

RS PRO 18D

Electro-mechanical pneumatic pressure switches

RS Stock No: 2354729 2354730 2354731

- > -1 ... 30 bar
Port size: G1/4, 1/4 NPT or flange
- > Microswitch with gold plated contacts
- > High number of switching cycles
- > Vibration resistant to 15 g
- > Microswitch approved by UL and CSA
- > Conforms to Low Voltage Directive 2006/95/EG
- > Intrinsically safe operation



Technical features

Medium:

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

Operation:

Diaphragm

Operating pressure:

-1 ... 30 bar (-14 ... 435 psi)

Maximum over pressure:

80 bar (1160 psi)

Repeatability:

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

Port size:

G1/4, 1/4 NPT or flange

Media viscosity:

Up to 1000 mm²/s

Switching pressure difference/hysteresis:

Fixed

Switching cycles:

100 1/min

Life cycle of mechanical parts:

10⁷ switching cycles

Switching element:

Microswitch with gold plated contacts

Mounting position:

Optional

Degree of protection:

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

Electrical connection:

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

Weight:

0,2 kg (0.44 lbs)

Ambient/Media temperature:

NBR: -10 ... +85°C (14 ... +185°F)

FPM: 0 ... +80°C (0 ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:

Housing: Aluminium (brass)

Sealing: NBR/FPM

Technical data

Electrical connection acc. to DIN EN 175301-803, form A

Symbol	Port size	Pressure range *1)		Switching pressure difference				Materials press sensor		Drawing No.	Model
		(bar)	(psi)	Lower range (bar)	(psi)	Upper range (bar)	(psi)	Body	Seal		
	G1/4	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM *2)	1	2354729
	G1/4	-1 ... 1	-14 ... 14	0,25	3,62	0,35	5,07	AL	FPM *2)	1	2203221
	1/4 NPT	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM *2)	1	
	G1/4	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM *2)	1	
	Flange	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM *2)	3	2203221
	G1/4	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	AL	FPM *2)	1	3663979
	1/4 NPT	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	AL	FPM	1	
	G1/4	0,2 ... 4	2,9 ... 58	0,20	2,9	0,35	5,07	AL	FPM	1	
	Flange	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	AL	NBR	3	2203226
	G1/4	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	NBR	2	2354730
	1/4 NPT	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	NBR	2	
	G1/4	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	FPM	2	
	Flange	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	NBR	3	2179994
	G1/4	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	NBR	2	2354731
	1/4 NPT	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	NBR	2	
	G1/4	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	FPM	2	
	Flange	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	NBR	3	
	G1/4	1 ... 30	23,2 ... 435	1,0	14,5	5,00	72,5	AL	NBR	2	2179993
	1/4 NPT	1 ... 30	23,2 ... 435	1,0	14,5	5,00	72,5	AL	NBR	2	


*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) Static seal: O-ring (NBR)

*3) LABS free

*4) Plug O570110 not included, please order separately.

Electrical connection M12 x 1 nach IEC 947-5-2 - plug not included, max. allowable voltage 30 V

Symbol	Port size	Pressure range *1)		Switching pressure difference				Materials press sensor		Drawing No.	Model *2)
		(bar)	(psi)	Lower range (bar)	(psi)	Upper range (bar)	(psi)	Body	Seal		
	G1/4	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM	1	
	G1/4	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM	1	
	G1/4	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	AL	FPM	1	
	G1/4	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	FPM	2	1366271
	G1/4	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	FPM	2	1366273
	G1/4	1 ... 30	23,2 ... 435	1,00	14,5	5,00	72,5	AL	FPM	2	1366274
	Flange	-1 ... 0	-14 ... 0	0,15	2,17	0,18	2,61	AL	FPM	3	
	Flange	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	AL	FPM	3	
	Flange	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	AL	FPM	3	1366271
	Flange	1 ... 16	23,2 ... 232	0,40	5,8	1,20	17,4	AL	FPM	3	


