

PS32 – Elastomer Diaphragm OEM Subminiature Pressure Switch

- ▶ 5 to 150 psi (.345 to 10 bar) *formerly PS-JL series*
- ▶ Ideal for Pneumatic and Low Pressure Hydraulic Applications
- ▶ Adjustable or Factory Set

These compact pressure switches are designed for OEM applications. Made economical by using metal blade contacts in lieu of microswitches, the series features long-lasting Elastomer diaphragms in three materials. Elastomer diaphragms offer increased sensitivity and life for applications without temperature extremes.

Specifications

Operating Temperature	-40°F to +200°F (-40°C to +93°C)
Switch*	100 VA Max.
Repeatability	±5% of Full Set Point Range @ 70°F (20°C)
Wetted Parts	
Diaphragm	Elastomer (Nitrile standard) (Viton, EPDM optional)
Fitting	Brass standard (optional 316 SS)
Electrical Termination	Exposed Terminals IP00; IP option IP66
Deadband	<5% of Set Point
Proof Pressure	500 psi (35 bar)
Approvals	CE (limits switch voltage to 42 VDC)
Weight, Approximate	Brass: 0.14 lbs. (0.06 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.

How To Order

Use the **Bold** characters from the chart below to construct a product code.

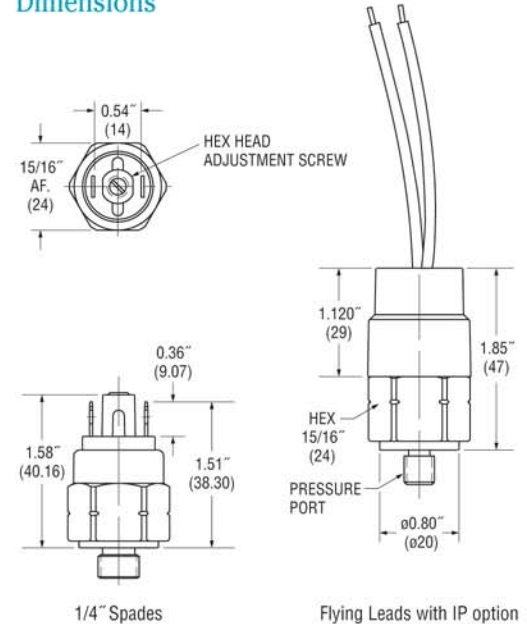
SELECT	PS32	-20	-4MNB	-A	-SP	-XX	-XXXX
1. Pressure Range Code Insert Pressure Range Code from table below right							
2. Pressure Fitting ¹ Brass -2MNB 1/8" NPTM -4MNB 1/4" NPTM -2MGB 1/8" BSPM -4MGB 1/4" BSPM -4MSB 7/16"-20 SAE Male			316 Stainless Steel -2MNS 1/8" NPTM -4MNS 1/4" NPTM -2MGS 1/8" BSPM -4MGS 1/4" BSPM -4MSS 7/16"-20 SAE Male				
3. Circuit -A SPST/NO; -B SPST/NC							
4. Electrical Termination -SP Spade Terminals (standard); -TS Terminal Screws; -FLXX Flying Leads ² ; -FLSXX Flying Leads w/PVC Shrink Tubing ² ; -CABXX 18 AWG PVC Cable ³							
5. Options -V Viton® Diaphragm; -E EPDM Diaphragm; -H ECOH Diaphragm; -G Gold Contacts (for loads less than 12 mA @ 12 VDC); -IP Ingress Protection ⁴ ; -OXY Oxygen Cleaned; -RB Rubber Boot (shipped loose); -WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male; -DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional) A. Specify set point -FS (in PSI or BAR, see example) ⁵ B. Set Point Actuation R on Rising Pressure; F on Falling Pressure Example: -FS0.6BARF for 0.6 BAR Falling or -FS10PSIR for 10 PSI Rising							

Notes:

- Other connectors available. Consult factory.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices and requires Fixed Set Point (-FS).
- Set Point must be within Pressure Range selected in Step 1 above.



