

Pneumatic pressure switch
-1 ... 30 bar

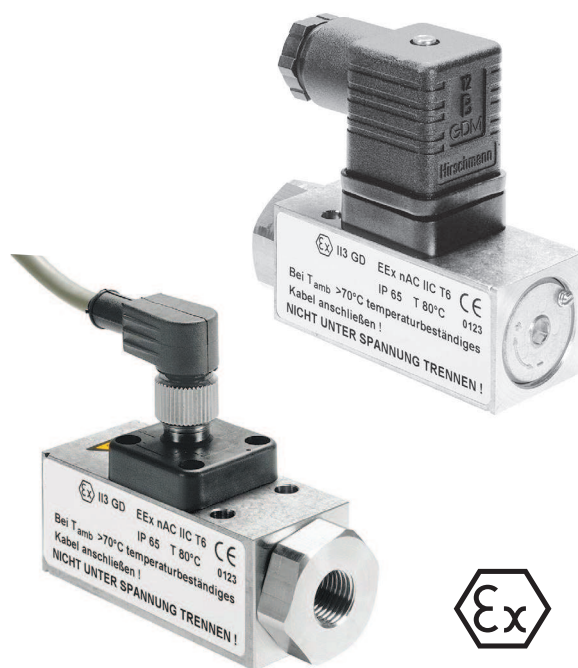
Hydraulic pressure switch
5 ... 420 bar

For EX-applications according to ATEX 100 a:
Zone 2 category ATEX 3G (gases)
Zone 22 category ATEX 3D (dust)

TÜV (technical inspection agency) approval:
EX 8 03 01 11122 007

Microswitch with gold plated contacts

Vibration resistant to 15 g



Technical data

Medium:

Pneumatic: for neutral, gaseous, and liquid fluids
Hydraulic: for neutral, self-lubricating fluids
e.g. hydraulic oil, lubricating oil, light fuel oil

Fluid port:

G1/4, flange

Operating pressure ranges:

Pneumatic: -1 ... 30 bar
Hydraulic: 5 ... 420 bar

Permission:

TÜV EC cert. no. E 8 03 01 11122 007
Zone 2: E II 3 G EEx NA / C IIC T6
Zone 22: E II 3 D IP 65 T 80°C

Temperature:

| | |
|--------------------|-------------|
| Fluid | Ambient |
| 0 ... + 80°C (FKM) | 0 ... +80°C |

Operating viscosity:

To 1000 mm²/s

Repeatability:

±3%, with vacuum ±4% from the final value of range
(referring to pressure regulation)

Degree of protection:

IP65 for DIN 43650, IP67 for M12 x 1

Mounting:

Optional

Electrical connection:

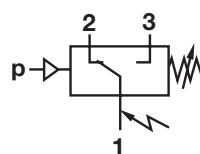
According to DIN EN 175301-803, (DIN 43650)
or according to IEC 947-5-2 (M12 x 1)

Material:

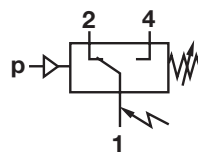
Housing: AL/steel with hydraulic AL with pneumatic
Sealing: PTFE / NBR / AL / steel with hydraulic
FKM / AL with pneumatic

Ordering information

See page 2 and 3



Switching function:
Microswitch SPDT
Terminals 1 - 2:
Contacts open on rising
pressure



Switching function:
M12 x 1:
Microswitch SPDT
Terminals 1 - 4:
Contacts close on rising
pressure
Terminals 1 - 2:
Contacts open on rising
pressure



Pneumatic pressure switch

Characteristics / electrical connection DIN EN 175301-803 (DIN 43650)

The ex-permission refers to the pressure switch in combination with the supplied device plug-in facility

| Model | Pressure range ¹⁾ (bar) | Pressure difference | | Max. over-pressure ²⁾ (bar) | Switching (Cycles per min) z (1/min) | Pressure sensor Material | | Connection Size | Weight (kg) | Drawing no. |
|---------|---------------------------------------|----------------------|----------------------|---|--|-----------------------------|--------|--------------------|----------------|----------------|
| | | lower range (bar) | upper range (bar) | | | Housing | Seal | | | |
| 0880180 | -1 ... 0 | 0,15 | 0,18 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 02 |
| 0880280 | 0,2 ... 2 | 0,15 | 0,27 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 02 |
| 0880380 | 0,5 ... 8 | 0,25 | 0,65 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0880480 | 1 ... 16 | 0,3 | 0,9 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0880680 | 1 ... 30 | 1 | 5 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0881180 | -1 ... 0 | 0,15 | 0,18 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881280 | 0,2 ... 2 | 0,15 | 0,27 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881380 | 0,5 ... 8 | 0,25 | 0,65 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881480 | 1 ... 16 | 0,3 | 0,9 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881680 | 1 ... 30 | 1 | 5 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |

