PDC-2

Vacuum Switch

Features

/ Robust design

/ 6 operating ranges under vacuum

/ Zero point excess deviation

/ Adjustable hysteresis

Description:

The PDC series of mechanical pressure switches is characterized by their extreme resilience. The PDC-2 has a robust housing made of sea-water resistant aluminium pressure casting. Depending on the pressure range, it has a pressure port made of brass or stainless steel and a membrane or a bellow made of Perbunan, Cu Zn or stainless steel and a G1/2"-male and a G1/4"-female thread. Excrescent pressure changes at the connection act on an internal measuring diaphragm the movements of which are transferred to a high-performance micro-switch through a connecting bridge. The setpoint is set externally by rotating a spindle for nominal value that directly modifies the pre-tension of a spring. In addition, the construction has a counter-pressure spring that ensures a very stable connection even at low set-points. The PDC series of pressure switches can be provided with a terminal housing in IP65 and a blue cable gland, to allow the operation in hazardous areas (in connection with a suitable isolated switch amplifier), or even as an EEx-d version.

Application:

The PDC-2 series of pressure switches is used in applications where high requirements are placed on the switch's life span and mechanical strength. Due to the fact that the pressure-sensing measuring diaphragms are only less loaded – considering their permissible values – the PDC-2 guarantees an excellent long-term stability at minimal setpoint drift. Consequent to its design, the upstroke of the pressure diaphragms is limited by means of a stopper so that high overpressure safety is ensured even in small operating ranges. A number of operating ranges are available of which also a version with adjustable hysteresis can be supplied. In the selection of a range, attention has been paid to cover smaller pressure spans close to the zero point as well as the entire range vacuum. Thanks to its material quality, flexibility of connections and high switching load of the micro-switch, the PDC-2 is predestined for use across all sections of the industry.

Technical Specifications:

Operating range / see table

Mounting position / vertically upright and horizontal (operating range A only vertically upright)

max. Pressure / see table

max. Media temperature / -25. . .+70°C (-15. . .+60°C for range A) short spell up to +85°C. Cooling elements are recommended for higher temperatures

Setpoint / can be set externally by means of screw-driver on the spindle

Repeatability / < 1% of working range (at pressure ranges > 1 bar)

Adjustment / The scales are calibrated for decreasing pressures. The reading corresponds therefore to lower setpoint, the upper setpoint is higher by the hysteresis

Lead sealing / On request, ex-factory; sealing can also be undertaken later

Vibration / Up to 4g no significant deviations

Mechanical Life span / 10 x 10^6 for room temperature and sinusoidal pressure impact. Life span depends highly on the sort of pressue impact. This value is therefore just a guide value. For applications with pulsating pressure or pressure surges we recommend the use of a pressure surge reducer.

Electrical Life span / 100,000 switching cycles at nominal current 8 A, 250 VAC

Isolation / overvoltage category III, pollution degree 3, rated impulse voltage 4000V, fullfills DIN VDE 01 10

Hysteresis / In PDC-2.1.A to PDC-2.1.F the hysteresis cannot be set. In PDC-2.2.B to PDC-2.2.F the hysteresis can be set as specified in the following tables.

Process connection / G1/2"-male (pressure gauge connection acc. DIN 16288), G1/4"-female acc. ISO 228 part 1. Using the G1/2"-male the PDC-2 can be directly screwed on to the pressure pipe, alternatively fastening by means of 2 screws (4mm Ø) on a plane surface is also possible.

Housing material / Aluminium pressure casting GD Al Si 12 (sea-water resistant)

Material of pressure sensor / refer to following tables

rel. Humidity / 15%. . .95%, non-condensing

Ordering Codes:

Order number	**PDC-2.**	**1.**	**D.**	**0**

PDC-2 Vacuum Switch

Hysteresis /

1 = hysteresis cannot be set (A - F)
2 = hysteresis can be set (B - F)

Operating range /

A = -15. . .+6 mbar
B = -250. . .+100 mbar
C = -1*. . .+0,1 bar
D = -0.9. . .+0,5 bar
E = -250. . .+100 mbar (3 bar max.)
F = -1* to +0.1* bar (6 bar max.)

* In case of high vacuum conditions, close to the theoretically possible low-pressure of -1 bar, use of the switch is subject to restrictions due to extraordinary conditions of vacuum technology. However, the vacuum switch itself will not be damaged at maximum low-pressure.