Dimensions



Pressure Range Table

Pressure Range Code	Pressure Range
20	5-25 psi (0.345-1.7 bar)
30	20-60 psi (1.4-4.1 bar)
40	50-150 psi (3.4-10.3 bar)

PS61 – OEM Subminiature Pressure Switch

- ▶ 15 to 3000 psi (1 to 207 bar) *formerly PS-J series*
- ▶ Exceptional Size-to-Pressure-Range Ratio
- ▶ Adjustable or Factory Set

These compact pressure switches are designed for OEM applications. They are equipped with high proof pressure capabilities for demanding hydraulic applications such as forklifts, scissor lifts, and off road equipment.

Specifications

Operating Temperature	-40°F to +200°F (-40°C to +93°C)
Switch*	100 VA Max.
Repeatability	±3% of Full Set Point Range @ 70°F (20°C)
Wetted Parts	
Diaphragm	Nitrile (optional Neoprene, EPDM or Viton®)
Fitting	Zinc Plated Steel (optional 316 Stainless Steel)
Electrical Termination	Exposed Terminals IP00; IP option IP66
Deadband	<5% of Set Point
Proof Pressure	9000 psi (600 bar)
Approvals	CE (limits switch voltage to 42 VDC)
Weight, Approximate	Brass: 0.14 lbs. (0.06 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.
Kapton® and Viton® are registered trademarks of Dupont.

How To Order

Use the **Bold** characters from the chart below to construct a product code.

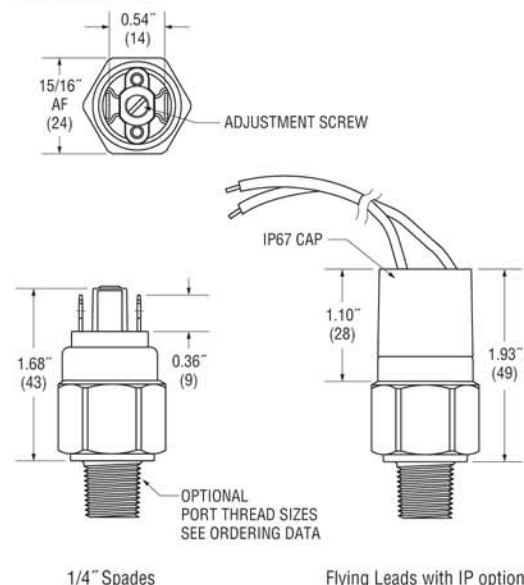
SELECT	PS61	-10	-4MNZ	-A	-SP	-XX	-XXXX
1. Pressure Range Code Insert Pressure Range Code from table below right							
2. Pressure Fitting ¹							
12L14 Zinc Plated Steel			316 Stainless Steel				
-2MNZ 1/8" NPTM 12L14			-2MNS 1/8" NPTM				
-4MNZ 1/4" NPTM 12L14			-4MNS 1/4" NPTM				
-2MGZ 1/8" BSPM 12L14			-2MGS 1/8" BSPM				
-4MGZ 1/4" BSPM 12L14			-4MGS 1/4" BSPM				
-4MSZ 7/16"-20 SAE Male			-4MSS 7/16"-20 SAE Male				
-6MSZ 9/16"-18 SAE Male			-6MSS 9/16"-18 SAE Male				
-8MSZ 3/4"-16 SAE Male							
-M10Z M10 x 1.0, Straight							
-M12Z M12 x 1.5, Straight							
3. Circuit							
-A SPST/NO; -B SPST/NC							
4. Electrical Termination							
-SP Spade Terminals (standard); -TS Terminal Screws; -FLXX Flying Leads ² ;							
-FLSXX Flying Leads w/PVC Shrink Tubing ² ; -CABXX 18 AWG PVC Cable ³							
5. Options							
-V Viton® Diaphragm; -E EPDM Diaphragm; -N Neoprene Diaphragm;							
-H ECOH Diaphragm; -G Gold Contacts (for loads less than 12 mA @ 12 VDC);							
-IP Ingress Protection ⁴ ; -R Restrictor (low damping coefficient) Brass;							
-SR Spiral Restrictor (high damping coefficient) 12L14 Steel w/Black Oxide Finish;							
-OXY Oxygen Cleaned; -RB Rubber Boot (shipped loose);							
-WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male;							
-DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional)							
A. Specify set point -FS (in PSI or BAR, see example) ⁵							
B. Set Point Actuation							
R on Rising Pressure; F on Falling Pressure							
Example: -FS3BARF for 3 BAR Falling or -FS60PSIR for 60 PSI Rising							

Notes:

- Other connectors available. Consult factory.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices and requires Fixed Set Point (-FS).
- Set Point must be within Pressure Range selected in Step 1 above.



