

Electro-mechanical pneumatic pressure switches

18D Standard temperature -1 ... 30 bar
G1/4, 1/4 NPT & Flange



Microswitch with gold plated contacts
High number of switching cycles
Vibration resistant to 15 g
Microswitch approved by UL and CSA
Intrinsically safe operation

TECHNICAL DATA

Medium:
For neutral, gaseous and liquid fluids,
non-combustible
(Special versions for water application)

Operation:
Diaphragm

Operating temperature range:

18D Standard temperature
Fluid Ambient
-10* ... +80°C (NBR) -10* ... +80°C (NBR)
0* ... +80°C (FKM) 0* ... +80°C (FKM)

Temperature at switching element:

18D +80°C
*Please contact our technical service for use below +2°C

Media viscosity:

Up to 1000 mm²/s

Switching pressure difference/hysteresis:

Fixed

Repeatability:

±3% positive pressure vacuum
±4% of final value
(depending on regulating pressure)

Switching element:

Microswitch with gold plated contacts

Degree of protection:

IP65 for DIN EN 175301-803
(DIN 43650) form A connection
IP67 for M12 x 1 connection

Mounting position:

Optional

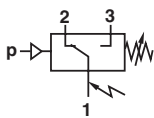
Electrical connection:

DIN EN 175301-803 (DIN 43650)
form A
M12 x 1 IEC 947-5-2

MATERIALS

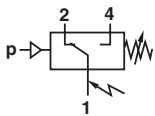
Housing: Aluminium (brass)

Seals: 18D NBR/FKM



Switching function conforming to
DIN EN 175301-803, form A:
Microswitch SPDT (Commutator)

Terminals 1 - 3:
Contacts close on rising pressure
Terminals 1 - 2:
Contacts open on rising pressure



Switching function conforming to
IEC 947-5-2, M12 x 1:
Microswitch SPDT (Commutator)

Terminals 1 - 4:
Contacts close on rising pressure
Terminals 1 - 2:
Contacts open on rising pressure

18D Standard temperature

DIN plug connection - plug included in scope of supply

Pressure range ^{*1)} (bar)	Switching pressure difference		Max. over pressure ^{*2)} (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension no.	MODELS
	Lower range (bar)	Upper range (bar)			Body	Seals				
-1 ... 0	0,15	0,18	80	100	AL	FKM ^{*3)}	G1/4	0,2	1	0880100
-1 ... 1	0,25	0,35	80	100	AL	FKM ^{*3)}	G1/4	0,2	1	0880110
-1 ... 0	0,15	0,18	80	100	AL	FKM ^{*3)}	1/4 NPT	0,2	1	0880120
-1 ... 0	0,15	0,18	80	100	AL	FKM ^{*3)}	G1/4	0,2	1	0880126 ^{*4) *5)}
-1 ... 0	0,15	0,18	80	100	AL	FKM ^{*3)}	Flange	0,2	3	0881100
0,2 ... 2	0,20	0,35	80	100	AL	FKM ^{*3)}	G1/4	0,2	1	0880200
0,2 ... 2	0,20	0,35	80	100	AL	FKM	1/4 NPT	0,2	1	0880220
0,2 ... 4	0,20	0,35	80	100	AL	FKM	G1/4	0,2	1	0880226 ^{*4) *5)}
0,2 ... 2	0,20	0,35	80	100	AL	NBR	Flange	0,2	3	0881200
0,5 ... 8	0,35	0,85	80	100	AL	NBR	G1/4	0,2	2	0880300
0,5 ... 8	0,35	0,85	80	100	AL	NBR	1/4 NPT	0,2	2	0880320
0,5 ... 8	0,35	0,85	80	100	AL	FKM	G1/4	0,2	2	0880326 ^{*4) *5)}
0,5 ... 8	0,35	0,85	80	100	AL	NBR	Flange	0,2	3	0881300
1 ... 16	0,40	1,20	80	100	AL	NBR	G1/4	0,2	2	0880400
1 ... 16	0,40	1,20	80	100	AL	NBR	1/4 NPT	0,2	2	0880420
1 ... 16	0,40	1,20	80	100	AL	FKM	G1/4	0,2	2	0880426 ^{*4) *5)}
1 ... 16	0,40	1,20	80	100	AL	NBR	Flange	0,2	3	0881400
1 ... 30	1,0	5,00	80	100	AL	NBR	G1/4	0,2	2	0880600
1 ... 30	1,0	5,00	80	100	AL	NBR	1/4 NPT	0,2	2	0880620

^{*1)} Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure.

