



## Mechanical Pressure Switches

for overpressure, vacuum pressure  
and differential pressure



measuring  
•  
monitoring  
•  
analysing



- Switching range:  
-250...+100 mbar,  
1...16 mbar to 16...63 bar
- Temperature:  
max. 70°C
- Material:  
Copper, brass,  
stainless steel, NBR
- Connection: G 1/2, G 1/4



KOBOLD companies worldwide:

ARGENTINA, AUSTRIA, BELGIUM, CANADA, CHILE, CHINA, COLOMBIA,  
CZECHIA, FRANCE, GERMANY, GREAT BRITAIN, INDIA, IRAN, INDONESIA,  
ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, SINGAPORE,  
SLOVAKIA, SPAIN, SWITZERLAND, THAILAND, USA, VENEZUELA, VIETNAM

KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Ts.  
☎ +49(0)6192 299-0  
Fax +49(0)6192 23398  
E-Mail: info.de@kobold.com  
Internet: www.kobold.com

**Model:**  
SCH

## Mechanical Pressure Switches

for overpressure, vacuum pressure and differential pressure



### General Description

#### Mode of operation

The pressure applied in the sensor housing (1) acts on the measuring bellows (2).

Pressure changes lead to movements of the measuring bellows (2) which are transferred through a pressure pin (4) to the switching rocker (5). The switching rocker is supported on hardened pivot points (6).

As the pressure increases the switching rocker (5) moves upwards and operates the micro-switch (7). The spring (8), the initial stress of which can be changed by the setting screw (9) (switching point setting), acts as opposing force. The traveling nut (10) is moved by turning the setpoint spindle, and the initial stress of the spring (8) is changed. The screw (11) serves for the internal adjustment of the microswitch. The counterpressure spring (12) ensures stable switching behaviour, even for low setting values.

#### Pressure sensors

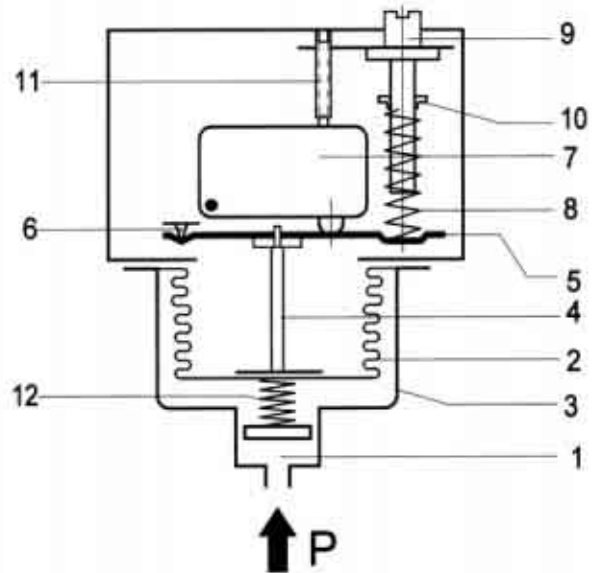
With few exceptions in the low pressure range, all pressure sensors are equipped with measuring bellows, partly made of a copper alloy but mostly in high stainless steel quality (1.4571). In comparison with the permissible values, the measuring bellows are subject to low loads and move only slightly. This results in long service life with low switching point drift and high overpressure safety. The movement of the measuring bellows is also restricted by an international stop so that the forces resulting from the overpressure cannot be transmitted to the switching mechanism.

The parts of the sensor in contact with the medium are welded together without additional materials and the sensors contain no seals. Cu bellows which are used for low pressure ranges are soldered to the sensor housing. The sensor housing and all parts in the unit in contact with the medium can also be manufactured completely in stainless steel 1.4571 (series DNS). The individual data sheets contain exact data on materials.

#### Pressure connection

The pressure connection is designed in accordance with DIN 16288 for all pressure switches (pressure gauge connection G 1/2 A). They can also be connected optionally to the internal thread G 1/4 in accordance with ISO 228 Part 1. The centering pin must then be removed. Max. screw-down depth on the internal thread G 1/4 = 9 mm. When connected to the external thread G 1/2 with seal in the thread (i. e. without the sealing washer customary in the pressure gauge connection), the centering pin must be removed. Differential pressure switches have two pressure connections (max. and min.) and must be connected to one internal thread G 1/4 each.

### Design




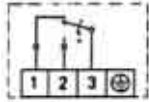
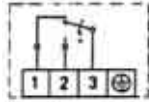
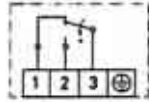


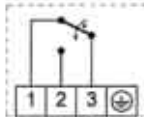
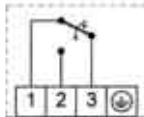
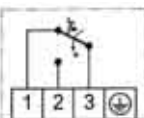
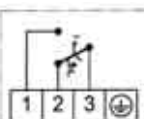
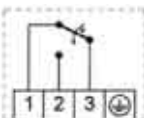
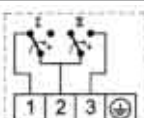
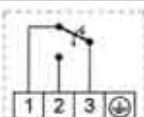
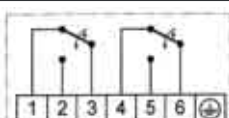
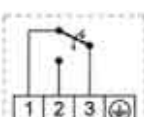
- 1 = pressure connection
- 2 = measuring bellows
- 3 = sensor housing
- 4 = pressure pin
- 5 = switching rocker
- 6 = pivot points
- 7 = microswitch or other switching elements
- 8 = setpoint spring
- 9 = setting spindle (switching point setting)
- 10 = traveling nut (switching point indicator)
- 11 = adjusting screw for microswitch
- 12 = counterpressure spring



**Technical Data**

Valid for all pressure switches with microswitches of the DCM, VCM, DNM, DNS, DDC series.  
The technical data of the component tested units deviate partly slightly.  
(Please refer to type sheet)

<b>Version</b>	<p><b>Normal version</b> Plug connection</p> 	<p>Terminal connection</p> 	<p><b>Ex-version</b></p> 
<b>Switch housing</b>	Aluminium diecast GD Al Si 12		Aluminium diecast GD Al Si 12
<b>Pressure connection</b>	G 1/2 external thread (pressure gauge connection) and G 1/4 internal thread. Internal thread G 1/4 at differential pressure switches DDCM.		
<b>Switching function and connection drawing</b>	<p>(only for version with microswitch). Floating change-over contact. With rising pressure switching over single-pole from 3-1 to 3-2.</p>   		
<b>Switch capacity</b> (applies only for version with microswitch)	<p>8 A at 250 V<sub>AC</sub> 5 A at 250 V<sub>AC</sub> inductive 8 A at 24 V<sub>DC</sub> 0.3 A at 250 V<sub>DC</sub></p>	<p>8 A at 250 V<sub>AC</sub> 5 A at 250 V<sub>AC</sub> inductive 8 A at 24 V<sub>DC</sub> 0.3 A at 250 V<sub>DC</sub></p>	<p>3 A at 250 V<sub>AC</sub> 2 A at 250 V<sub>AC</sub> inductive 3 A at 24 V<sub>DC</sub> 0.03 A at 250 V<sub>DC</sub></p>
<b>Installation position</b>	Arbitrary preferably vertical. See data sheet		Vertical
<b>Protection</b> (in vertical position)	IP 54	IP 65	IP 65
<b>Ex degree of protection</b>	-		Ex II2GD EEx de IICT6 IP65 T80°C
<b>PTB-approval</b>	-		PTB 04 ATEX 1067
<b>Electrical connection</b>	Plug connection or terminal connection		Terminal plug
<b>Cable entry</b>	Pg 11	M 16 × 1.5	M 16 × 1.5
<b>Ambient temperature</b>	See data sheets		-15 to +60 °C
<b>Switch point</b>	Adjustable on the spindle. In switching mechanism 300 the terminal box lid must be removed.		Adjustable on the spindle after the terminal box is removed.
<b>Switching difference</b>	Adjustable or not adjustable (see type overview)		Not adjustable
<b>Medium temperature</b>	<p>Max. 70 °C, temporary 85 °C Higher medium temperatures are possible if the limit values mentioned above at the switching mechanism are ensured by suitable measures (e.g. siphon).</p>		Max. 60 °C
<b>Vacuum</b>	All pressure switches can operate under vacuum, the device is not damaged by this.		
<b>Repeat accuracy of the switching points</b>	< 1 % of the working range (for pressure ranges > 1 bar)		
<b>Vibration strength</b>	Up to 4 g no noteworthy deviations.		
<b>Mechanical life</b>	With sinusoidal pressure application and room temperature, 10 x 10 <sup>6</sup> switching cycles. The expected life depends strongly upon the type of pressure application, therefore this figure can serve only as rough estimate. With pulsating pressure or pressure impacts in hydraulic systems, pressure surge reduction is recommended.		
<b>Isolation values</b>	Overvoltage category III, contamination class 3, reference surge voltage 4000 V. The conformity to DIN VDE 0110 (01.89) is approved.		
<b>Oil and grease-free</b>	The parts of all pressure switches in contact with the medium are also available in oil and grease-free version. The sensors are hermetically encapsulated, they contain no seals.		

