PRESSURE SWITCH - Model 18D

NORGREN
Incorporating HERION

Diaphragm Actuated
Vacuum to 435 PSI

BROCHURE 1628

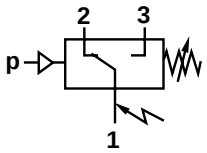
- **Rugged compact design**
- **Convenient setpoint adjustment**
- **Vibration resistant to 15g**
- **Microswitch approved by UL and CSA**
- **Gold plated contacts – suitable for use in intrinsically safe circuits**
- **Plug-in electrical connections**

TECHNICAL DATA

Fluid:	Neutral gasses and light oil (Optional versions with brass pressure port for water-based fluids)
Construction:	Diaphragm Actuated
Port Size:	1/4 NPT, G1/4 (BSPP), Flange
Adjustment Range:	VAC to 435 psi (-1 to 30 bar)
Ambient Temperature:	14° to 175°F (-10° to 80°C)
Maximum Viscosity:	450 SSU (1000 mm^2/s)
Fluid Temperature:	-4° to 175°F (-20° to 80°C)
Repeatability:	± 3%, for vacuum ± 4%
Electrical Connection:	DIN 43650 Table A
Switching Element:	Microswitch
Environmental Protection:	IP65
Mounting:	Arbitrary
Weight:	.4 lbs (0.2 kg)

Graphic Symbol

Switching function: Microswitch SPDT
Terminals 1 - 3: Contacts close on rising pressure.
Terminals 1 - 2: Contacts open on rising pressure.



General Information

(Part numbers include mating connector)

Part Number	Pressure Range psi (bar)	Switching Pressure Difference (Hysteresis)* psi (bar) Lower Range	Switching Pressure Difference (Hysteresis)* psi (bar) Upper Range	Maximum Over Pressure ** psi (bar)	Materials Housing/ Port	Materials Seal Dyn./Static	Fluid Connection Type	Fluid Connection Size	Dimension Drawing No.
0880100	-14 – 0 (-1 – 0)	2 (0.15)	3 (0.18)	1150 (80)	Al	FKM/NBR	Female	G1/4	01
0880120	-14 – 0 (-1 – 0)	2 (0.15)	3 (0.18)	1150 (80)	Al	FKM/NBR	Female	1/4 NPT	01
0881100	-14 – 0 (-1 – 0)	2 (0.15)	3 (0.18)	1150 (80)	Al	FKM/NBR	Flange	-	03
0880200	3 – 30 (0.2 – 2)	2 (0.15)	4 (0.27)	1150 (80)	Al	FKM/NBR	Female	G1/4	01
0880220	3 – 30 (0.2 – 2)	2 (0.15)	4 (0.27)	1150 (80)	Al	FKM/NBR	Female	1/4 NPT	01
0880240	***3 – 30 (0.2 – 2)***	***2 (0.15)***	***4 (0.27)***	***1150 (80)***	***Al / BR***	***FKM/NBR***	***Female***	***1/4 NPT***	***01***
0881200	3 – 30 (0.2 – 2)	2 (0.15)	4 (0.27)	1150 (80)	Al	NBR/NBR	Flange	-	03
0880300	7 – 120 (0.5 – 8)	4 (0.25)	9 (0.65)	1150 (80)	Al	NBR/NBR	Female	G1/4	02
0880320	7 – 120 (0.5 – 8)	4 (0.25)	9 (0.65)	1150 (80)	Al	NBR/NBR	Female	1/4 NPT	02
0880340	***7 – 120 (0.5 – 8)***	***4 (0.25)***	***9 (0.65)***	***1150 (80)***	***Al / BR***	***NBR/NBR***	***Female***	***1/4 NPT***	***02***
0881300	7 – 120 (0.5 – 8)	4 (0.25)	9 (0.65)	1150 (80)	Al	NBR/NBR	Flange	-	04
0880400	15 – 230 (1 – 16)	4 (0.30)	13 (0.90)	1150 (80)	Al	NBR/NBR	Female	G1/4	02
0880420	15 – 230 (1 – 16)	4 (0.30)	13 (0.90)	1150 (80)	Al	NBR/NBR	Female	1/4 NPT	02
0881400	15 – 230 (1 – 16)	4 (0.30)	13 (0.90)	1150 (80)	Al	NBR/NBR	Flange	-	04
0880600	15 – 435 (1 – 30)	15 (1.0)	73 (5.00)	1150 (80)	Al	NBR/NBR	Female	G1/4	02
0880620	15 – 435 (1 – 30)	15 (1.0)	73 (5.00)	1150 (80)	Al	NBR/NBR	Female	1/4 NPT	02

Versions with brass port suggested for water based fluids.

* Hysteresis is not adjustable. Maximum values shown.
** Do not subject switch to max. allowable pressure during normal operation. Even short pressure peaks must not exceed this value.

Materials:
Al = Aluminum
NBR = Buna N
FKM = Viton
BR = Brass (port only)

Making And/Or Breaking Capacity

Load Level*	Type of Current	Type of Load	Vmin [V]	Maximum Permanent Current Imax [A] at V 24 V	125 V	250 V	Contact life electrical at I_{max}	Contact life mechanical at I ² 0
Standard (relays, solenoids)	AC	Resistive	12	5	5	5	5×10^4 switching cycles	approx 10^7 switching cycles
	AC	Inductive PF ² 0.7	12	3	3	3		
	DC	Resistive	12	5	.4	-		
	DC	Inductive L/R ² 10 ms	12	3	.05	-		
Low (electronic circuits)	AC	Resistive	5	.34	.08	.04	2×10^5 switching cycles	approx 10^7 switching cycles
	DC	Inductive L/R ² 10 ms	5	.1	-	-		