Switching pressure must not exceed the indicated values.

^{*2)} Max. values. ^{*3)} Static seal: O-ring (NBR). ^{*4)} LABS free. ^{*5)} Plug 0570110 not included, please order separately.

For further information



www.norgren.com/info/en5-002

18D Standard temperature

M12 x 1 Connection - plug not included

Max. allowable voltage 30 V

Pressure range ^{*1)} (bar)	Switching pressure difference		Max. over pressure ^{*2)} (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension no.	MODELS
	Lower range (bar)	Upper range (bar)			Body	Seals				
-1 ... 0	0,15	0,18	80	100	AL	FKM	G1/4	0,2	1	0880149 ^{*4)*5)}
-1 ... 0	0,15	0,18	80	100	AL	FKM	G1/4	0,2	1	0880160 ^{*4)}
0,2 ... 2	0,20	0,35	80	100	AL	FKM	G1/4	0,2	1	0880260 ^{*4)}
0,5 ... 8	0,35	0,85	80	100	AL	FKM	G1/4	0,2	2	0880360 ^{*4)}
1 ... 16	0,40	1,20	80	100	AL	FKM	G1/4	0,2	2	0880460 ^{*4)}
1 ... 30	1,00	5,00	80	100	AL	FKM	G1/4	0,3	2	0880660 ^{*4)}
-1 ... 0	0,15	0,18	80	100	AL	FKM	Flange	0,2	3	0881160 ^{*4)}
0,2 ... 2	0,20	0,35	80	100	AL	FKM	Flange	0,2	3	0881260 ^{*4)}
0,5 ... 8	0,35	0,85	80	100	AL	FKM	Flange	0,2	3	0881360 ^{*4)}
1 ... 16	0,40	1,20	80	100	AL	FKM	Flange	0,2	3	0881460 ^{*4)}

^{*1)} Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure.

Switching pressure must not exceed the indicated values.

^{*2)} Max. values

^{*4)} LABS free

^{*5)} Switching function reversed

18D Standard temperature - water applications

DIN Plug Connection - plug included in scope of supply

Pressure range ^{*1)} (bar)	Switching pressure difference		Max. over pressure ^{*2)} (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension no.	MODELS
	Lower range (bar)	Upper range (bar)			Body	Seals				
0,2 ... 2	0,20	0,35	80	100	brass	FKM	G1/4	0,2	1	0880219
0,2 ... 2	0,20	0,35	80	100	brass	FKM	1/4 NPT	0,2	1	0880240
0,5 ... 8	0,35	0,85	80	100	brass	FKM	G1/4	0,2	2	0880323
0,5 ... 8	0,35	0,85	80	100	brass	FKM	1/4 NPT	0,2	2	0880340

^{*1)} Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure.









Switching pressure must not exceed the indicated values.

^{*2)} Max. values

Electro-mechanical pneumatic pressure switches

18D Standard temperature -1 ... 30 bar
G1/4, 1/4 NPT & Flange

ACCESSORIES

Pressure port reducing nipple	Surge damper	Cover (via adjustment screw)	Connector	Connector M 12 x 1 90°	Connector M 12 x 1 90° without cable	Connector M 12 x 1 straight	Connector M 12 x 1 straight without cable
							
0574767 (brass) 0550083 (stainless steel)	0574773 (brass) 0553258 (stainless steel)	0554737	0570110	0523058 (2 m cable, 4-pin) 0523053 (5 m cable, 4-pin)	0523056 (90° without cable)	0523057 (2 m cable, 4-pin) 0523052 (5 m cable, 4-pin)	0523055 (without cable)

Switching capacity

Micro-switch with gold plated contacts

Load level	Current type	Load type	U min [V]	Max. permanent current I _{max} [A] at U [V]					Contact life
				30 M 12x1	48	60	125	250	
Standard ^{*3)} (e.g. contractors, solenoids)	a.c.	ohmic	12	5	5	5	5	5	≥ 10 ⁷ switching cycles
	a.c.	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	d.c.	ohmic	12	5	1,2	0,8	0,4	-	
	d.c.	inductive, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	-	
Minor ^{*4)} (e.g. electronic circuits)	a.c.	ohmic	5 ^{*6)}	0,34	0,2	0,17	0,08	0,04	≥ 10 ⁷ switching cycles
	d.c.	inductive, L/R ≈ 10 ms	5 ^{*6)}	0,1	0,01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C

Spark quenching with diode with d.c. and inductive load:

I_{max} = 1,5 x 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) I_{a.c.} = max. 15 A

^{*4)} Gold-plating required (will not decay).