Option	Description	Connection diagram	Explanation
	<b>Normal version</b> microswitch, single pole switching over, switching differential not adjustable		all pressure switches
203	<b>Hysteresis adjustable</b>		DWR, DGM
205	<b>Maximum limiter</b> with manual reset device. Interlocking with increasing pressure.		DCM-025...DCM-63, DNM, VCM-301...VCM-095, VNM, DDCM, VNS, DNS, DWR, DGM
206	<b>Minimum limiter</b> with manual reset device. Interlocking with falling pressure.		DCM-025...DCM-63, DNM, VCM-301...VCM-095, VNM, DDCM, VNS, DNS, DWR, DGM
213	<b>Gilded contacts</b> Hysteresis not adjustable  <b>Switching capacity</b> max. 60 V <sub>DC</sub> , 50 mA max. 24 V <sub>DC</sub> , 100 mA / 12 V <sub>DC</sub> , 250 mA min. 5 V <sub>DC</sub> , 2 mA		DCM, DNM, VCM, VNM, DDCM, VNS, DNS, DWAM, DWR, DGM
217	<b>Two microswitches</b> switching in succession, 1 plug adjustable switching interval. (Specify switch diagram).		DCM-025...DCM-63, DNM, VCM-301...VCM-095, VNM, (DDCM), VNS, DNS
301	<b>Terminal connection instead of plug connection</b> Protection IP 65		DCM, DNM, VCM, VNM, DDCM, VNS, DNS, DWAM, DWR, DGM
307	<b>Two microswitches</b> switching in parallel or in succession. Fixed switching interval. Terminal connection case		DCM-025...DCM-63, DNM, VCM-301...VCM-095, VNM, (DDCM), VNS, DNS
970	<b>1 Switch point fixed</b>		DCM, EX-DCM, DNM, EX-DNM, VCM, VNM, DDCM, VNS, EX- VNS, DNS, EX-DNS, DWAM, SDBAM, DWR, EX-DWR, DGM, HCD, DPS
972	<b>Switch point and Hysteresis fixed</b>		DCMV, VCMV, VNMV, DWAMV

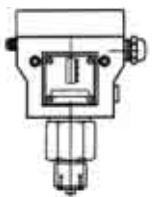


Switch diagram  
Option 17

		Microswitch I (lower switch point)			
		A descending, closing	B rising, closing	C descending, opening	D rising, opening
Microswitch II (upper switch point)	1 descending, closing	A1	B1	C1	D1
	2 rising, closing	A2	B2	C2	D2
	3 descending, opening	A3	B3	C3	D3
	4 rising, opening	A4	B4	C4	D4



Pressure switches with special equipment can also be used in the Ex area **Zone 1**.



The following alternatives are possible:

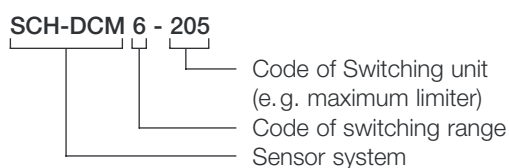
**Pressure switch with pressure-proof encapsulated switching device, degree of protection  $\text{Ex}$  II2GD EEx de IIC T6 IP65 T80°C.**

The pressure switch in pressure-proof encapsulation can be used directly in the Ex area ( $\geq$  Zone 1). Maximum switching voltage, switching capacity and ambient temperature must be taken into account and the rules for the installation in the Ex area must be observed.

All pressure switches can be equipped with Ex switching mechanisms.

Special circuits as well as versions with adjustable switching differences are not possible.

**Order Example**



**Order specification:**

Pressure switch  
**SCH-DCM 6-205**

**VdTÜV**  
Pressure 100/1

**DVGW**  
DIN 3398 T.1 and 3

**TÜV**  
DIN 3398 T.4

**TÜV**  
Pressure 100/1 + DIN 3398 T.4

**Ex II2GD EEx de IIC T6 IP65 T80°C**  
(pressure proof encapsulated)

**Steam and hot water**

Pressure monitors and pressure limiters for steam and hot water in systems to DIN DIN 4751 T2 and TRD 604. Series DWAM, DWAMV, SDBAM, TWR

**Fuel gases CE**

Pressure monitors and limiters for fuel gases in accordance with DVGW Worksheet G-260. Series DGM and DWR.

**Liquid fuels**

Pressure monitors and pressure limiters for liquid fuels (heating oil). Serie DWR.

**Pressure limiters in safety engineering**

For safety-relevant pressure monitoring in liquid gas systems, chemical and processing engineering systems.

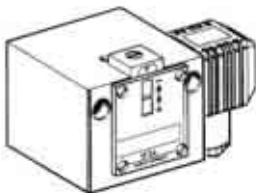
**Ex-versions**

For Ex areas  $\geq$  Zone 1, all pressure switches can be delivered in pressure-proof encapsulated design (Ex degree of protection de). PTB approval: PTB 04 ATEX 1067

**Switch housing with switching mechanisms**

The switch housings consist of high quality and seawater-resistant aluminium diecastings. Three versions are available:

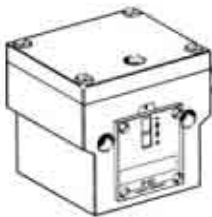
**IP 54**



**Housing (normal version )**

Plug connections to DIN 43650;  
Degree of protection IP 54;  
Setpoint setting accessible from the outside.

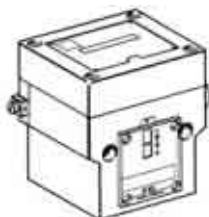
**IP 65**



**Terminal connection**

With terminal connection box;  
Degree of protection IP 65;  
Setpoint setting and terminal connections accessible only after removal of the terminal box lid.

**IP 65**



**Ex-Housing (EEx d-version)**

All pressure and differential pressure switches can be equipped with these switch housings and are thus approved for EX  $\geq$  1. Degree of protection IP 65; Ex degree of protection EEx de IIC T6.

In limiter functions it is frequently necessary to retain and lock the shutdown status and to release the lock and switch on the system again only after the causes that led to the safety shutdown have been eliminated.

There are two possibilities for this:

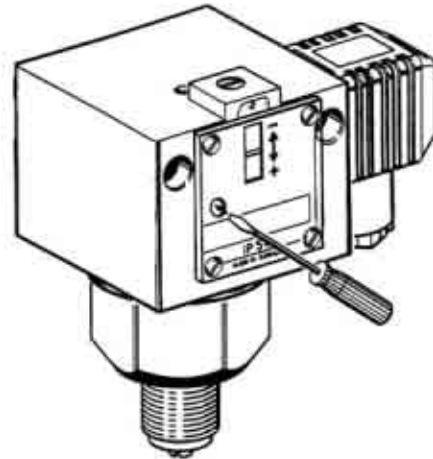
**1. Mechanical lock inside the pressure switch**

A "bistable" microswitch is built into the limiters instead of the microswitch with automatic reset.

When the value set on the scale is reached, the microswitch switches over and remains in this position. The lock must be released by pressing the unlocking button (marked by a red dot on the scale side of the switching device). According to version, the lock can be effective with rising or falling value. Unlocking can take place only if the pressure has dropped by a certain amount or, in the case of locking, has risen back to the lower switching point.

When the pressure limiter is selected, a distinction must be made between maximum pressure and minimum pressure monitoring.

Ex-versions cannot be delivered with internal locking.

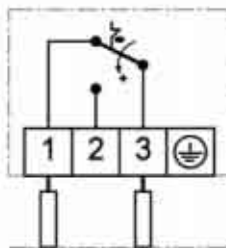


**1.1 Maximum pressure limitation**

Switching over and locking with rising pressure.

Option: 205

Connection to terminal 1 and 3.

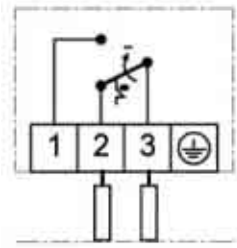


**1.2 Minimum pressure limitation**

Switching over and locking with falling pressure.

Option: 206

Connection to terminal 2 and 3.

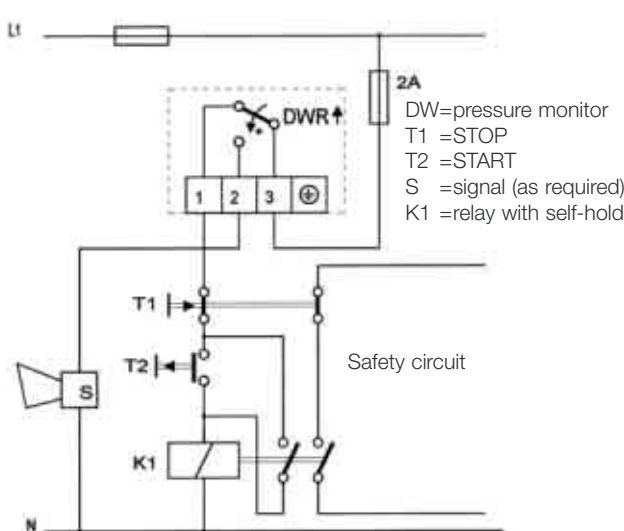


**2. External electrical interlock in the switchgear cabinet (Schaltungsvorschläge)**

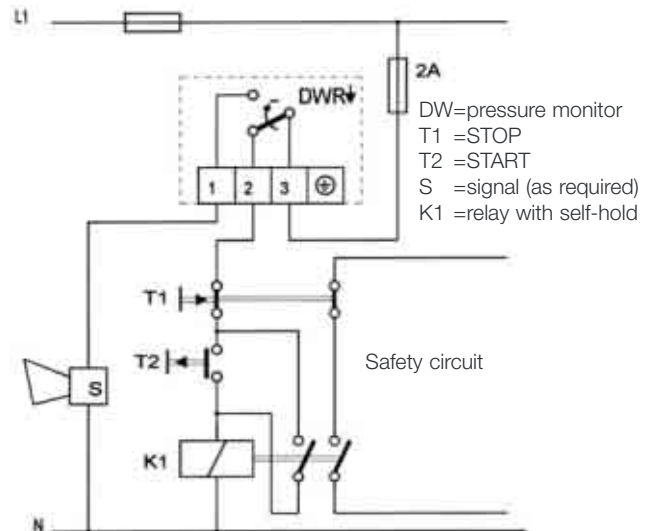
A pressure monitor (microswitch with automatic reset) can also be used as limiter if an electrical interlock is connected in series.