*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) LABS free

*3) Switching function reversed



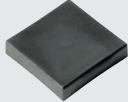
Versions for water applications

Electrical connection acc. to DIN EN 175301-803, form A

Symbol	Port size	Pressure range *1)		Switching pressure difference				Materials press sensor		Drawing No.	Model
		(bar)	(psi)	Lower range (bar)	(psi)	Upper range (bar)	(psi)	Body	Seal		
	G1/4	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	Brass	FPM	1	
	1/4 NPT	0,2 ... 2	2,9 ... 29	0,20	2,9	0,35	5,07	Brass	FPM	1	
	G1/4	0,5 ... 8	7,2 ... 116	0,35	5,07	0,85	12,3	Brass	FPM	2	2203222

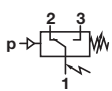
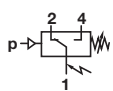
*1) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values.

Accessories

<p>Pressure port reducing nipple</p>  <p>Page 4 0574767 (brass) 0550083 (stainless steel)</p>	<p>Surge damper</p>  <p>Page 4 0574773 (brass) 0553258 (stainless steel)</p>	<p>Cover</p>  <p>Page 4 0554737</p>
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<p>Connector DIN EN 175301-803</p>  <p>0570110 (Form A)</p>	<p>Connector M 12 x 1 4-pin, 90°</p>  <p>0523058 (2 m cable, 4-core) 0523053 (5 m cable, 4-core)</p>	<p>4-pin, straight</p>  <p>0523056 (without cable)</p>	<p>4-pin, straight</p>  <p>0523057 (2 m cable, 4-core) 0523052 (5 m cable, 4-core)</p>	<p>4-pin, straight</p>  <p>0523055 (without cable)</p>
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Switching function

 <p>Connector DIN EN 175301-803, form A Microswitch SPDT Terminals 1 - 3: Contacts close on rising pressure. Terminals 1 - 2: Contacts open on rising pressure.</p>	 <p>Connector IEC 947-5-2, M12 x 1 Microswitch SPDT Terminals 1 - 4: Contacts close on rising pressure. Terminals 1 - 2: Contacts open on rising pressure.</p>
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Switching capacity Commutator with gold plated contacts

Current type	Load type *2)	U min [V]	Max. permissible persistent current I _{max} [A] at U *1) (UL & CSA)				Electrical life-time
			M12 x 1 30 V	DIN EN 175301-803, form A 30 V	48 V	125 V	
a.c.	Ohmic, inductive	6	0,1	0,1	0,1	0,1	≥ 2 x 10 ⁵ Switching cycles
d.c.	Ohmic, inductive	6	0,1	—	—	—	

Reference number: 20/min, Reference temperature: +20°C.

I_{min} = 1 mA at 24 V d.c. or 5 mA at 6 V d.c.

*1) Higher currents (5 A max) will cause a reduction of the durability of the micro-switch contacts. Furthermore additional measures has to be taken to fulfil the EMV regulation 2004/108/EG by the manufacturer

*2) Spark quenching/overload protection will be necessary using inductive loads.

Recommended circuit

Spark quenching and EMV intrinsically safe

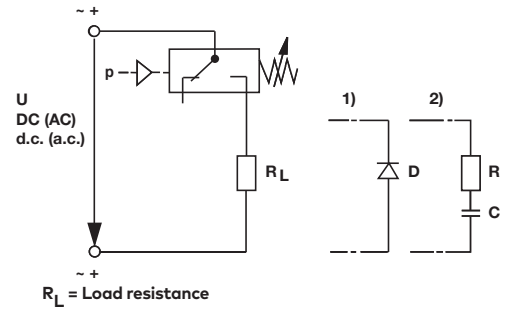
1. Quick diode (D) with t_v ≤ 200 ns, parallel to inductive load.

