Mini pressure switch
Stainless steel switch enclosure
Model PXS

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 316, IP66, NEMA 4X
- Setting ranges from 1 ... 2.5 bar to 200 ... 1,000 bar
- Intrinsic safety Ex ia available
- 1 set point, SPDT or DPDT, 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, 5 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.

For two separate circuits the switches are also available in the version DPDT (double pole double throw).
By using a Belleville spring the simultaneous triggering of the DPDT occurs at either rising or falling pressure. Moreover the snap-acting behaviour of the Belleville spring increases stability and vibration resistance.

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.

Data sheets showing similar products:
Pressure switch; Ex d; model PXA; see data sheet PV 34.38

Standard version

Switch enclosure
Stainless steel 316
Tamper-proof
Laser-engraved product label from stainless steel

Ingress protection
IP66 per IEC/EN 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)
- 1 x DPDT (double pole double throw)

The DPDT function is realised with a Belleville spring triggering 2 SPDT micro switches simultaneously.

Ignition protection type (option)
- Ex ia I Ma (mines)
- Ex ia IIC T6/T4 [1] Ga (gas)
- Ex ia IIIC T85/T135 [1] Da (dust)

1) 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

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
L	1 x DPDT, silver, hermetically sealed	250 V, 5 A	24 V, 5 A	Yes
M	1 x DPDT, 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 end of setting range

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
Dead band: 0.3 bar (see table setting ranges)
Rising pressure: Adjust set point between 1.3 ... 2.5 bar.
Falling pressure: Adjust set point between 1 ... 2.2 bar.

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 mm² (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_M)
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 [1]	0 ... 200 °C

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

Setting range

Measuring range	Measuring element	Setting range depending on the switching direction in bar		Working range	Proof pressure	Max. dead band	
						Start of setting range [2]	End of setting range [2]
in bar		rising	falling	in bar	in bar	in bar	in bar
1 ... 2.5 [3]	M	1.3 ... 2.5	1 ... 2.2	0 ... 10	16	0.3	0.3
1.6 ... 6	M	2.1 ... 6	1.6 ... 5.8	0 ... 10	16	0.5	0.2
3 ... 10	M	4.5 ... 10	3 ... 9.2	0 ... 10	16	1.5	0.8
6 ... 25 [3]	M	8 ... 25	6 ... 24.2	0 ... 25	40	2	0.8
14 ... 60	P, G	23 ... 60	14 ... 49	0 ... 500	750	9	11
25 ... 100	P, G	40 ... 100	25 ... 82	0 ... 500	750	15	18
50 ... 160	P, G	65 ... 160	50 ... 142	0 ... 500	750	15	18
70 ... 400	P, G	95 ... 400	70 ... 365	0 ... 500	750	25	35
150 ... 700 [4]	P	230 ... 700	150 ... 600	0 ... 1,000	1,500	80	100
200 ... 1,000 [4]	P	300 ... 1,000	200 ... 850	0 ... 1,000	1,500	100	150

2) The dead band depends on the set point adjustment. The indicated values are valid for start and end of the setting range. The dead band of other set points is proportional.
3) With DPDT contact the simultaneous triggering occurs within 1% of the end of setting range
4) Measuring range is recommended for hydraulic systems

Options

- Cleaned for oxygen service
- Drying of wetted parts
- Measuring element piston with O-ring NBR (permissible medium temperature: -10 ... +110 °C)
- Measuring element piston with O-ring EPDM (permissible medium temperature: -40 ... +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 mm²
- 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
CE Ex	**EC declaration of conformity** ■ Pressure equipment directive ■ Low voltage directive ■ ATEX [1] directive (option) I M 1 II 1 GD	European Community
IEC IECEx	**IECEx** [1] per IEC 60079-0, IEC 60079-11, IEC 60079-26 (option) Ex ia I Ma Ex ia IIC T6/T4 [2] Ga Ex ia IIIC T85/T135 [2] Da	IECEx member states
EAC Ex	**EAC (option)** Hazardous areas	Eurasian Economic Community
KCS	**KOSHA (option)** 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)

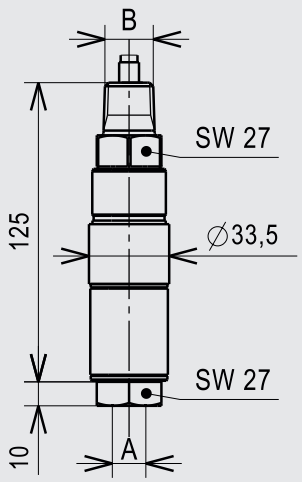
- 2.2 test report per EN 10204
- 3.1 inspection certificate per EN 10204

Approvals and certificates, see website

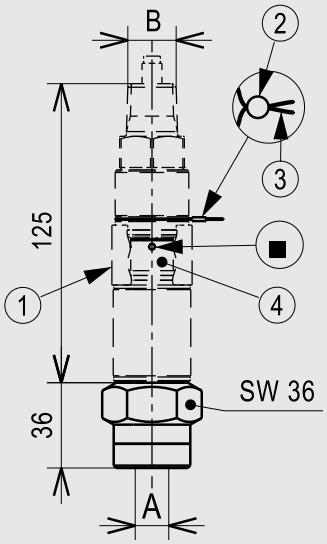
Dimensions in mm

Standard version

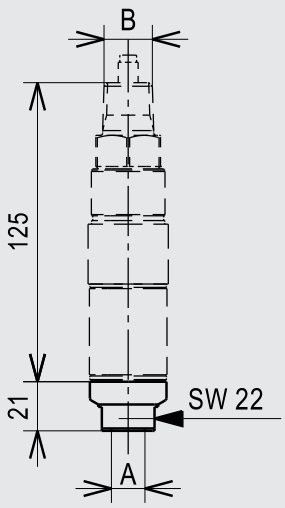
Measuring element “M”



Measuring element “G”



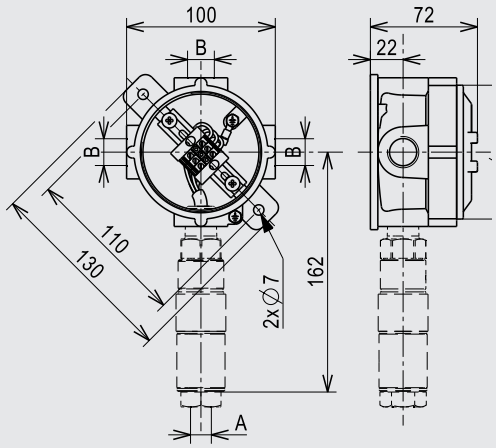
Measuring element “P”



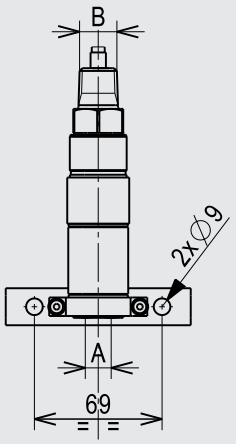
Legend

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

Option: Terminal box



Option: Wall bracket



Ordering information

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

06/2017 EN

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de