

Pressure Switches



Diaphragm actuated
For neutral gaseous and liquid fluids
Switching pressure range 0.02 ... 30 bar

Catalog Register
A 19, P 19, D 4, T 3

Publication 7500610.06.04.99



Description

Pressure switch for air, gas, water, hydraulic oil, lubricating oil, light fuel oil.

Working viscosity up to 1000 mm²/s

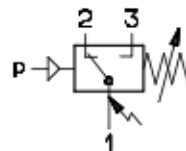
Repeatability : ± 2%
(bezogen auf Druckregelung)
Switching element: Microswitch
Protection class:: IP 64
Ambient temperature: -10 bis + 80 °C
Fluid temperature: 0 bis + 80 °C
Max. temperature at switching element: max. + 80 °C
Mounting position: Optional
Max. vibrations: 10 g (sinusoidal) ¹⁾



Type 8 D

Features

- Small size
- Preferred for pressure monitoring
- Sealed design permits setting of different switching points during operation without tools
- Approved by shipping authorities



Switching function:
Microswitch SPDT
Terminals: 1 – 3: Contacts close on rising pressure
Terminals 1 – 2: Contacts open on rising pressure

1) Tested in accordance with DIN 89011.5.2., within the frequency range 25 ... 100 Hz; within frequency range 2 ... 25 Hz tested with amplitude 1.6 mm.

Parameters Schaltdruckdifferenz festlegend

Adjustable range $P_{vu\ min} \dots P_{vo\ max}$ (VDI 3283) [bar]	Switching pressure difference		Max. allowable pressure [bar]	Switching cycles per minute	Pressure sensor materials		Type of connection	Connec-tion	Total weight [kg]	Dimen-sional drawing No.	Cat. No.
	lower range [bar]	upper range [bar]			Housing	Seal					

Setting of switching point by Allen head screw protected by plastic cover

Electrical connection: Cable gland Pg 13.5

0.2 ... 12	0.9	1.4	50	max. 60	Alumi-nium	NBR (Perbu-nan)	I	G 1/4	0.4	01	0820150
0.2 ... 12	0.9	1.4	50	(sudden pressure changes permissible)			P	–	0.4	03	0820250
0.5 ... 30	1.0	2.0	50				I	G 1/4	0.4	01	0820750
0.5 ... 30	1.0	2.0	50				P	–	0.4	03	0820850

Electrical connection: interface to DIN 43650

0.02 ... 2	0.12	0.12	50	max. 60	Alumi-nium	NBR (Perbu-nan)	I	G 1/4	0.4	02	0820149
0.10 ... 6	0.14	0.14	50	(sudden pressure changes permissible)			I	G 1/4	0.4	02	0820148
0.20 ... 12	0.9	1.4	50				I	G 1/4	0.4	02	0820155
0.50 ... 30	1.0	2.0	50				I	G 1/4	0.4	02	0820755

Setting of switching point by scaled rotary button

Electrical connection: Cable gland Pg 13.5

0.2 ... 12	0.9	1.4	50	max. 60	Alumi-nium	NBR (Perbu-nan)	I	G 1/4	0.45	04	0820160
0.5 ... 30	1.0	2.0	50	(sudden pressure changes permissible)			I	G 1/4	0.45	04	0820760

Electrical connection: Connector, interface to DIN 43650

0.2 ... 12	0.9	1.4	50	max. 60	Alumi-nium	NBR (Perbu-nan)	I	G 1/4	0.45	05	0820166
0.5 ... 30	1.0	2	50	(sudden pressure changes permissible)			I	G 1/4	0.45	05	0820765

I – Internal thread
P – Flange (for manifolding)

Approved by GL German, Lloyd, BV Bureau Veritas, DNV Det Norske Veritas, LR Loyd's Register of Shipping, PRS Polski Rejester Statkow, USSR Register of Shipping

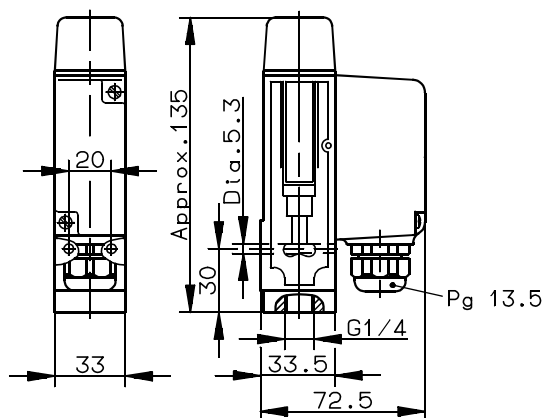
1) Even short pressure peaks must not exceed the maximum allowable pressure (= max. test pressure)