In pressure limitation in steam and hot water boilers, the external interlock is only permissible if it is ensured that the pressure monitor is of "special construction".

**2.1 Maximum pressure limitation with external interlock**



**2.2 Minimum pressure limitation with external interlock**



When the interlock circuit shown above is used, the requirements in accordance with DIN 57 116/VDE 0116 are fulfilled if the electrical

equipment such as contactors or relays of the external interlock circuit correspond to VDE 0660 or VDE 0435 respectively.

## Pressure Switches and Pressure Monitors

for overpressure for non aggressive liquid and gaseous media model SCH-DCM



### Technical Data

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Protection: IP 54, with vertical fitting position

Pressure sensing element:

DCM 3...DCM 63  
metal bellows: 1.4571  
sensor casing: 1.4104  
DCM 025-DCM 1  
diaphragm: Cu  
sensor casing: Cu + Ms  
DCM 4016/DCM 4025  
diaphragm: NBR  
sensor casing: 1.4301  
DCM 1000  
membrane: NBR  
sensor casing: Ms

Fitting position: vertically upwards and horizontal  
DCM 4016 and 4025 vertically upwards

Max. ambient temperature at the switch unit:

-25...+70°C  
exception: DCM 4016  
DCM 1000: -15...+60°C  
EEx-de-versions: -15...60°C

Max. temperature of the medium:

The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85°C are allowable for short periods (not EEx-de).  
Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e. g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws

Switching pressure: adjustable externally by means of screw-driver

Switching differential: not adjustable in the case of DCM and Ex-DCM  
externally adjustable in the case of DCMV  
for values see summary of types

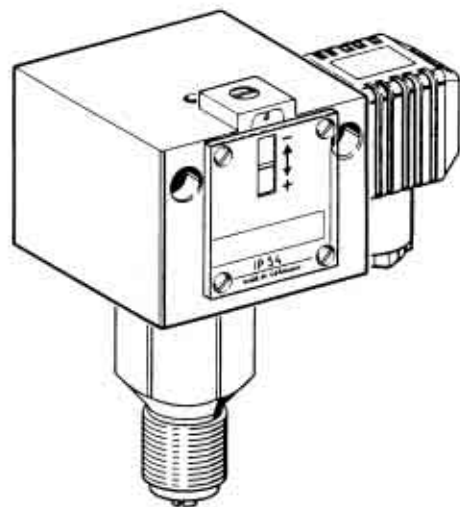
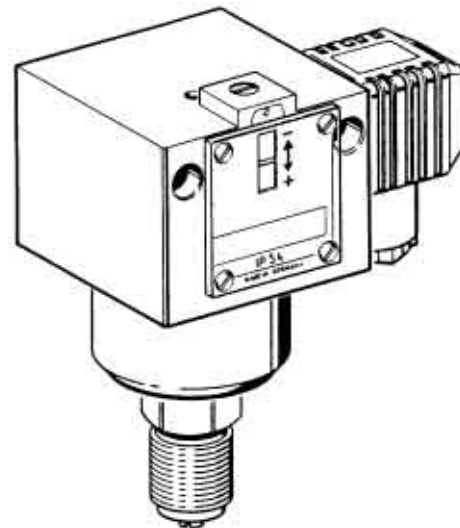
Methods of sealing: as required (may also be carried out after mounting)

Adjustment: Scale value corresponds to the lower switching point, the upper switching point is higher by the switching differential.

Contact agreement: single-pole change-over switch

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A
EEx-de	3 A	2 A	0.03 A	3 A







Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Material	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	----------	---------------------

**Switching difference not adjustable**

<b>SCH-DCM 4016</b>	1 - 16 mbar	2 mbar	1 bar	NBR	1 + 11
<b>SCH-DCM 4025</b>	4 - 25 mbar	2 mbar	1 bar	NBR	1 + 11
<b>SCH-DCM 1000</b>	10 - 100 mbar	12 mbar	10 bar	NBR	-
<b>SCH-DCM 025</b>	0.04 - 0.25 bar	0.03 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCM 06</b>	0.1 - 0.6 bar	0.04 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCM 1</b>	0.2 - 1.6 bar	0.04 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCM 3</b>	0.2 - 2.5 bar	0.1 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 6</b>	0.5 - 6 bar	0.15 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 625</b>	0.5 - 6 bar	0,25 bar	25 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 10</b>	1 - 10 bar	0.3 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 16</b>	3 - 16 bar	0.5 bar	25 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 25</b>	4 - 25 bar	1 bar	60 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 40</b>	10 - 40 bar	1.3 bar	60 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCM 63</b>	16 - 63 bar	2 bar	130 bar	1.4104 + 1.4571	1 + 15

**Switching difference adjustable**

<b>SCH-DCMV 025</b>	0.04 - 0.25 bar	0.03 - 0.04 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCMV 06</b>	0.1 - 0.6 bar	0.04 - 0.5 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCMV 1</b>	0.2 - 1.6 bar	0.07 - 0.55 bar	6 bar	Cu + Ms	1 + 14
<b>SCH-DCMV 3</b>	0.2 - 2.5 bar	0.15 - 1.5 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 6</b>	0.5 - 6 bar	0.25 - 2.0 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 10</b>	1 - 10 bar	0.5 - 2.8 bar	16 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 16</b>	3 - 16 bar	0.7 - 3.5 bar	25 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 25</b>	4 - 25 bar	1.5 - 6.0 bar	60 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 40</b>	10 - 40 bar	2.0 - 6.6 bar	60 bar	1.4104 + 1.4571	1 + 15
<b>SCH-DCMV 63</b>	16 - 63 bar	3.0 - 10 bar	130 bar	1.4104 + 1.4571	1 + 15

For smaller pressure ranges see also VCM, DGM, HCD and DPS data sheets.

Options see data sheet switch units/optional function/connection diagrams.

**Ex II2GD EEx de IIC T6 IP65 T80°C**

<b>SCH-Ex-DCM 4016</b>	1 - 16 mbar	2 mbar	1 bar	NBR	3 + 11
<b>SCH-Ex-DCM 4025</b>	4 - 25 mbar	2 mbar	1 bar	NBR	3 + 11

**Order specification**

Pressure switch with plug connection, housing of aluminium die casting

adjustment range from ... to ... bar / mbar

Switching differential adjustable / none adjustable

Model...



**Technical Data**

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Protection: IP 54, with vertical fitting position  
IP 65, with EEx-de-version

Pressure sensing element: sensor casing: 1.4104  
pressure bellows: 1.4571

Fitting position: vertically upwards and horizontal

Max. ambient temperature at the switch unit: -25...+70°C  
EEx-de-versions: -15...60°C

Max. temperature of the medium: The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85°C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws

Switching pressure: adjustable externally by means of screw-driver

Switching differential: not adjustable in the case of DNM and Model Ex-DNM

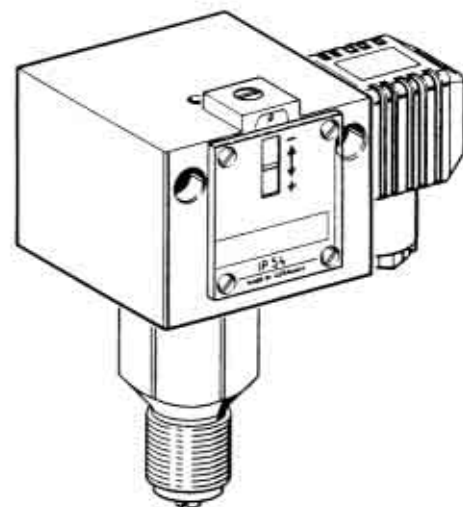
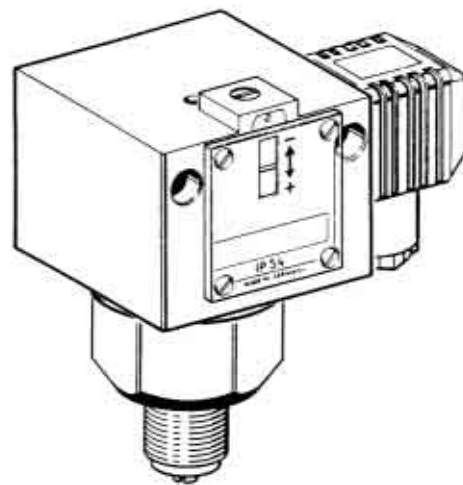
Methods of sealing: as required (may also be carried out after mounting)

Adjustment: Scale value corresponds to the lower switching point, the upper switching point is higher by the switching differential.

Contact agreement: single-pole change-over switch

All parts of the SCH-DNM series of pressure switches which come into contact with the medium are made of stainless steel. The pressure sensor is welded by the most up-to-date method without added material.