2. RC link in parallel to load in parallel to switching contact.

Dimensioning principles:

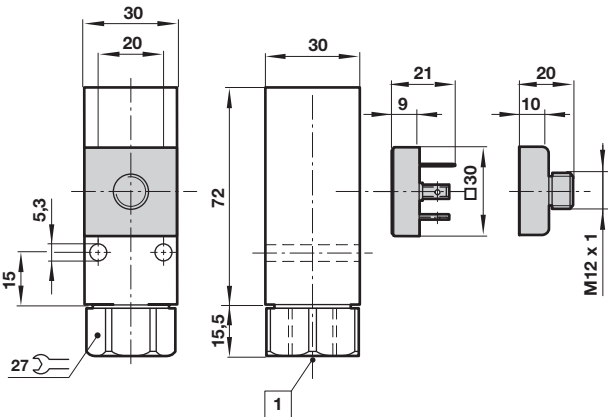
R_L in Ω ≈ 0,2 x R_{Load} in Ω

C in [μF] ≈ I_{Load} in [A]

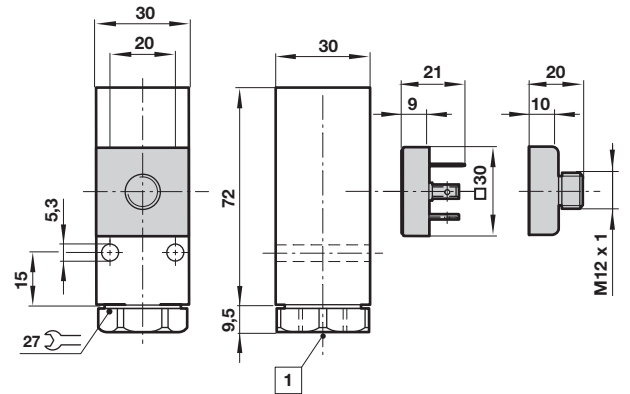


Drawings

①



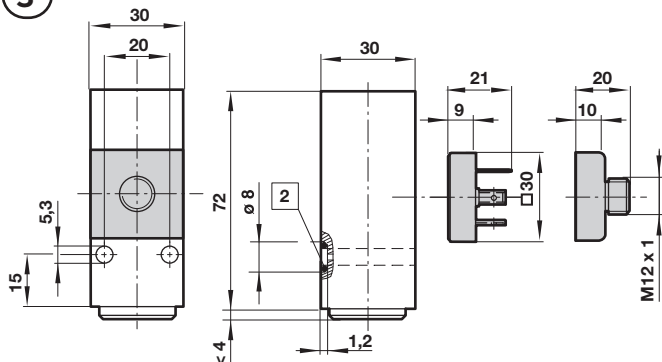
②



Dimensions in mm
Projection/First angle



③



- ① Fluid port
- ② O-ring 5 x 1,5

Adjustable switch point

After releasing the locking screw

Clockwise rotation = increasing switch point

Counter clockwise rotation = decreasing the switch point

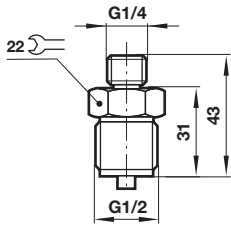


- ④ Switch point screw
- ⑤ Locking screw



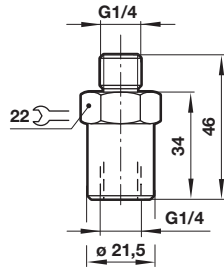
Pressure port reducing nipple

Model: 0574767 (brass)
0550083 (stainless steel)



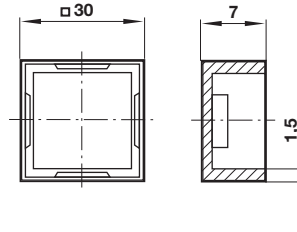
Surge damper

Model: 0574773 (brass)
0553258 (stainless steel)



Cover

Model: 0554737 (plastic)



Dimensions in mm
Projection/First angle