^{*6)} Lower value of critical voltage guarantees sufficient contact safety.
Lower voltages permissible under favourable conditions.

Recommended circuit - spark quenching / intrinsically safe with d.c. voltage

1. Diode D in parallel to inductive load.
Observance of correct polarity (positive pole to cathode).

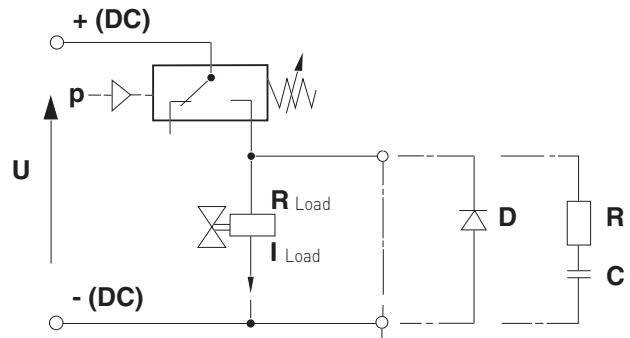
Dimensioning specifications for quenching diode:
Rated voltage at diode: $U_D \geq 1,4 \times U_s$

Rated current at diode: $I_N \geq I_{Load}$

Selection of a quick switching diode (recovery time $t_{rr} \leq 200$ [ms]).

2. RC link in parallel to load in parallel to switching contact.
Suited for d.c. and a.c. voltage.

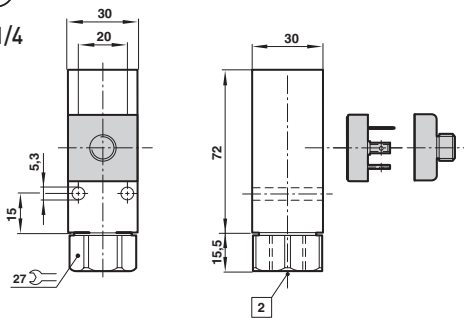
Dimensioning principles:
 R in $\Omega \approx 0,2 \times R_{Load}$ in Ω
 C in $[\mu F] \approx I_{Load}$ in [A]



DIMENSIONS

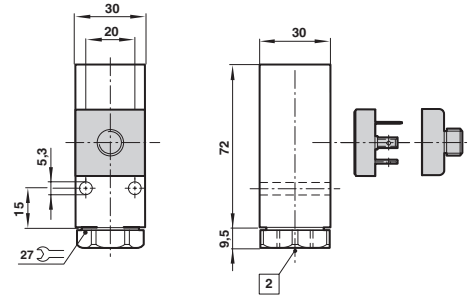
①

G 1/4



②

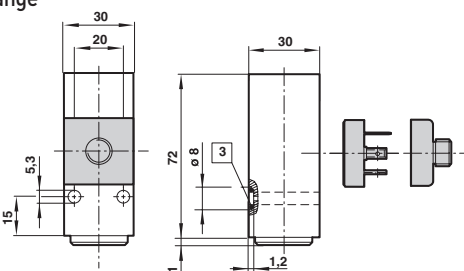
G 1/4



2 1/4 NPT on request

③

Flange



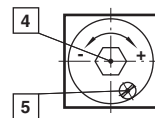
3 O-ring 5 x 1,5

Adjustable switch point

After releasing the locking screw

Clockwise rotation = increasing switch point

Anti-clockwise rotation = decreasing the switch point

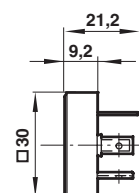


4 Switch point screw

5 Locking screw

Electrical connection

for plug conforming to
DIN EN 175301-803, form A



Electrical connection

M12 x 1