* Load Level Explanation

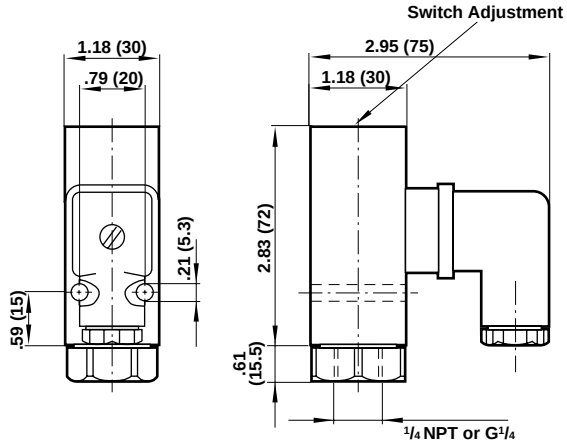
Series 18D Pressure Switches have microswitch contacts with gold-plating over silver base metal. The gold plating remains intact when “low level” voltage / current levels are observed. This feature assures highly reliable switching in low-level electronic circuits.

Standard applications do **not** require the gold plating which will decay naturally when switching larger electrical loads.

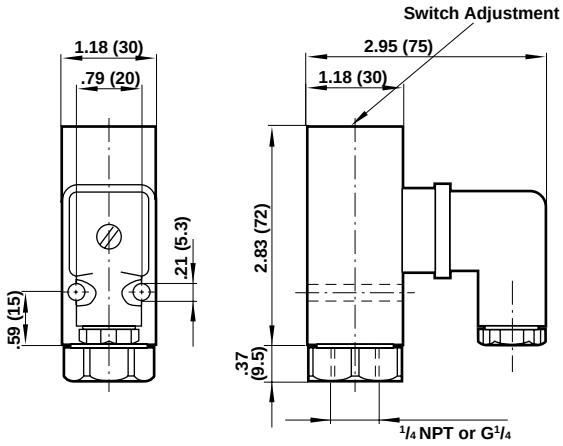
Notes:

1. Reference conditions:
   30 cycles per min and 86°F (30°C) ambient.
2. Reducing load current to 50% of I max approximately doubles contact life.
3. Creepage and clearance distances correspond to insulation group B per VDE Reg. 0110 (except contact clearance of microswitch.

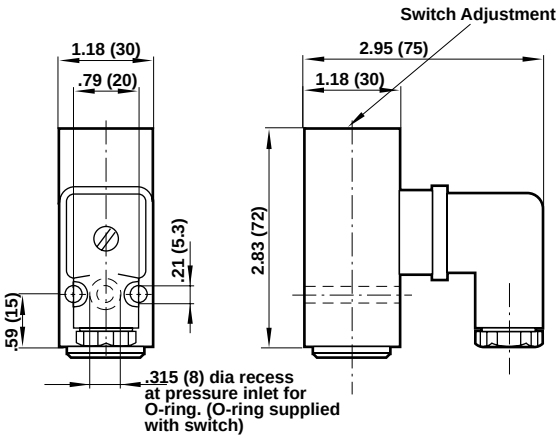
Dimensional drawing 01



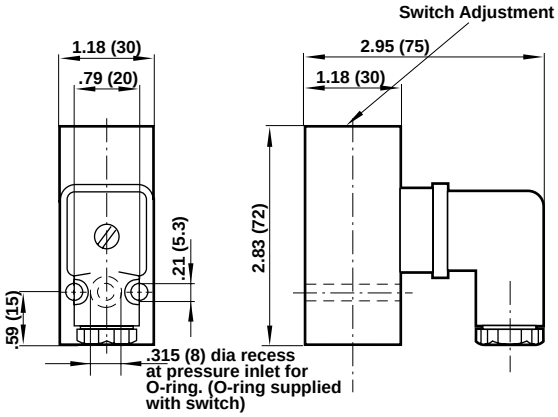
Dimensional drawing 02



Dimensional drawing 03 (flange mount)

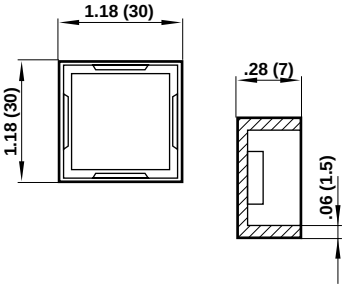


Dimensional drawing 04 (flange mount)



Protective Cover

An optional elastomer cover for protection of the switch adjustment against dirt and splashing liquids



Part No. 0554737

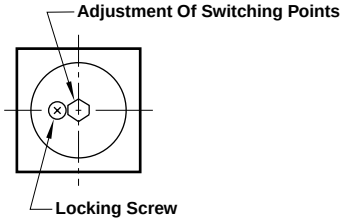
Switch Selection and Mounting Instructions

- Select a switch such that the desired switching point falls roughly in the middle of the adjustment range.
- Do not exceed switch electrical ratings. Use an appropriately sized relay when switching larger electrical loads.
- For liquid media with pressure spikes and/or pulsating pressures, install a pressure snubber.
- For outdoor applications, sufficient protection must be provided.

Adjustment of Switching Point

Either the upper **or** the lower switching point may be adjusted. The opposite one is then fixed by the hysteresis characteristics of the switch.
Use a pressure gauge for exact adjustment. Proceed as follows:

1. Loosen locking screw.
2. Adjust the switching point using a 5 mm hexagon wrench. Clockwise rotation increases switching pressure and counter-clockwise rotation decreases switching pressure.
   Low-end of adjustment range is reached when top of adjustment barrel is approximately level with top of switch housing. High-end of adjustment range is reached when adjustment barrel is fully CW.
3. Re-tighten locking screw.



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