Other versions available on request

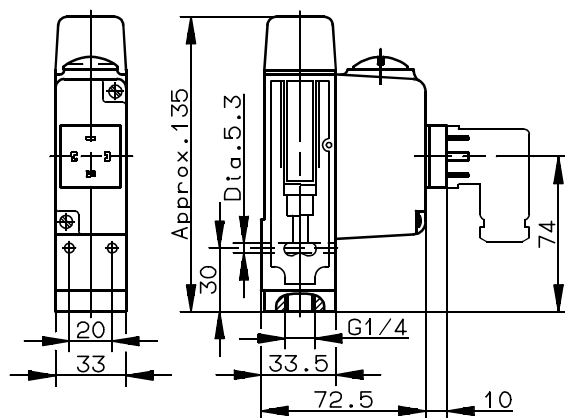
- Lockable design
- With smaller switching pressure difference
- Manifold version with up to 8 units

Dimensional drawings

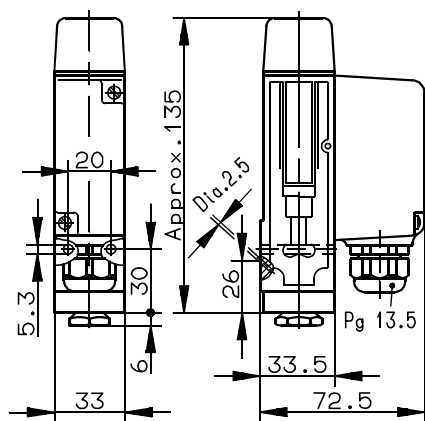
01



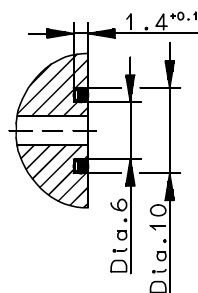
02



03

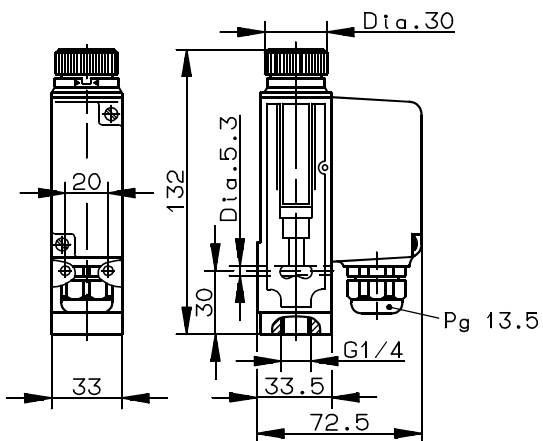


O-ring recess for flanged design

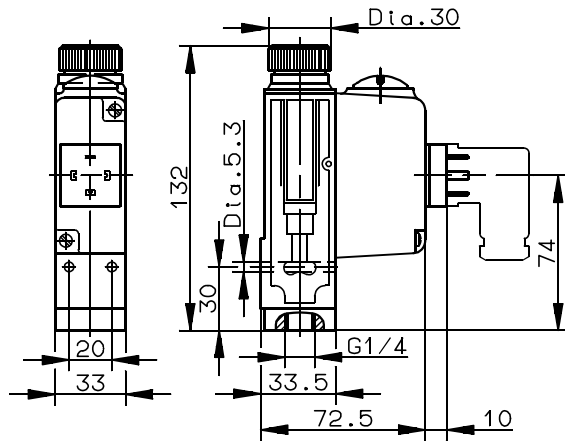


Sealing with O-ring dia. 6.07 x 1.78
Cat. No. 0701250

04

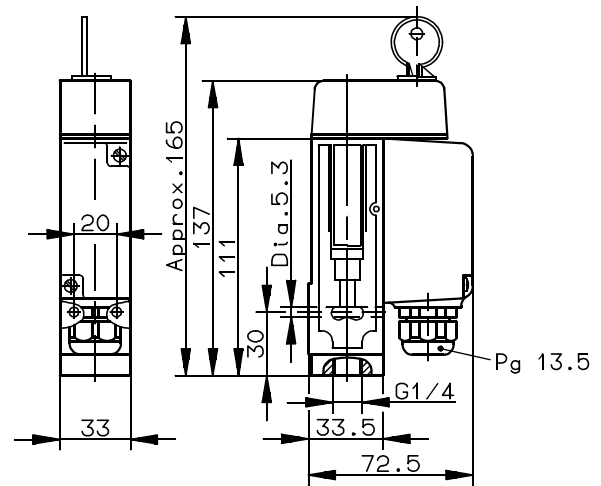


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Dimensional drawings

Lockable design, Cat. No. upon request



Accessories

Connectors (black) with light indicator

3-pin + protective conductor

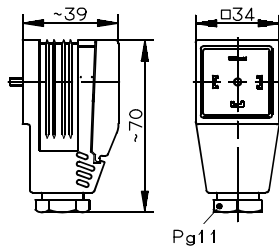
Connection acc. to DIN 43650 A

Optionally available for DC or AC

-with filament lamp 12 to 28 V, Cat. No. **0585418**

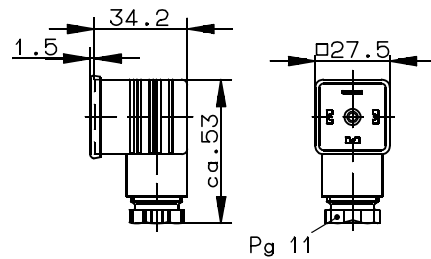
-with glow lamp 90 to 130 V, Cat. No. **0585419**