Characteristics / electrical connection M12x1

Permitted voltage: 30 V maximal

Wire sockets see page 4! wire socket is not included in the supply scope. Please order separately. it is only allowed to utilize the wire sockets listed in the data sheet, otherwise the device will loose its EX-permission.

| Model | Pressure range ¹⁾ (bar) | Pressure difference | | Max. over-pressure ²⁾ (bar) | Switching (Cycles per min) z (1/min) | Pressure sensor Material | | Connection Size | Weight (kg) | Drawing no. |
|---------|---------------------------------------|----------------------|----------------------|---|--|-----------------------------|--------|--------------------|----------------|----------------|
| | | lower range (bar) | upper range (bar) | | | Housing | Seal | | | |
| 0880181 | -1 ... 0 | 0,15 | 0,18 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 02 |
| 0880281 | 0,2 ... 2 | 0,15 | 0,27 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 02 |
| 0880381 | 0,5 ... 8 | 0,25 | 0,65 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0880481 | 1 ... 16 | 0,3 | 0,9 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0880681 | 1 ... 30 | 1 | 5 | 80 | 100 | AL | FKM/MS | G1/4 | 0,2 | 01 |
| 0881181 | -1 ... 0 | 0,15 | 0,18 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881281 | 0,2 ... 2 | 0,15 | 0,27 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881381 | 0,5 ... 8 | 0,25 | 0,65 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881481 | 1 ... 16 | 0,3 | 0,9 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |
| 0881681 | 1 ... 30 | 1 | 5 | 80 | 100 | AL | FKM/MS | flange | 0,2 | 03 |

¹⁾ Reference pressure is the atmospherical air pressure

²⁾ Switching points should ideally be in the middle of the switching pressure range.

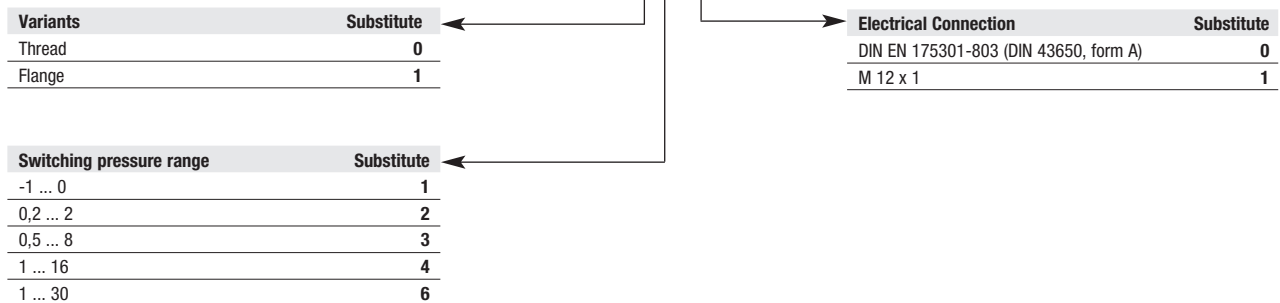
Limit value = Testing pressure is not to utilize under normal operating conditions. Exceeding of the switching pressure according to the subsequent table is not allowed.

AL = Aluminium

FKM = Viton

Options selector for pneumatic pressure switch

088★ ★ 8 ★



Ordering information

Pressure switch with connection G 1/4,
Electrical connection DIN EN 175301-803,
(DIN 43650)
Switching pressure range -1 to 0 bar

Quote: **0880180**



Hydraulic pressure switch

Characteristics / electrical connections DIN EN 175301-803 (DIN 43650)

The EX-permission refers to the pressure switch in combination with the supplied plug facility.

| Model | Pressure range ¹⁾ (bar) | Pressure difference | | Max. over-pressure ²⁾ (bar) | Switching (Cycles per min) z (1/min) | Pressure sensor Material | | Connection Size | Weight (kg) | Drawing no. |
|---------|---------------------------------------|----------------------|----------------------|---|--|-----------------------------|----------|--------------------|----------------|----------------|
| | | lower range (bar) | upper range (bar) | | | Housing | Seal | | | |
| 0882180 | 5 ... 70 | 10,5 | 15 | 400 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0882280 | 10 ... 160 | 11 | 17 | 400 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0882380 | 25 ... 250 | 13 | 21 | 400 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0882480 | 40 ... 420 | 17 | 38 | 600 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0883180 | 5 ... 70 | 10,5 | 15 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883280 | 10 ... 160 | 11 | 17 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883380 | 25 ... 250 | 13 | 21 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883480 | 40 ... 420 | 17 | 38 | 600 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |

Characteristics / Electrical connection M12x1

Permitted voltage: 30 V maximum

Wire sockets see page 4! Wire socket is not included in the supply scope. Please order separately. It is only allowed to utilize the wire sockets listed in the data sheet, otherwise the device will lose its EX-permission.