The aluminium switch housing has a high resistance to the corrosive effects of the ambient atmosphere.



	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A
EEx-de	3 A	2 A	0.03 A	3 A



Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	---------------------

**Switching difference not adjustable**

<b>SCH-DNM 025</b>	0.04-0.25 bar	0.03 bar	6 bar	1 + 16
<b>SCH-DNM 6</b>	0.5-6 bar	0.15 bar	16 bar	1 + 15
<b>SCH-DNM 10</b>	1-10 bar	0.3 bar	16 bar	1 + 15
<b>SCH-DNM 16</b>	3-16 bar	0.5 bar	25 bar	1 + 15

**Switching difference adjustable**

**II2GD EEx de IIC T6 IP65 T80°C**

<b>SCH-Ex-DNM 025</b>	0.04-0.25 bar	30 mbar	6 bar	3 + 16
<b>SCH-Ex-DNM 06</b>	0.1-0.6 bar	25 mbar	6 bar	3 + 16
<b>SCH-Ex-DNM 1</b>	0.2-1.6 bar	30 mbar	6 bar	3 + 16
<b>SCH-Ex-DNM 3</b>	0.2-2.5 bar	60 mbar	16 bar	3 + 15
<b>SCH-Ex-DNM 6</b>	0.5-6.0 bar	0.10 bar	16 bar	3 + 15
<b>SCH-Ex-DNM 625</b>	0.5-6.0 bar	0.20 bar	25 bar	3 + 15
<b>SCH-Ex-DNM 10</b>	1-10 bar	0.3 bar	25 bar	3 + 15
<b>SCH-Ex-DNM 16</b>	3-16 bar	0.2 bar	25 bar	3 + 15
<b>SCH-Ex-DNM 25</b>	4-25 bar	0.5 bar	60 bar	3 + 15
<b>SCH-Ex-DNM 40</b>	10-40 bar	0.7 bar	60 bar	3 + 15
<b>SCH-Ex-DNM 63</b>	16-63 bar	1.0 bar	130 bar	3 + 15

Options see data sheet switch units/optional function/connection diagrams.

**Technical Data**

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Protection: IP 54, with vertical fitting position

Pressure sensing element:  
 VNM111 and VNM301  
 metal bellows: 1.4571  
 sensor casing: 1.4104  
 VCM095, 101 and 301:  
 metal bellows: Cu Zn  
 sensor casing: CuZn  
 VCM4156  
 diaphragm: NBR  
 sensor casing: 1.4301

Fitting position: vertically upwards and horizontal  
 VCM 4156 vertically upwards

Max. ambient temp. at the switch unit: -25...+70°C

Max. temperature of the medium: The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85°C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: Directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws.

Switching pressure: adjustable externally by means of screw-driver

Switching differential: not adjustable in the case of model VCM and model VNM externally adjustable in the case of model VCMV for values see summary of types

Methods of sealing: as required (may also be carried out after mounting)

Adjustment: Scale value corresponds to the lower switching point, the upper switching point is higher by the switching differential.

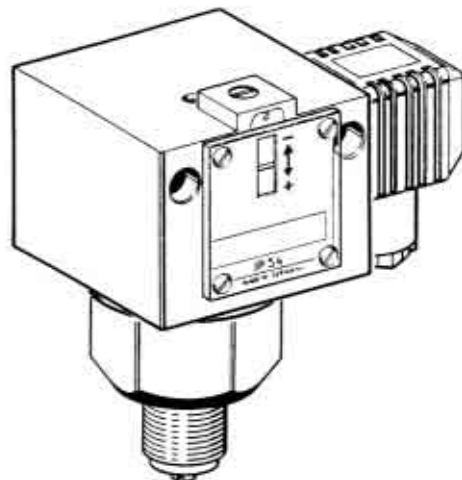
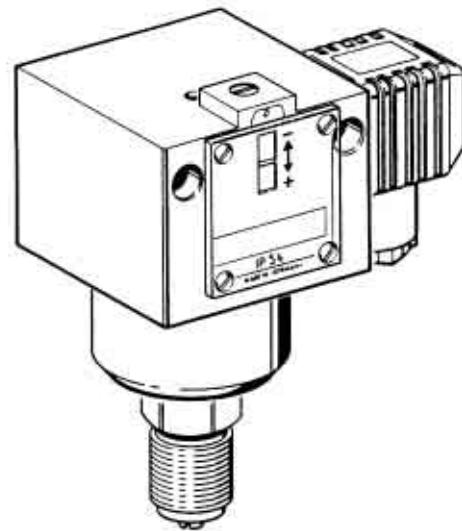
Contact agreement: single-pole change-over switch

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A

The Negative Pressure Switches detect the pressure difference relative to the atmospheric pressure. All data on switching pressure ranges and therefore also the scala divisions on the switch units are to be understood at the difference in pressure between the atmospheric pressure at any one time and the set switching pressure.

The "zero" reference point on the scale of the unit corresponds to the atmospheric pressure at the time. The minus sign »-« by the indicated pressure stand for under-pressure below the respective atmospheric pressure.





Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	---------------------

**Switching difference not adjustable**

<b>SCH-VCM 4156</b>	-15 - +6 mbar	2 mbar	1 bar	1 + 11
<b>SCH-VCM 301</b>	-250 - +100 mbar	25 mbar	1.5 bar	1 + 13
<b>SCH-VNM 301</b>	-250 - +100 mbar	45 mbar	3 bar	1 + 16
<b>SCH-VCM 101</b>	-1* - +0.1 bar	45 mbar	3 bar	1 + 14
<b>SCH-VCM 095</b>	-0.9 - +0.5 bar	50 mbar	3 bar	1 + 14
<b>SCH-VNM 111</b>	-1* - +0.1 bar	50 mbar	6 bar	1 + 16

**Switching difference adjustable**

<b>SCH-VCMV 301</b>	-250 - +100 mbar	30 - 200 mbar	1.5 bar	1 + 13
<b>SCH-VNMV 301</b>	-250 - +100 mbar	70 - 500 mbar	3 bar	1 + 16
<b>SCH-VCMV 101</b>	-1* - +0.1 bar	80 - 350 mbar	3 bar	1 + 14
<b>SCH-VCMV 095</b>	-0.9 - +0.5 bar	90 - 400 mbar	3 bar	1 + 14
<b>SCH-VNMV 111</b>	-1* - +0.1 bar	90 - 650 mbar	6 bar	1 + 16

\* In the case of very high vacuum, close to the negative pressure of -1 bar which is only theoretically possible, the switch can be adjusted only with reservations on account of the special conditions of vacuum technology. The pressure switch itself however, will not be damaged at maximum negative pressure.

Options see data sheet switch units/optional function/connection diagrams.  
For small pressure ranges see HCD data sheet.

**Technical Data**

Pressure connection: external thread G 1/4

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Protection: IP54, with vertical fitting position

Pressure sensing element: DDCM 1-16:  
pressure bellows: 1.4571  
sensor casing: 1.4305  
DDCM 252-600:  
diaphragm: NBR  
sensor casing: aluminium

Fitting position: optional,  
preferably vertically upwards

Max. ambient temperature at the switch unit: -25...+70°C

Max. temperature of the medium: The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85°C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws  
S (-) = lower pressure  
P (+) = higher pressure

Switching pressure: adjustable externally by means of screw-driver

Switching differential: not adjustable,  
for values see summary of types

Methods of sealing: as required (may also be carried out after mounting)

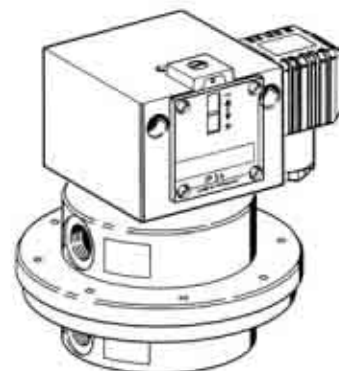
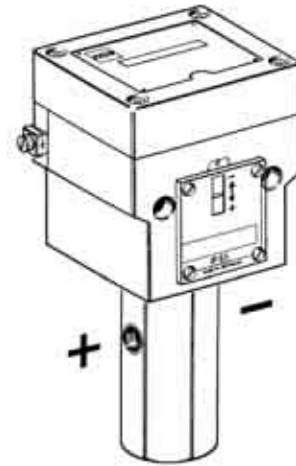
Adjustment: Scale value corresponds to the lower switching point, the upper switching point is higher by the switching differential.

Scale: types 252-6002 without graduation,  
adjustment with a pressure gauge

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A

The SCH-DDCM differential pressure monitors are suitable for monitoring and controlling differential pressures, flow monitoring and automatic checking of filter plants. A double chamber system with stainless steel bellows resp. NBR diaphragm accurately detects the difference between the two applied pressures. The differential pressure to be monitored is infinitely adjustable within the ranges mentioned in the summary of types. The settings relate to the lower switching point (in the case of falling differential pressure); the upper switching point (in the case of rising differential pressure) is the value of the switching differential higher. All differential pressure control switches can also be used in the negative pressure area. Every pressure switch has two pressure connections.



Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	---------------------

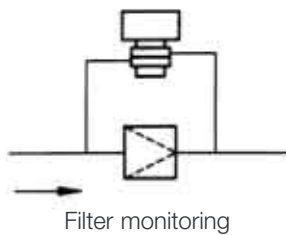
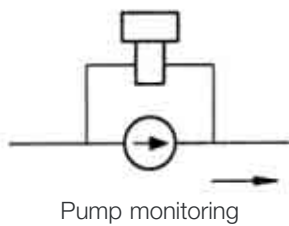
Switching difference not adjustable

<b>SCH-DDCM 252*</b>	4 - 25 mbar	2 mbar	0.5 bar	1 + 17
<b>SCH-DDCM 662*</b>	10 - 60 mbar	15 mbar	1.5 bar	1 + 17
<b>SCH-DDCM 1602</b>	20 - 160 mbar	20 mbar	3 bar	1 + 17
<b>SCH-DDCM 6002</b>	100 - 600 mbar	35 mbar	3 bar	1 + 17
<b>SCH-DDCM 1</b>	0.2 - 1.6 bar	0.13 bar	15 bar	1 + 18
<b>SCH-DDCM 6</b>	0.5 - 6 bar	0.2 bar	15 bar	1 + 18
<b>SCH-DDCM 16</b>	3 - 16 bar	0.6 bar	25 bar	1 + 18

Options see data sheet switch units/optional function/connection diagrams.  
For small pressure ranges see HCD data sheet.

\*Without graduation, only +/- scale

Example for Application



Order specification

Differential pressure monitor with plug connection, casing of die-cast aluminium  
Sensor casing of stainless steel / aluminium  
Range of adjustment ...to ...bar / mbar  
Model ...

**Technical Data**

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Protection: IP54, with vertical fitting position IP65, with EEx-de-version

Pressure sensing element: pressure bellow, and all parts connected to media: X 6 Cr Ni Mo Ti 17 122 material No. 1.4571

Fitting position: vertically upwards and horizontal

Max. ambient temperature at the switch unit: -25...+70°C  
EEx-de-version: -15...+60°C

Max. temperature of the medium: The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85 °C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws

Switching differential: for values see summary of types

Methods of sealing: as required (may also be carried out after mounting)

Adjustment: Scale value corresponds to the lower switching point, the upper switching point is higher by the switching differential.

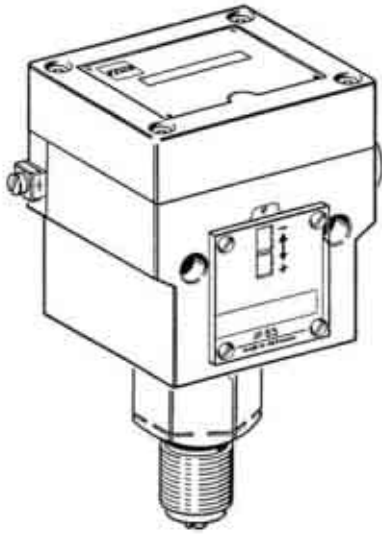
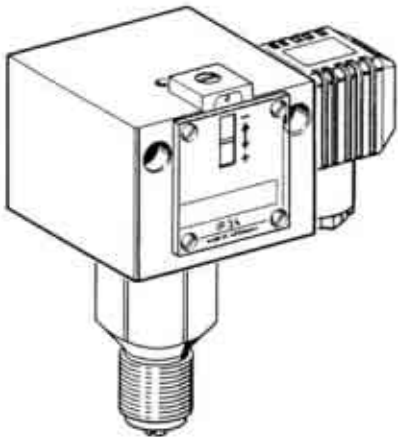
Contact agreement: single-pole change-over switch

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A
EEx-de	3 A	2 A	0.03 A	3 A

Plastic coating: The die-cast aluminum housing is chromed and coated with chemical resistant plastic. This coating was tested for 20 days with a 3% NaCl solution. During this test, the temperature was changed 30 times between +10 to 80°C. The quality of the coating was not changed during this test.

The pressure switches of series DNS are suitable for monitoring and controlling pressures in devices of the chemical industry and in the process engineering as well as wherever the pressure of aggressive liquids and gases has to be monitored. All component parts of the sensor system are made of stainless steel (1.4571) and are welded by using the latest techniques without additional materials. The pressure sensor is hermetically encapsulated and does not contain any seal material.







Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	---------------------

**Switching difference not adjustable**

<b>SCH-VNS 301-201</b>	-250 to +100 mbar	45 mbar	3 bar	1 + 16
<b>SCH-VNS 111-201</b>	-1* to + 0.1 bar	50 mbar	6 bar	1 + 16
<b>SCH-DNS 025-201</b>	0.04 - 0.25 bar	30 mbar	6 bar	1 + 16
<b>SCH-DNS 06-201</b>	0.1- 0.6 bar	40 mbar	6 bar	1 + 16
<b>SCH-DNS 1-201</b>	0.2 - 1.6 bar	60 mbar	6 bar	1 + 16
<b>SCH-DNS 3-201</b>	0.2 - 2.5 bar	0.1 bar	16 bar	1 + 15
<b>SCH-DNS 6-201</b>	0.5 - 6 bar	0.15 bar	16 bar	1 + 15
<b>SCH-DNS 10-201</b>	1 - 10 bar	0.3 bar	16 bar	1 + 15
<b>SCH-DNS 16-201</b>	3 - 16 bar	0.5 bar	25 bar	1 + 15

**Housing with surface protection**

<b>SCH-VNS 301-351</b>	-250 to +100 mbar	45 mbar	3 bar	2 + 16
<b>SCH-VNS 111-351</b>	-1* to + 0.1 bar	50 mbar	6 bar	2 + 16
<b>SCH-DNS 025-351</b>	0.04 - 0.25 bar	30 mbar	6 bar	2 + 16
<b>SCH-DNS 06-351</b>	0.1 - 0.6 bar	40 mbar	6 bar	2 + 16
<b>SCH-DNS 1-351</b>	0.2 - 1.6 bar	60 mbar	6 bar	2 + 16
<b>SCH-DNS 3-351</b>	0.2 - 2.5 bar	0.1 bar	16 bar	2 + 15
<b>SCH-DNS 6-351</b>	0.5 - 6 bar	0.15 bar	16 bar	2 + 15
<b>SCH-DNS 10-351</b>	1 - 10 bar	0.3 bar	16 bar	2 + 15
<b>SCH-DNS 16-351</b>	3 - 16 bar	0.5 bar	25 bar	2 + 15

**Ex II2GD EEx de IIC T6 IP65 T80°C**

<b>SCH-Ex-VNS 301</b>	-250 to +100 mbar	45 mbar	3 bar	3 + 16
<b>SCH-Ex-VNS 111</b>	-1* to + 0.1 bar	50 mbar	6 bar	3 + 16
<b>SCH-Ex-DNS 025</b>	0.04 - 0.25 bar	30 mbar	6 bar	3 + 16
<b>SCH-Ex-DNS 06</b>	0.1 - 0.6 bar	40 mbar	6 bar	3 + 16
<b>SCH-Ex-DNS 1</b>	0.2 - 1.6 bar	60 mbar	6 bar	3 + 16
<b>SCH-Ex-DNS 3</b>	0.2 - 2.5 bar	0.1 bar	16 bar	3 + 15
<b>SCH-Ex-DNS 6</b>	0.5 - 6 bar	0.15 bar	16 bar	3 + 15
<b>SCH-Ex-DNS 10</b>	1 - 10 bar	0.3 bar	16 bar	3 + 15
<b>SCH-Ex-DNS 16</b>	3 - 16 bar	0.5 bar	25 bar	3 + 15

Options see data sheet switch units/optional function/connection diagrams

\* In the case of very high vacuum, close to the negative pressure of -1 bar which is only theoretically possible, the switch can be adjusted only with reservations on account of the special conditions of vacuum technology. The pressure switch itself however, will not be damaged at maximum negative pressure.



**Technical Data**

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1

Switching device: rugged housing of seawater resistant aluminium die casting GD Al Si 12

Pressure sensing element: pressure bellows: material No. 1.4571  
 sensor casing: material No. 1.4104  
 switching casing: GD-Al Si 12 acc. to DIN 1725

Fitting position: vertically upwards and horizontal  
 Ex-versions: only vertically

Max. ambient temp. at the switch unit: -20 to +70 °C

Max. temperature of the medium: -20 to +70 °C  
 The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85 °C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws

Adjustment in the case of max. pressure switches: The pressure monitors and the safety pressure limiting devices are adjusted in such a way that with increasing pressure the change-over takes place at the set switching pressure. Switching back when pressure falls, occurs at a pressure which is lower by the amount of the switching differential or, in the case of pressure limiting devices and safety limiting devices, by the falls in pressure specified in the table. The scale value corresponds to the upper switching point.

