 ... 1,000   | 200 ... 855 | 0 ... 1,000             | 1,500                    | 145                      |

2) Repeatability of the set point ≤ 1.6 % of span





## Options

- Cleaned for oxygen service
- Drying of wetted parts
- Measuring element piston with O-ring NBR (permissible medium temperature: -10 ... +110 °C)
- NACE compliant to MR 0175, ISO 15156 and MR 0103
- Terminal box, aluminium alloy, copper-free epoxy resin, coated with 3 connections ½ NPT female, ingress protection IP65
- Grounding cable cross-section: max. 4 mm<sup>2</sup>
- Other cable length: 3 m, 5 m
- Offshore version

## Assembly (Option)

- Shut-off valve model 910.11, see data sheet AC 09.02
- Barstock valve model 910.81, see data sheet AC 09.18
- Diaphragm seals, see website

## Approvals

| Logo   | Description  | Country                     |
|--|--|-----------------------------|
|  | <b>EC declaration of conformity</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive</li> <li>■ Low voltage directive</li> <li>■ ATEX directive <sup>1)</sup></li> <li>II 1 GD</li> </ul>                       | European Community          |
|  | <b>IECEx</b> <sup>1)</sup> per IEC 60079-0, IEC 60079-11, IEC 60079-26 (option) <ul style="list-style-type: none"> <li>Ex ia I Ma</li> <li>Ex ia IIC T6/T4 <sup>2)</sup> Ga</li> <li>Ex ia IIIC T85/T135 <sup>2)</sup> Da</li> </ul> | IECEx member states         |
|  | <b>EAC (option)</b><br>Hazardous areas (option)  | Eurasian Economic Community |
|  | <b>KOSHA (option)</b><br>Hazardous areas   | South Korea                 |

1) Double marking ATEX and IECEx on the same product label.

2) The temperature class is related to the ambient temperature range.

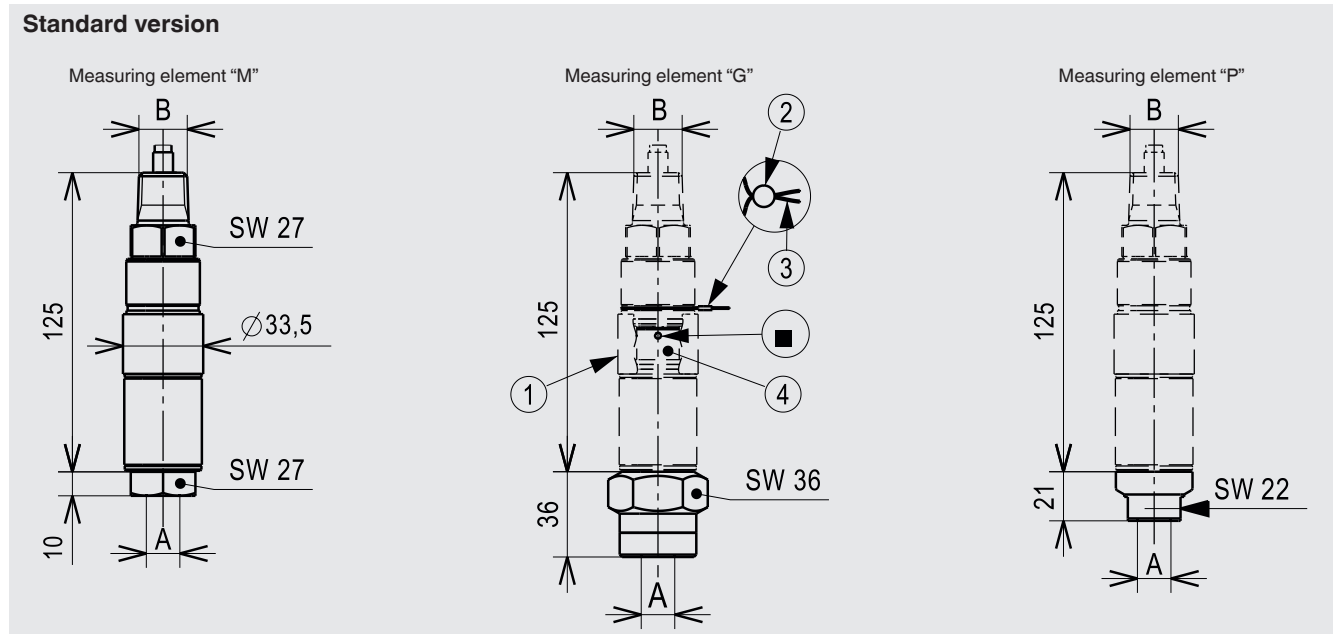
## Certificates (option)

- 2.2 test report per EN 10204
- 3.1 inspection certificate per EN 10204

Approvals and certificates, see website

## Dimensions in mm

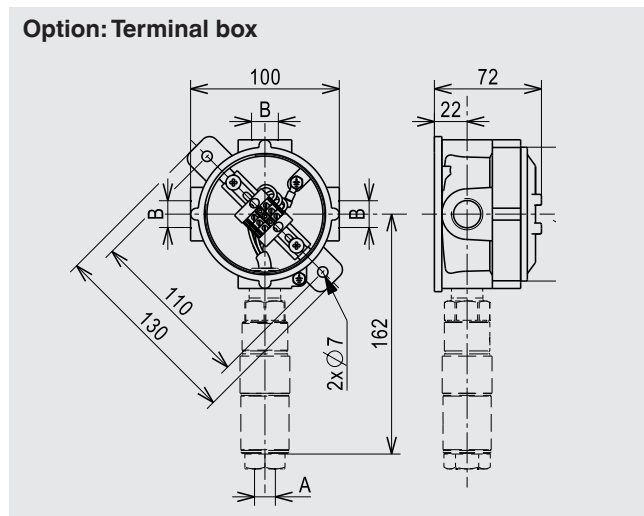
### Standard version



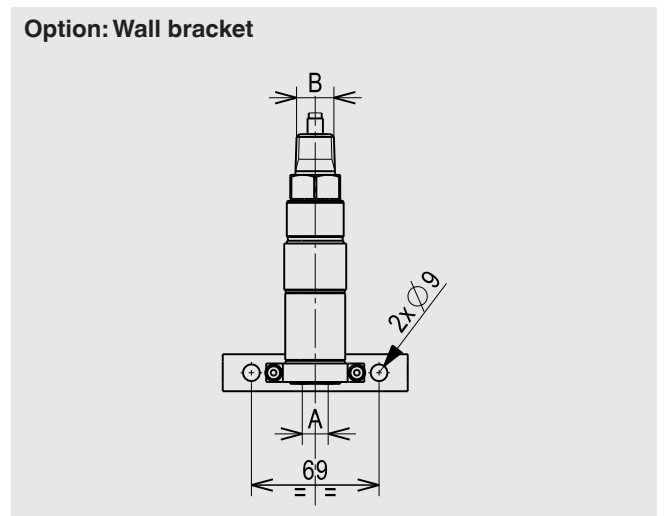
### Legend

- |   |                        |                         |
|---|------------------------|-------------------------|
| ① Access cover plate                          | ③ Stainless steel wire | A Pressure connection   |
| ② Lead seal                                   | ④ Adjustment screw     | B Electrical connection |
| ■ Set point adjustment rod $\varnothing$ 3 mm |                        |                         |

### Option: Terminal box



### Option: Wall bracket



### Ordering information

Model / Measuring element / Contact version / Measuring range / Process connection / Electrical connection / Options

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