| Model | Pressure range ¹⁾ (bar) | Pressure difference | | Max. over-pressure ²⁾ (bar) | Switching (Cycles per min) z (1/min) | Pressure sensor Material | | Connection Size | Weight (kg) | Drawing no. |
|---------|---------------------------------------|----------------------|----------------------|---|--|-----------------------------|----------|--------------------|----------------|----------------|
| | | lower range (bar) | upper range (bar) | | | Housing | Seal | | | |
| 0882281 | 10 ... 160 | 11 | 17 | 400 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0882381 | 25 ... 250 | 13 | 21 | 400 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0882481 | 40 ... 420 | 17 | 38 | 600 | 100 | AL/Steel | PTFE/NBR | G1/4 | 0,2 | 02 |
| 0883181 | 5 ... 70 | 10,5 | 15 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883281 | 10 ... 160 | 11 | 17 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883381 | 25 ... 250 | 13 | 21 | 400 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |
| 0883481 | 40 ... 420 | 17 | 38 | 600 | 100 | AL/Steel | PTFE/NBR | Flange | 0,2 | 03 |

¹⁾ Reference pressure is the atmospheric air pressure

²⁾ Switching points should ideally be in the middle of the switching pressure range.

Limit value = Testing pressure is not to utilize under normal operating conditions. Exceeding of the switching pressure according to the subsequent table is not allowed.

AL = Aluminium

FKM = Viton

Options Selector for hydraulic pressure switch

088★★8★

| Variants | Substitute | Electrical connection | Substitute |
|--------------------------|------------|---------------------------------------|------------|
| Thread | 2 | DIN EN 175301-803 (DIN 43650, form A) | 0 |
| Flange | 3 | M 12 x 1 | 1 |
| Switching pressure range | Substitute | | |
| 5 ... 70 | 1 | | |
| 10 ... 160 | 2 | | |
| 25 ... 250 | 3 | | |
| 40 ... 420 | 4 | | |

Ordering information

Pressure switch with port G 1/4,
electrical connection DIN EN 175301-803,
(DIN 43650)

Switching pressure range 5 to 70 bar

Quote: **0882180**



Accessories

| | | | | |
|---|---|--|---|-----------------------------|
| Pressure port Reducing nipple See page 5 0574767 | Snubber See page 5 0574773 | Cover (via adjustment screw) See page 5 0554737 | Connector M 12 x 1 0523058 (90° with 2 m cable, 4-wired) 0523053 (90° with 5 m cable, 4-wired) | 0523056 (90° without cable) |
|---|---|--|---|-----------------------------|

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

| Load level | Current type | Load type | U _{min} [V] | Max. permanent current I _{max} [A] bei U [V] | | | | | Contact life ⁵⁾ |
|--|--------------|-------------|----------------------|---|------|------|------|------|------------------------------|
| | | | | 30 M 12x1 | 48 | 60 | 125 | 250 | |
| Standard ³⁾ (f. ex. contacts, solenoids) | AC | resistive | 12 | 5 | 5 | 5 | 5 | 5 | ≥ 10 ⁷ hysteresis |
| | AC | inductive | | | | | | | |
| | | cos φ ≈ 0,7 | 12 | 3 | 3 | 3 | 3 | 3 | |
| | DC | ohmic | 12 | 5 | 1,2 | 0,8 | 0,4 | – | |
| Low ⁴⁾ (f. ex. electronic switching circuit) | DC | inductive | 12 | 3 | 0,5 | 0,35 | 0,05 | – | ≥ 10 ⁷ hysteresis |
| | | L/R ≈ 10 ms | | | | | | | |
| | AC | ohmic | 5 ⁵⁾ | 0,34 | 0,2 | 0,17 | 0,08 | 0,04 | |
| | DC | induktive. | | | | | | | |
| | | L/R ≈ 10 ms | 5 ⁵⁾ | 0,1 | 0,01 | – | – | – | |

Reference number of switchings: 30/min, reference temperature: +30°C
 Spark quenching with diode with DC and inductive load:
 $I_{max} = 1.5 \times I_{max}$ of table
 $I_{min} = 1$ [mA]
 Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

³⁾ Gold-plating not required as it would decay. Max. perm. in-rush current (appr. 30 ms) $AC_{make} = max. 15A$

⁴⁾ Gold-plating required (will not decay)

⁵⁾ Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

Proposal for spark extinction with direct voltage

1. Diode D parallel to the inductive load.
 Observe correct polarity with connection (positive pol at cathode).

Dimensioning specifications for erasing diode:
 Nominal voltage of the diode $U_b \geq 1,4 \times U_s$.
 Nominal current of the diode $I_N \geq I_{load}$.

Select fast switching diodes (blocking recovery time $t_{tr} \leq 200$ [ms]).

2. RC element parallel to the load (or parallel to the switching contact).
 Suitable for direct voltage and alternating voltage.

Ratings:

R in $[\Omega] \approx 0,2 \times R_{load}$ in $[\Omega]$
 C in $[\mu F] \approx R_{load}$ in $[A]$

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