Switching differential: for values see summary of types

Contact agreement: single-pole change-over switch

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A

Sealing: generally available for safety pressure limiting devices SDBAM for pressure monitor switches upon request (may also be carried out after mounting)

Bursting pressure: for all types ≥ 100 bar verified by TÜV test

<b>Component tested for</b>	<b>Steam</b> Systems acc. to TRD 604 <b>Hot water</b> Systems acc. to DIN 4751, T.2
<b>Testing basis</b>	VdTÜV-Memorandum Pressure 100/1 <b>TÜV</b> GEPRÜFT
<b>Registration No.</b>	TÜV.DW.99-132/133 TÜV.SDB.99-134
<b>Function</b>	Pressure monitor / Pressure limiter
<b>Direction of action</b>	For max. pressure monitoring
<b>Sensor</b>	»Of special construction« (due to self monitoring)



Model	Range of adjustment	Hysteresis (Mean value)	Max. allowable pressure	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	---------------------

**Pressure monitors without differential adjustment for max. pressure monitoring**

<b>SCH-DWAM 1</b>	0.2 - 1.6 bar	0.05 bar	3.25 bar	1 + 16
<b>SCH-DWAM 6</b>	1.2 - 6 bar	0.2 bar	10 bar	1 + 15
<b>SCH-DWAM 16</b>	3 - 16 bar	0.4 bar	20 bar	1 + 15
<b>SCH-DWAM 32</b>	6 - 32 bar	1.2 bar	45 bar	1 + 15

**Pressure monitors with differential adjustment for max. pressure monitoring**

<b>SCH-DWAMV 1</b>	0.2 - 1.6 bar	0.12...0.6 bar	3 bar	1 + 16
<b>SCH-DWAMV 6</b>	1.2 - 6 bar	0.4...1.5 bar	10 bar	1 + 15
<b>SCH-DWAMV 16</b>	3 - 16 bar	0.8...2.5 bar	20 bar	1 + 15
<b>SCH-DWAMV 32</b>	6 - 32 bar	2.5...6.0 bar	45 bar	1 + 15

**Pressure limiters for maximum pressure monitoring**

<b>SCH-SDBAM 1</b>	0.2 - 1.6 bar	0.12 bar	5 bar	1 + 16
<b>SCH-SDBAM 2,5</b>	0.4 - 2.5 bar	0.15 bar	5 bar	1 + 16
<b>SCH-SDBAM 6</b>	1.2 - 6 bar	0.4 bar	10 bar	1 + 15
<b>SCH-SDBAM 625</b>	1.2 - 6 bar	0.6 bar	20 bar	1 + 15
<b>SCH-SDBAM 16</b>	3 - 16 bar	0.8 bar	20 bar	1 + 15
<b>SCH-SDBAM 32</b>	6 - 32 bar	3.0 bar	45 bar	1 + 15

\* The maximal permissible operating pressure is defined as the upper limit at which the operation, the switching reliability and the water tightness of the pressure switch are in no way impaired.

The pressure monitors DWAM... can also be used for maximum pressure limitation, by using an external interlock (see page 15).

**Minimum Pressure monitoring (↓)**

The types DWUM... and DBUM... are substituted by DWR-series.



**Technical Data**

Pressure connection: external thread G 1/2 A (pressure gauge connection) acc. to DIN 16 288 and internal thread G 1/4 to ISO 228 part 1 (for gas applications internal thread permissible only up to 4 bar)

Switching device: stable housing (200) made of sea water resistant aluminium die casting GD Al Si 12

Materials: pressure bellows: material No. 1.4571  
 sensor casing: material No. 1.4104  
 switching casing: GD-Al Si 12 (DIN 1725)

Fitting position: vertically upwards and horizontal  
 Ex-versions: only vertically

Max. ambient temp. at the switch unit: -25 to +70°C  
 EEx-de-version: -15 to 60°C

Max. temperature of the medium: -25 to +70°C  
 The maximum temperature of the medium at the pressure sensor must not exceed the allowable temperature at the switching device. Temperatures up to 85°C are allowable for short periods (not EEx-de). Higher temperatures of the medium are possible, provided that the upper limit at the switching device is safeguarded by suitable measures (e.g. water tube trap).

Fitting: directly in the pressure line (pressure gauge connection) or on a flat surface with 2 - off 4 mm screws

Switching pressure: Adjustable from the outside by means of screwdriver. The scale value corresponds to the lower switching point (for falling pressure), the upper switching point (for rising pressure) is higher by the switching difference. Exception: DWR...203..

Bursting pressure: for all types  $\geq 100$  bar. verified by TÜV test

Contacts: single-pole change-over switch

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0,3 A	8 A

Protection: IP 54 acc. to DIN 40050  
 EEx-de version: IP 65

Methods of sealing: as required (may also be carried out after mounting)

<b>Component tested for</b>	<b>Steam</b> systems acc. to TRD 604 <b>Hot water</b> systems acc. to DIN 4751, T.2 <b>Burnable gases</b> DVGW-work sheet G 260 <b>Liquid fuels</b> e.g. fuel oils
<b>Testing basis</b>	Pressure 100/1, Issue 4.83 DIN 3398, T.3, Issue 11.92 DIN 3398, T.4, Issue 10.86 
<b>Registration No.</b>	TÜV.DWFS (SDBFS) 00-281 NG-4346 AQ 1411 3 CO2 82000
<b>Function</b>	Pressure monitor / Pressure limiter (with internal or external interlock)
<b>Direction of action</b>	For max. pressure and min. pressure monitoring (DWFS, SDBFS)
<b>Sensor</b>	<b>»Of special construction«</b> by test with 2 million switching cycles

The pressure limiters with option 205 or 206 are equipped with a reclosing lockout for the mechanical interlocking of the switch-off state. If the switching point set on the pressure limiter is reached, the limiter switches off, the switch-off state is retained, even if the pressure changes again. Switching back is possible only by manual actuation of the reset button. The pressure at the sensor must have lowered so that unlocking is possible (for maximum pressure limiters) or raised (for minimum pressure limiters). The values for the pressure change are listed in the summary of types. Important: In the selection of the limiter, it is necessary to differentiate strictly whether the device is used for maximum or minimum pressure monitoring. It is not possible to reverse the direction of action at the pressure limiter.



Model	Setting range	Hysteresis (Mean value)	Max. operating pressure		Dimensional drawing
			1*	2*	

## Switching difference not adjustable

<b>SCH-DWR 06</b>	0.1 - 0.6 bar	0.04 bar	6 bar	6 bar	1 + 16
<b>SCH-DWR 1</b>	0.2 - 1.6 bar	0.06 bar	6 bar	6 bar	1 + 16
<b>SCH-DWR 3</b>	0.2 - 2.5 bar	0.1 bar	10 bar	16 bar	1 + 15
<b>SCH-DWR 6</b>	0.5 - 6 bar	0.2 bar	10 bar	16 bar	1 + 15
<b>SCH-DWR 625</b>	0.5 - 6 bar	0.25 bar	20 bar	25 bar	1 + 15
<b>SCH-DWR 16</b>	3 - 16 bar	0.5 bar	20 bar	25 bar	1 + 15
<b>SCH-DWR 25</b>	4 - 25 bar	1.0 bar	50 bar	63 bar	1 + 15
<b>SCH-DWR 40</b>	10 - 40 bar	1.3 bar	50 bar	63 bar	1 + 15

## Switching difference adjustable

<b>SCH-DWR 06-203</b>	0.1 - 0.6 bar	0.08 - 0.5 bar	6 bar	6 bar	1 + 16
<b>SCH-DWR 1-203</b>	0.2 - 1.6 bar	0.15 - 0.6 bar	6 bar	6 bar	1 + 16
<b>SCH-DWR 3-203</b>	0.2 - 2.5 bar	0.17 - 1.2 bar	10 bar	16 bar	1 + 15
<b>SCH-DWR 6-203</b>	0.5 - 6 bar	0.2 - 1.4 bar	10 bar	16 bar	1 + 15
<b>SCH-DWR 16-203</b>	3 - 16 bar	0.75 - 3.15 bar	20 bar	25 bar	1 + 15
<b>SCH-DWR 25-203</b>	4 - 25 bar	1.3 - 6.0 bar	50 bar	63 bar	1 + 15
<b>SCH-DWR 40-203</b>	10 - 40 bar	2.3 - 6.6 bar	50 bar	63 bar	1 + 15

## II2GD EEx de IIC T6 IP65 T80°C

<b>SCH-EX-DWR 06</b>	0.1 - 0.6 bar	0.04 bar	6 bar	6 bar	3 + 16
<b>SCH-EX-DWR 1</b>	0.2 - 1.6 bar	0.06 bar	6 bar	6 bar	3 + 16
<b>SCH-EX-DWR 3</b>	0.2 - 2.5 bar	0.1 bar	10 bar	16 bar	3 + 15
<b>SCH-EX-DWR 6</b>	0.5 - 6 bar	0.2 bar	10 bar	16 bar	3 + 15
<b>SCH-EX-DWR 625</b>	0.5 - 6 bar	0.25 bar	20 bar	25 bar	3 + 15
<b>SCH-EX-DWR 16</b>	3 - 16 bar	0.5 bar	20 bar	25 bar	3 + 15
<b>SCH-EX-DWR 25</b>	4 - 25 bar	1.0 bar	50 bar	63 bar	3 + 15
<b>SCH-EX-DWR 40</b>	10 - 40 bar	1.3 bar	50 bar	63 bar	3 + 15

\* Column 1: for devices according to DIN 3398, Part 3 (gas pressure monitors)  
 Column 2: for devices according to pressure 100/1 and DIN 3398, Part 4  
 (for steam, hot water and liquid fuels)



Model	Setting range	Pressure chance for unlocking	
-------	---------------	-------------------------------	--

**Maximum pressure limiter**

<b>SCH-DWR 06-205</b>	0.1 - 0.6 bar	0.06 bar	
<b>SCH-DWR 1-205</b>	0.2 - 1.6 bar	0.09 bar	
<b>SCH-DWR 3-205</b>	0.2 - 2.5 bar	0.2 bar	
<b>SCH-DWR 6-205</b>	0.5 - 6 bar	0.3 bar	
<b>SCH-DWR 625-205</b>	0.5 - 6 bar	0.5 bar	
<b>SCH-DWR 16-205</b>	3 - 16 bar	0.7 bar	
<b>SCH-DWR 25-205</b>	4 - 25 bar	1.4 bar	
<b>SCH-DWR 40-205</b>	10 - 40 bar	2.3 bar	

**Minimum pressure limiter**

<b>SCH-DWR 06-206</b>	0.1 - 0.6 bar	0.06 bar	
<b>SCH-DWR 1-206</b>	0.2 - 1.6 bar	0.09 bar	
<b>SCH-DWR 3-206</b>	0.2 - 2.5 bar	0.2 bar	
<b>SCH-DWR 6-206</b>	0.5 - 6 bar	0.3 bar	
<b>SCH-DWR 625-206</b>	0.5 - 6 bar	0.5 bar	
<b>SCH-DWR 16-206</b>	3 - 16 bar	0.7 bar	
<b>SCH-DWR 25-206</b>	4 - 25 bar	1.4 bar	
<b>SCH-DWR 40-206</b>	10 - 40 bar	2.3 bar	

Maximum operating pressure and dimensions as for type series DWR.