Options /

0 = without

Exi = gold-plated contacts, SPDT, fixed hysteresis, IP65, switching capacity: max. 24 VDC, 100 mA, min. 5 VDC, 2 mA; media temperature max. 60°C, ignition protection class II 1/2G Ex ia IIC T6 Ga/Gb, II 1/2D Ex ia IIIC T80 °C (1)

Exd = standard contacts, SPDT, fixed hysteresis, IP65, switching capacity: max. 250 VAC, 3 (2) A or 24 VDC, 3 A or 250 VDC, 0.1 A, min. 24 VDC, 2 mA, media temperature max. 60°C, ignition protection class II 2G Ex d e IIC T6 Gb, II 1/2D Ex ta/tb IIIC T80 °C Da/Db (1)

2 = gold-plated contacts, switching capacity: max. 24 VDC, 100 mA, min. 5 VDC, 2 mA. And others not available with adjustable switching difference.

3 = two microswitches, switching in parallel or in succession, fixed switching interval (1) (with the exception of PDC-2.A)

4 = two microswitches, 1 plug, switching in succession, adjustable switching interval (with the exception of PDC-2.A)

5 = terminal connection housing, IP65

6 = protection class IP65 and switching housing with surface protection (chemical version)

(1) incl. terminal connection housing, IP65

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Electrical Specifications:

Connection / plug connection

Protection class / IP54 in vertical mounting

Switching load / 250 VAC, 8A (Ohmic), 5A (inductive)
250 VDC, 0,3A (Ohmic)
24 VDC, 8A (Ohmic)
min. 10 mA, 12 VDC

Contacts / SPDT

Units with fixed hysteresis (PDC-2.1):

Type	Setpoint range	Hysteresis (average)	max. Pressure	Wetted parts	Sketch Nr.	Manufacturer number
PDC-2.1.A	-15. . .+6 mbar	2 mbar	1 bar	Sensor housing 1.4301 + diaphragm Perbunan	1 + 11	VCM4156
PDC-2.1.B	-250. . .+100 mbar	25 mbar	1.5 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 13	VCM301
PDC-2.1.C	-1. . .+0.1 mbar *	45 mbar	3 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 14	VCM101
PDC-2.1.D	-0,9. . .+0.5 bar	50 mbar	3 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 14	VCM095
PDC-2.1.E	-250. . .+100 mbar	45 mbar	3 bar	Sensor housing 1.4104 + bellow 1.4571	1 + 15	VNM301
PDC-2.1.F	-1. . .+0.1 bar *	50 mbar	6 bar	Sensor housing 1.4104 + bellow 1.4571	1 + 15	VNM111

* In case of high vacuum conditions, close to the theoretically possible low-pressure of -1 bar, use of the switch is subject to restrictions due to extraordinary conditions of vacuum technology. However, the vacuum switch itself will not be damaged at maximum low-pressure.

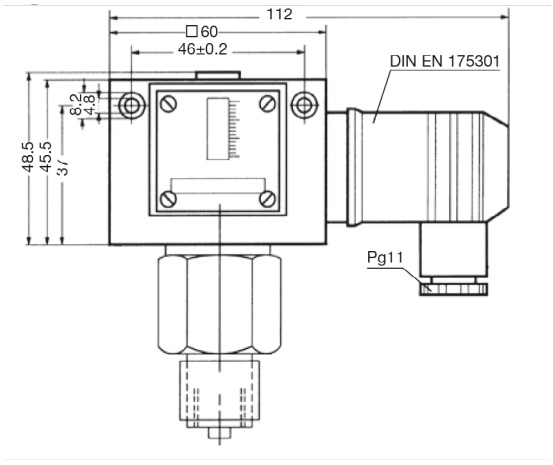
Units with adjustable hysteresis (PDC-2.2):

Type	Setpoint range	Hysteresis (average)	max. Pressure	Wetted parts	Sketch Nr.	Manufacturer number
PDC-2.2.B	-250. . .+100 mbar	30. . .200 mbar	1.5 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 13	VCMV301
PDC-2.2.C	-1. . .+0.1 mbar	80. . .350 mbar	3 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 14	VCMV101
PDC-2.2.D	-0.9. . .+0.5 bar	90. . .400 mbar	3 bar	Sensor housing 1.4104 + diaphragm CuZn	1 + 14	VCMV095