-with glow lamp 180 to 240 V, Cat. No. **0585420**



3-pin connector (black) with grounded conductor, interface to DIN 43650 A

Cat. No. **0570110**

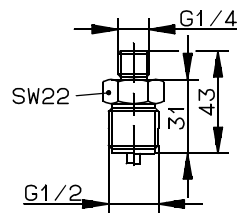


Reducer, G 1/2 to G 1/4 external thread

Cat. No. **0574767**

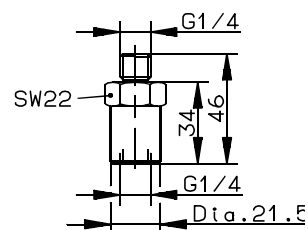
Pressure switch with pilot lamp.

The pilot lamp shows the switching position of the connected pressure switch.



Surge damper G 1/4

Cat. No. **0574773**



*) For contact (4) a special lead (mass pot. or -) is required

Switch selection and mounting instructions

The switching points should normally be in about the middle of the adjustable range.
Do not exceed electrical ratings.

Electrical connection in accordance with local regulations.
For outdoor installation sufficient protection has to be

provided for. Critical conditions are: Aggressiveness of air, high or low temperatures, drastic changes in temperature, solar radiation, penetration of water. For liquid fluids with pressure peaks and/or pulsating pressure, install surge damper upstream to eliminate scattering of switching points and excessive wear.

Setting of switching points

Version with adjustment by screw with hex. recessed hole:

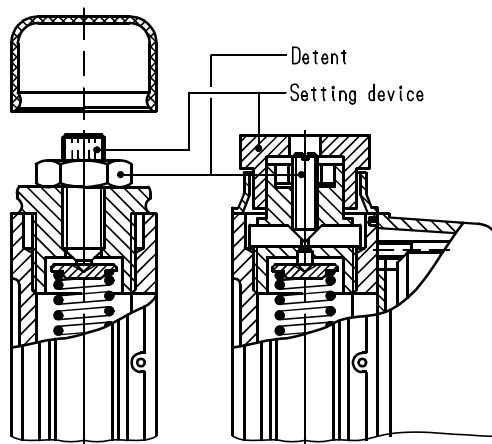
Loosen check nut, then set lower switching point. The upper switch point is determined by the fixed switching pressure difference.

Versions with adjustment by scaled rotary button:

Loosen slot bolt, then set lower switching point. The upper switching point is determined by the fixed switching pressure difference.

Turning the setting device clockwise shifts switching points upwards.

Use pressure gauge for precise setting (a pressure switch – even if provided with a scale – is not a measuring instrument). Switches can be adjusted even during operation. Depending on the design, setting can be arrested by either check nut or slot bolt.



Making and/or breaking capacity

Change-over switch with silver spring contacts

Type of current	Type of load	Voltage [V]			
		24	60	110	220
		Make and break current [A]			
AC	Resistive load	15	15	15	15
AC	Inductive load, $\cos \varphi \approx 0.7$	4	2.5	1.5	0.9
AC	Inductive load, spark quenching with RC-link	6	4	2.5	1.5
DC	Resistive load	2	0.9	0.45	0.2
DC	Inductive load, $L/R \approx 10 \text{ ms}$	1	0.3	0.09	0.02
DC	Inductive load, spark quenching with diode	1.5	0.7	0.35	0.15

Reference number of switchings: 60/min

Reference temperature + 30 °C
(with a reference temperature of + 70 °C, I_{\max} corresponds to 50% of the tabulated values only).

Contact-life appr. 1×10^6 switching cycles at max. current
(at 50% of max. current, contact life is appr. 3 times as long).

Mechanical life appr. 5×10^6 switching cycles.

For non-aggressive atmosphere, which in particular does not contain any sulphur, the following limits are valid:

Microswitch with standard silver contacts:

U_{\min} appr. 8 ... 12 V, I_{\min} appr. 10 mA,
Maximum values acc. to table above

Microswitch with gold-plated contacts:

(optionally available):

V_{\min} and I_{\min} : No lower limit

Recommended upper limit:

V_{\max} appr. 48 V, I_{\max} appr. 20 mA;

(for higher values silver spring contacts are completely sufficient).

Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

Spark quenching (direct current):

1. Diode in parallel to inductive load
Make sure polarity is correct when making connections.

Dimensioning of quenching diode (rectifier):

Rated voltage of diode $V_D \geq 1.4 \times V_{\text{Term}}$.

Rated current of diode $I_{\text{Rated}} \geq I_{\text{Load}}$

Choose quick switching diode
(recovery $t_{\text{rr}} \leq 200 \text{ ns}$)

2. RC-link in parallel to load (or in parallel to switching contact).
Suited for direct and alternating current.

Ratings:

$R [\Omega] \approx 0.2 \times R_{\text{Load}} [\Omega]$

$C [\mu\text{F}] \approx I_{\text{Load}} [\text{A}]$