You will find further maximum pressure limiters with safety sensor, type series SDBAM..., on page 27.

The types DWAM... can also be used with external interlock as maximum pressure limiters.



**Technical Data**

Pressure connection: external thread G 1/2 A acc. to DIN ISO 228 Part 1 (permissible only with flat gasket) and internal thread G 1/4 acc. to ISO 228 Part 1 (permissible up to 4 bar)

Switching device: sea water resistant aluminium die casting GD Al Si 12

Protection: IP 54, for vertical installation position

Materials of the pressure probe: see summary of types

Ambient temperature: -25 to +60°C  
At ambient temperatures below 0°C, ensure that no condensation water can rise on the inside of the sensor and in the switching device.

Max. permissible operating pressure: see summary of types

Installation: either directly on the pipeline or with 2 screws 4 mm Ø on the wall surface

Installation position: vertical upwards or horizontal

Adjustment: Continuously adjustable by means of screw-driver on the adjusting spindle.  
The set switching difference is visible in the scale window.

Possibility of lead sealing: on request (can also be fitted subsequently)

Switching differences: Largely independent of the set switching pressure.  
Not adjustable.  
For values see summary of types.

Adjustment: Scale value corresponds to the upper switching point, the lower switching point is lower by the switching difference.

Switching capacity:

	250 V <sub>AC</sub>		250 V <sub>DC</sub>	24 V <sub>DC</sub>
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A

Pressure measuring connection: It must be ensured that a pressure measuring connection is available at a suitable place on the gas appliance.

**Certified according to DIN 3398 part 1 and 3 as well as to gas installation parameters 90/396 EEC**

The gas pressure control devices are suitable for all gases and for air according to the DVGW datasheet G 260.

Certified according to the requirements of DIN 3398 part 1 and 3.

Ambient temperature: -25°C up to 60°C

DVGW register number: NG-4346 AP 1011

CE-articlenumber: CE-0085 AQ 1088

Model	Range of adjustment	Hysteresis (Mean value)	Max. operating pressure	Materials in contact with medium	Dimensional drawing
-------	---------------------	-------------------------	-------------------------	----------------------------------	---------------------

**Switching difference not adjustable**

<b>SCH-DGM 306</b>	15 - 60 mbar	6 mbar	0.8 bar	Cu + Ms	1 + 13
<b>SCH-DGM 310</b>	20 - 100 mbar	7 mbar	0.8 bar	Cu + Ms	1 + 13
<b>SCH-DGM 325</b>	40 - 250 mbar	10 mbar	0.8 bar	Cu + Ms	1 + 13
<b>SCH-DGM 06</b>	100 - 600 mbar	25 mbar	2 bar	Cu + Ms	1 + 14
<b>SCH-DGM 1</b>	0.2 - 1.6 bar	40 mbar	3 bar	Cu + Ms	1 + 14
<b>SCH-DGM 506</b>	15 - 60 mbar	10 mbar	5 bar	1.4104	1 + 12
<b>SCH-DGM 516</b>	40 - 160 mbar	12 mbar	5 bar	1.4104	1 + 12
<b>SCH-DGM 525</b>	100 - 250 mbar	20 mbar	5 bar	1.4104	1 + 12

For further pressure ranges see type series DWR



**Technical Data**

Pressure connection: pressure connection for overpressure: G 1/4" internal thread  
for vacuum and differential pressure: G 1/8" internal thread

Switch case: aluminium die-cast

Temperature of medium: -15 to +60°C

Max. admissible working pressure: see summary of types

Installation position: horizontal with connecting piece pointing downwards

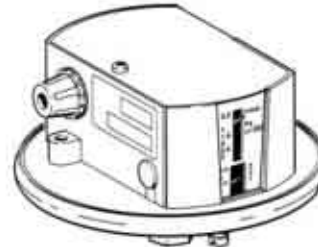
Protection: IP 44 according to DIN 40050

Mounting: Either direct on pipe or with mounting bracket (is supplied as standard) onto a vertical surface.

Adjustment of the switching point: Remove cover and turn the setpoint spindle market with  $\pm$  into the relevant position. The scale indicates only standard values, for exact adjustment of the required value a manometer is necessary which can be connected at the measuring connection (pressure tapping piece 9 mm  $\varnothing$ ).

Switching capacity: 10 A/220 V (resistive load)  
2.5 A/220 V (inductive load)

Cable entry: Pg 13.5



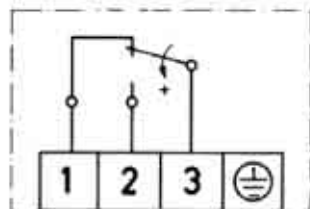
The pressure switches of series HCD are suitable for neutral and non-aggressive gases. They can be used for monitoring overpressure, vacuum as well as differential pressure. For detecting overpressure, connection is made on the pressure side at the lower connecting piece G 1/4" for detecting the vacuum pressure at the upper connecting piece G 1/8" (remove locking clamp). For detecting the differential pressure, the high pressure is applied at the lower connecting piece (G 1/4") and the low pressure at the upper connecting piece (G 1/8"). For exact adjustment of the required value a pressure tapping (9 mm  $\varnothing$ ) is available.

The pressure switch is tested to 90/396/EEC. DVGW-Registration No. E3085/2.

**Electrical Data**

Switching function: single pole switching over

Electr. connection:



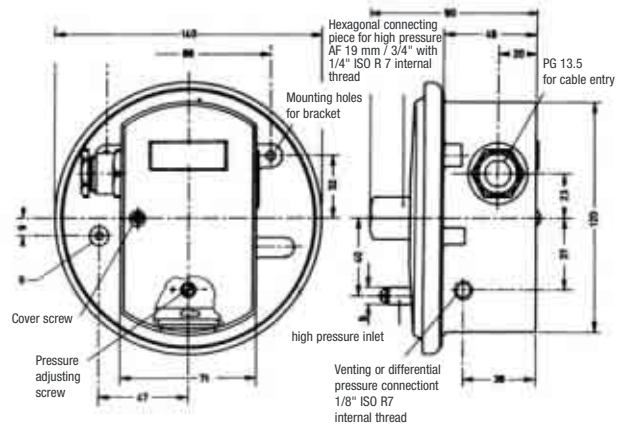
3 = com = common connection

2 = no = normally open

1 = nc = normally closed

Connection directly at the inner microswitch. The grounding terminal is accessible after removal of the case over.

**Dimensional drawing**



**Summary of types**

Model	Range of adjustment	Hysteresis at lower range	Hysteresis at upper range	Max. operating pressure mbar	Dimensional drawing
SCH-HCD 6003	0.2 - 3 mbar	0.3 mbar	0.5 mbar	100	see above
SCH-HCD 6010	1 - 10 mbar	0.3 mbar	1 mbar	100	see above
SCH-HCD 6050	5 - 50 mbar	1.5 mbar	3 mbar	200	see above
SCH-HCD 6150	15 - 150 mbar	4 mbar	10 mbar	300	see above

The switching differential is not adjustable.

The low switching differentials are valid for the lower range of adjustment, the higher values for the upper ranges.



### Technical Data

Pressure connection: plastic connection piece with 6 mm external diameter for measuring hose with 5 mm internal diameter, connection piece P1 for higher pressure, P2 for lower pressure

Pressure medium: air, as well as non combustible and non-aggressive gases

Switch housing: switch housing and pressure connection P2 made from PA 6.6, lower part and pressure connection P1 made of POM

Medium and ambient temperature: -20 °C to +85 °C (storage temperat.: -40 °C to +85 °C)

Max. permissible operating pressure: 5000 Pa for all types

Installation position: vertical pressure connections below (In horizontal installation position with the cover facing upwards, the scale values are 20 Pa below the actual values, in horizontal installation position with the cover facing downwards, the scale values are 20 Pa higher. Vertical installation is essential for set values below approx. 50 Pa!)

Protection: IP 54

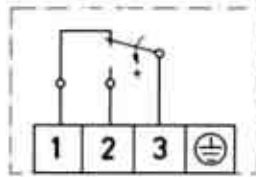
Installation: by means of mounting pieces integrated in the housing with 2 screws directly onto a vertical surface, e.g. the air-conditioner or the air duct. In the case of installation in the ceiling area, use L brackets if necessary.

Switching point adjustment: Remove the cover and set the scale to the wanted value. The set values refer to the upper switching point (for maximum pressure monitoring). In the case of minimum pressure monitoring, the switching point is less than the set value by an amount corresponding to the switching differential.