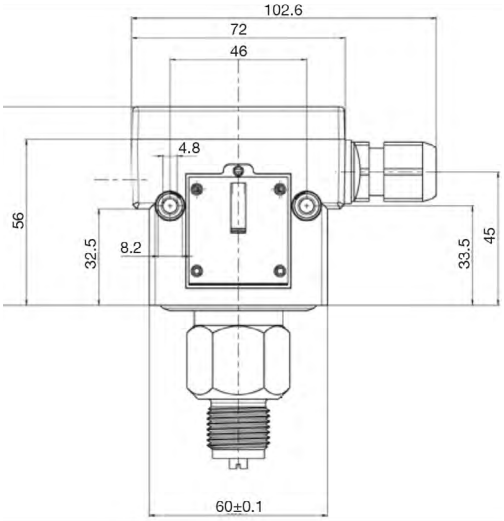
* In case of high vacuum conditions, close to the theoretically possible low-pressure of -1 bar, use of the switch is subject to restrictions due to extraordinary conditions of vacuum technology. However, the vacuum switch itself will not be damaged at maximum low-pressure.

Housing Dimensions:

(1) Standard housing with plug connection

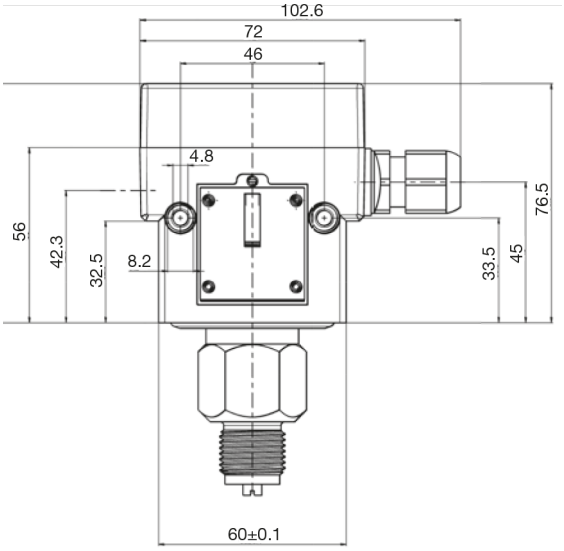


(2) Standard housing with terminal conn. (Option 5)

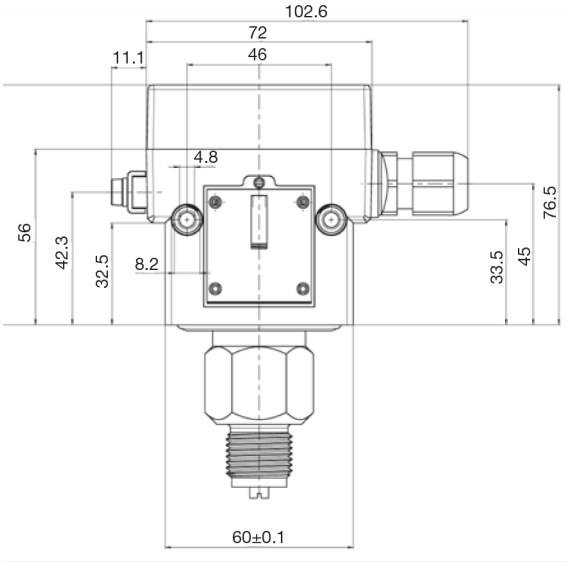


Housing Dimensions:

3 Ex-i housing with blue cable gland



4 Ex-d housing with blue cable gland



Pressure Port Dimensions:

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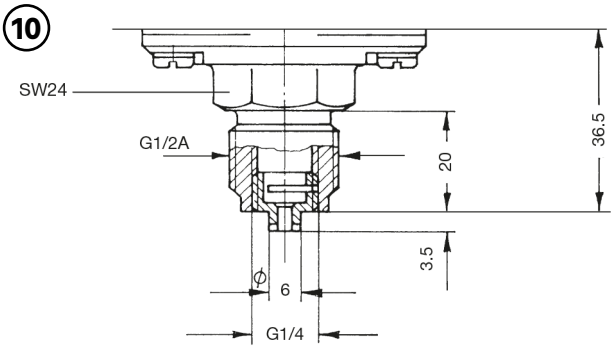

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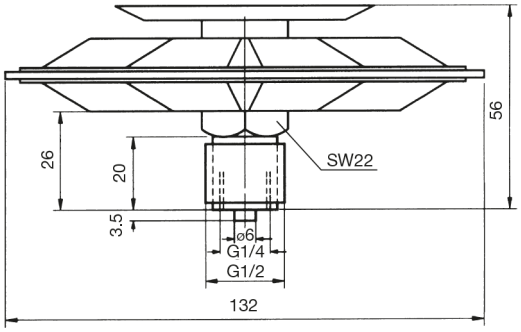

