Differential Pressure Switches for low Pressure. Series 11DD

Sensor system:
Synthetic diaphragm
For neutral gaseous and liquid fluids

- **High accuracy (deviation < 1%)**
- **Long life**
- **Especially suited for gases**
- **Suited for very low differential pressures**
- **Microswitch with goldplated contacts**

Technical Data

Differential pressure switch for neutral gaseous and liquid fluids

Max. viscosity 1000 mm2/s

Switching element:
Microswitch

Degree of protection:
IP 65

Ambient temperature:
- 10 to + 60 °C

Fluid temperature:
0 to + 60 °C

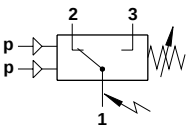
Max. temperature at switching element:
+ 60 °C

Mounting position:
Optional

Vibrations:
Should be avoided (1g max.)

Ordering example

Diff. pressure switch for filtered compressed air, pressure 0.3 bar, Δp 10 mbar.
El. connection DIN 43650
Type: **0823201**



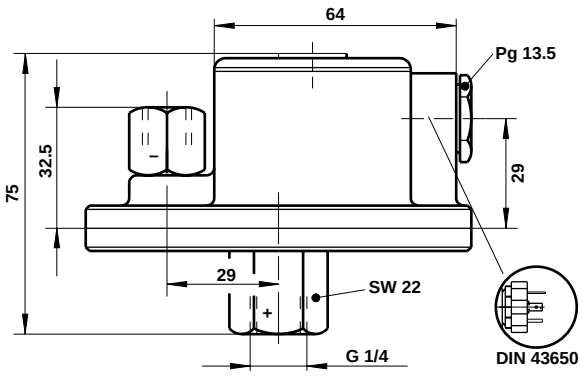
Switching function:
Microswitch SPDT
Terminals 1 – 3: Contacts close on rising pressure,
Terminals 1 – 2: Contacts open on rising pressure

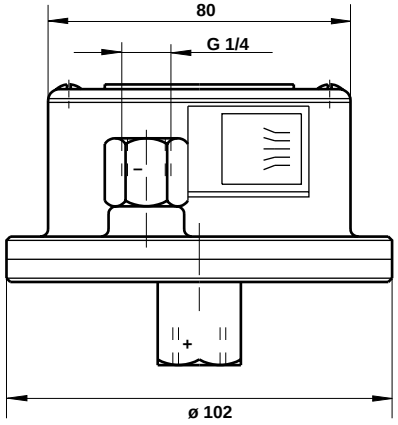
General information – Switching pressure difference not adjustable

Type El. conn. Pg 13.5 (Silver pl. contacts)	Type El. conn. DIN 43650 (Gold pl. contacts)	Working pressure range [2] (bar)	Differential pressure range [1] $p_{vu\ min}$ to $p_{vo\ max}$ (VDI 3283) (bar)	Switching pressure difference (bar) Upper range	Switching pressure difference (bar) Lower range	Max. allowable pressure [3]	Switching cycles per minute	Materials Housing	Materials Diaphragm (NBR)	Process connection (internal thread)	Total weight (kg)	Dimensional drawing No.
0823200[4]	**0823201**[4]	0 to 0.5	0 to 0.02	0.0017	0.002	0.6	10	Al. 3.2582	Perbunan	G 1/4	0.52	01 / 02
0823300[4]	**0823301**[4]	0.002 to 0.5	0.002 to 0.25	0.0015	0.005	0.6	10	Al. 3.2582	Perbunan	G 1/4	0.52	01 / 02

[1] The differential pressure is the pressure difference between both pressure sensing elements under operating conditions.
[2] The working pressure range indicates the required minimum pressure as well as the load on the pressure sensor under operating conditions.
[3] Even short pressure peaks must not exceed this value during actual operation (max. value = max. testing pressure).
[4] Suitable for vibration-free operation only. Electrical rating approx. 30% of the values stated in table.

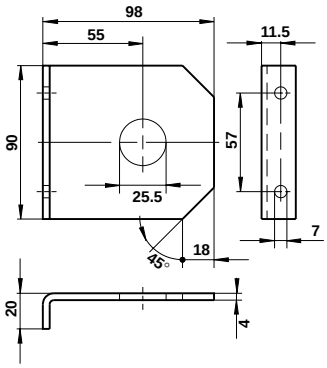
Dimensional drawing 01





Dimensional drawing 02

Accessories



11DD Bracket

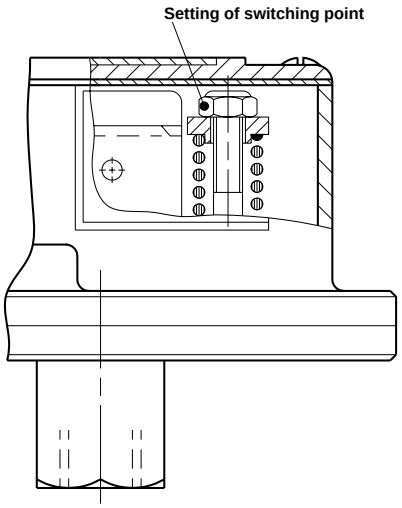
Type **0520554**

Switch selection and mountinginstructions

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

Setting of the switching points

Set upper or lower switching point by means of self-locking hex nut. The opposite one is determined by the fixed switching pressure difference. By turning the setscrew clockwise, the switching points are shifted upwards.To set precise switching points, a pressure gauge is required. (The pressure switch is a switching and regulating device and not a measuring instrument Ä even if it has a scale to assist in the setting). The setting can be changed at any time, even during operation.



Making and/or breaking capacity – Change-over switch with gold-plated contacts

Type of current	Type of load	Voltage Us (V)			
		24	60	110	230
		Make and break current I (A)			
AC	Resistive load	15	15	15	15
AC	Inductive load, cos φ ≈ 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	0.2	–	–	–
DC	Inductive load, L/R ≈ 10 ms	0.1	–	–	–
DC	Inductive load, spark quenching with diode	0.15	–	–	–

Reference number of switchings: 60/min
Reference temperature + 30 °C
(with a reference temperature of + 70 °C, Imax corresponds to 50% of the tabulated values only).

Contact-life approx. 1 x 106 switching cycles at max.current (at 50% of max. current, contact life is approx.3 times as long).

Mechanical life approx. 5 x 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} approx. 8 ... 12 V, I_{min} approx. 10 mA,
Maximum values acc. to table above

Microswitch with gold-plated contacts:
V_{min} and I_{min}: No lower limit.
Recommented upper limit:V_{max} approx. 48 V, I_{max} approx. 20 mA;
Higher values are permissible. In such case, however, silver spring contacts will do.

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 $V_D \geq 1{,}4 \times V_{Term.}$
   Rated current of diode $I_{Rated} \geq I_{Load}$

   Choose quick switching diode (recovery time trr ≤ 200 [ns]).

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

Ratings: R in [Ω] ≈ 0,2 · R_{Loadt} in [W]
C in [µF] ≈ I_{Load} in [A]