Weight: 160 g

Switching function: single pole switching over

Electrical connection:

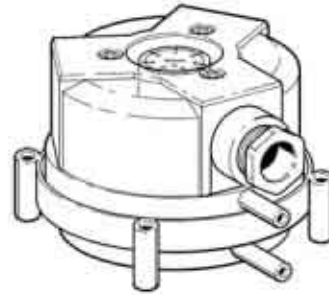


Use flat connector 6.3 x 0.8 DIN 46 244 or the screw terminals supplied.

Switching capacity: 1.5 (0,4) A / 250 V<sub>AC</sub>

Cable entry: Pg 11

Approvals: switches tested and approved according to VDE 0630 for 1.5 A



### Applications

Differential pressure switch for filter, fan or air flow monitoring in air-conditioning and ventilation systems.

### Type overview

Model	Setting range for upper switching pressure	Switching differential (standard values)
<b>SCH-DPS 400</b>	40 - 400 Pa	20 Pa
<b>SCH-DPS 1000</b>	200 - 1000 Pa	100 Pa
<b>SCH-DPS 2500</b>	500 - 2500 Pa	150 Pa

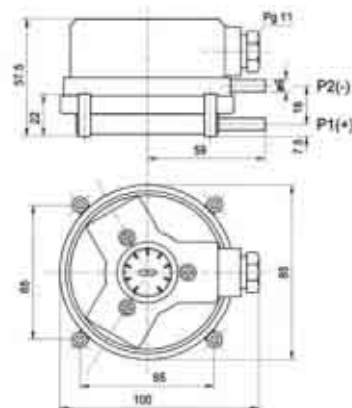
### Accessories supplied with the device

2 m silicone hose, 2 connection pieces with mounting screws  
2 self-tapping screws for mounting the housing  
3 screw terminals for the electrical connection.

### Optional accessory

DPSL: L-bracket for installation turned by 90°, e.g. in the ceiling area.

### Dimensional drawing



### Quotation text:

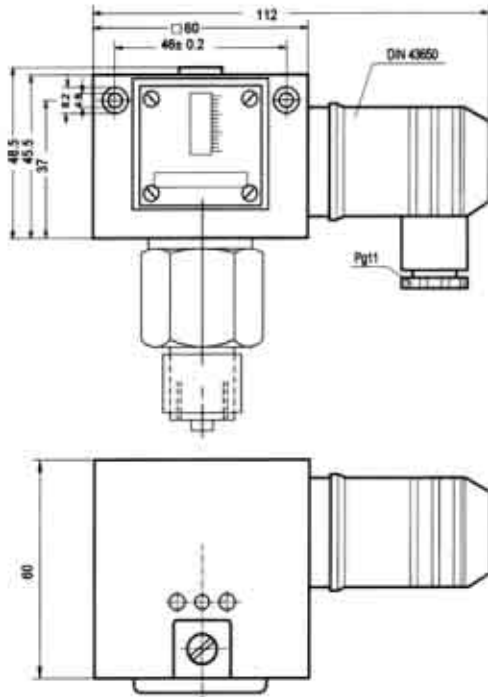
Differential pressure switch for filter, fan and/or air steam monitoring with adjustable scale. Switching capacity 1.5 (0.4) A at 250 V<sub>AC</sub>.

With approvals according to VDE 0630 for 1.5 A and EN 1854.

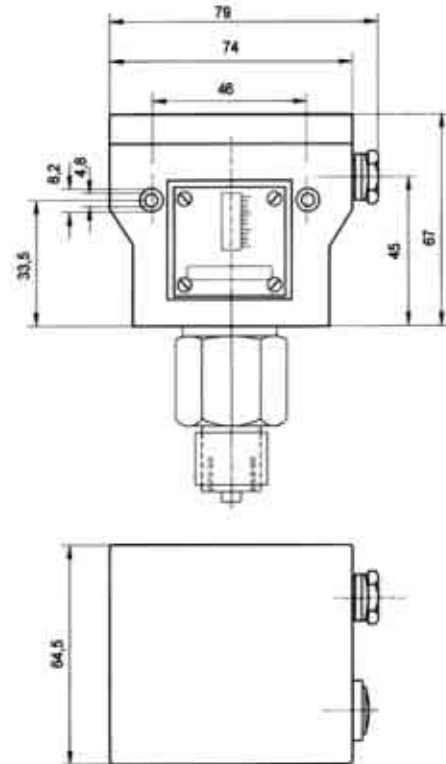
Max. operating pressure: 5000 Pa; type of protection IP 54.

Pressure and cable connections can be offset in different directions; including pressure connection accessories, consisting of 2 pressure connecting pieces, 2 m silicone hose, 3 screw terminals for the electrical connection and mounting screws.

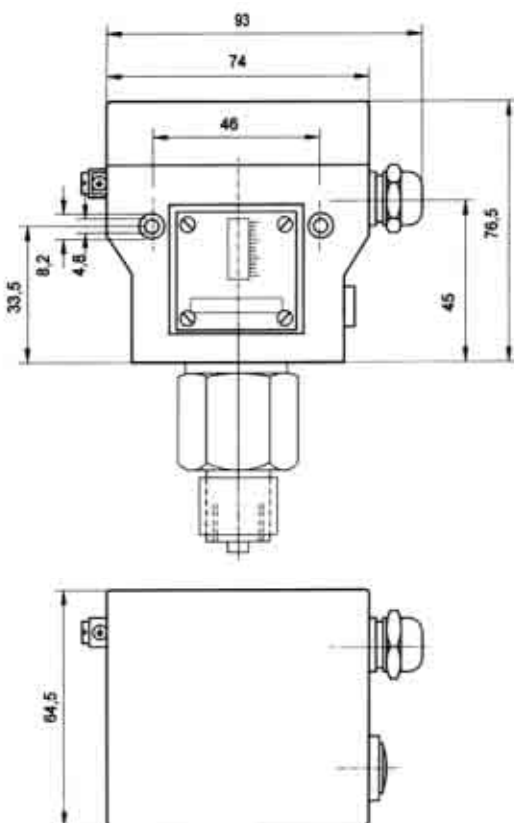
1 Standard housing



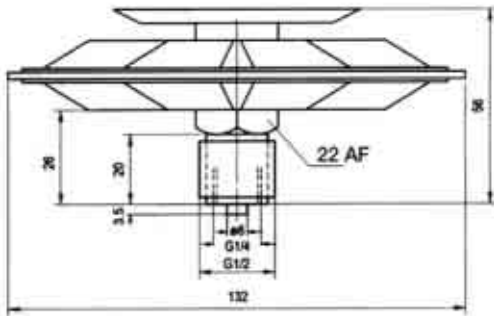
2 Terminal connection housing



3 Ex-housing



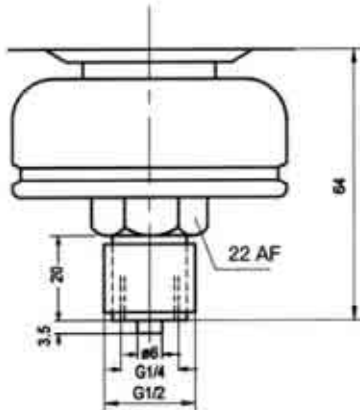
11



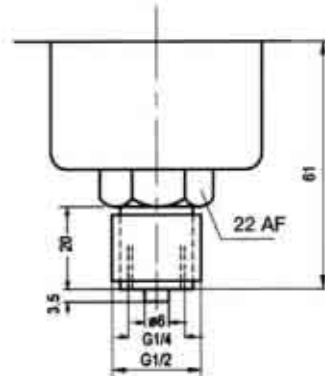
12



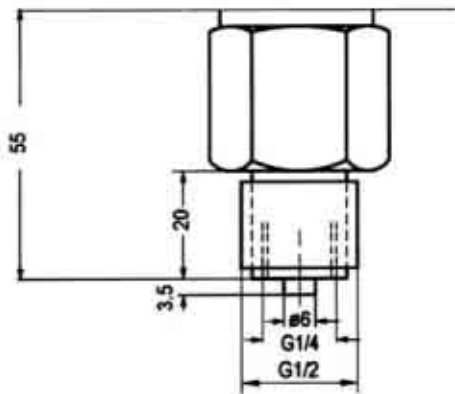
13



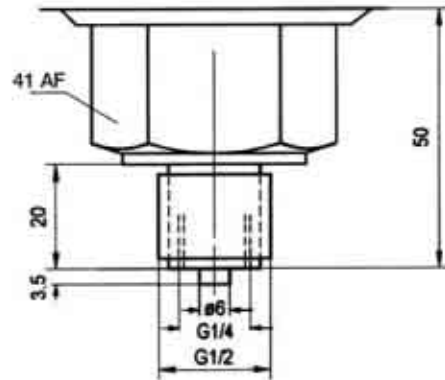
14



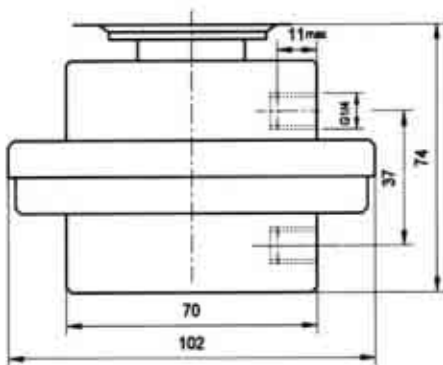
15



16



17



18