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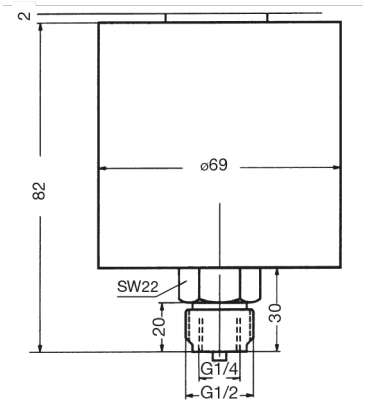

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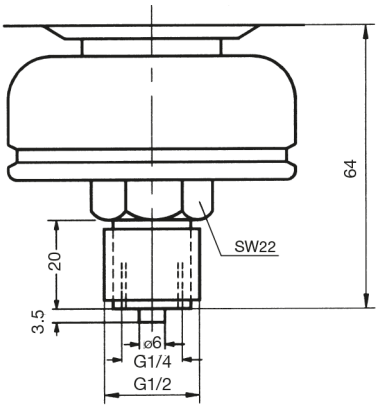

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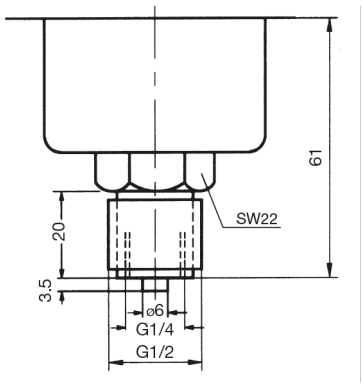
14



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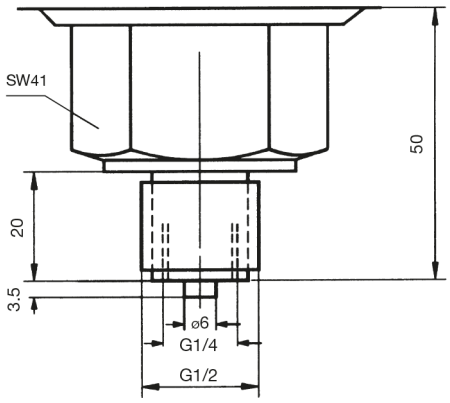
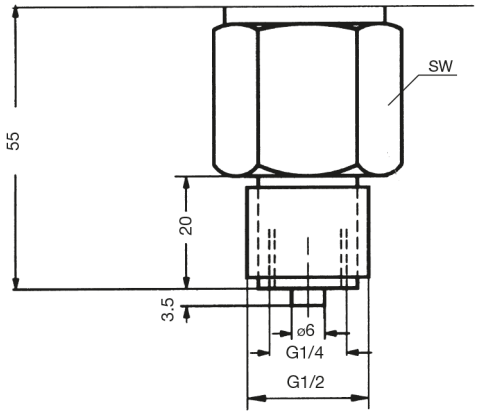
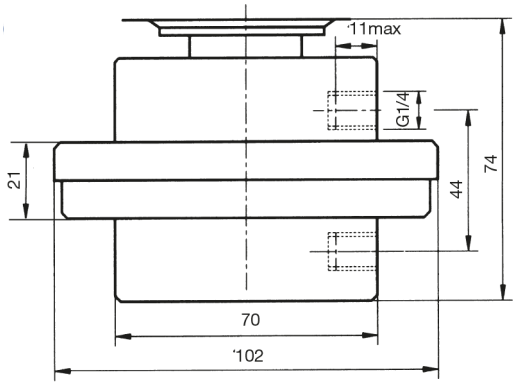


16 – 19



Housing No.	SW
16	22
17	24
18	30
19	32

20



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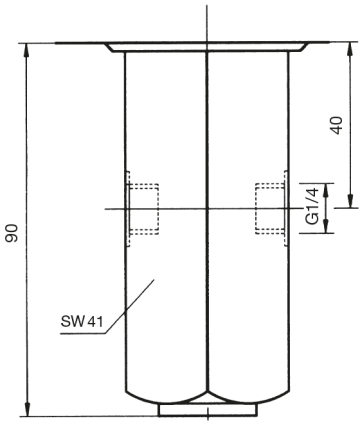

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