Dimensions



Pressure Range Table

Pressure Range Code	Adjustment Ranges
11	15-60 psi (1-4 bar)
15	40-150 psi (3-10 bar)
19	75-275 psi (5.17-17.2 bar)
25	150-500 psi (10.3-34.5 bar)
35	400-1100 psi (27.6-75.8 bar)
50	1000-3000 psi (69.0-206.8 bar)

Adjustable pressure switches PMN... Subminiature series Adjusting range from 0.1 to 300 Bar

USE

This series of subminiature pressure switches is generally used to check the pressure either in oil or grease lubrication plants and hydraulic, pneumatic and water circuits. These pressure switches are designed with an hexagonal body, NBR oil-proof membrane, silver contacts, faston connection and springs to balance and adjust the pressure to be checked. To adjust the pressure, turn with a small screwdriver the V adjusting screw, paying attention not to affect the spring.

On request pressure switches set at the required value are supplied.

NO or NC electric contact position refers to the status in absence of pressure. It is advisable to protect the electric connections and the internal parts against moisture and dust infiltration using protection CAP1 or CAP10.

PRESSURE SWITCH MATERIALS FOR STANDARD EXECUTION

"F" Contact holder	Nylon 6,6
Protection caps	NBR black
Membrane	NBR
Ch24 Body	Brass
Electric contacts	Silver plated copper 3 micron
Piston for high pressure	NBR
Ch24 Body	Tropicalized steel

TECHNICAL DATA FOR STANDARD EXECUTION

Maximum voltage	48 V
Current	0.5A (resistive) 0.2A (inductive)
Working temperature	-5° + 60° C
Protection	IP 00
Protection with CAP 1	IP 54
Protection with CAP 10	IP 54
Max. no. of strokes at 25 °C	200/1" NBR membrane
Max. no. of strokes at 25 °C	80/1" NBR piston
Mechanical life	10 ⁶ cycles
Stiffness test	1500 V - 10 mA - 10"
Tightening torque	max. 5 Kgm

EXAMPLE

ORDERING EXAMPLE

PART NO.

PMN	50	A	14K
31561			

ORDERING CODE

PMN...	Pressure switch with faston 6.3 x 0.8
A	NO contact (without pressure)
C	NC contact (without pressure)
T2	Set Point adjustment rising at the required value (2 bar)
T2D	Set Point adjustment falling at the required value (2 bar)

Special Membranes (on request)

V	Viton membrane (-5 °C + 90 °C)
S	Silicone membrane (-30 °C + 120 °C)
NT	Special membrane (-40 °C + 140 °C)
N	Neoprene membrane (-10 °C + 90 °C)
E	EPDM membrane (-20 °C + 110 °C)
MI	Stainless steel membrane

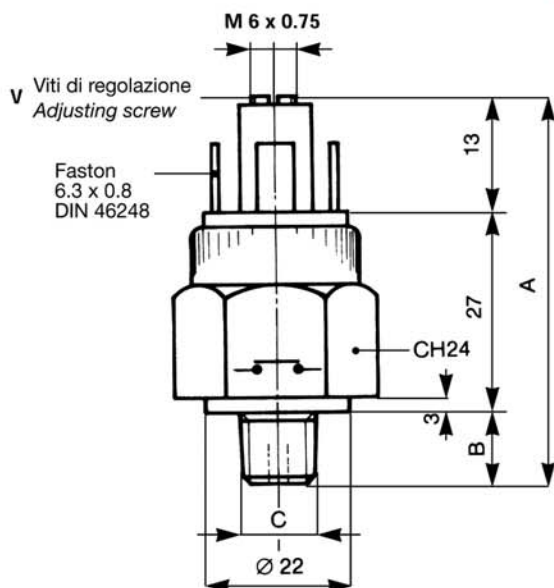
Available threads (C)

-	G1/8K taper thread standard
14K	G1/4K taper thread
10K	M10 x 1 taper thread
M12	M12 x 1,5 parallel
R14	G1/4 parallel

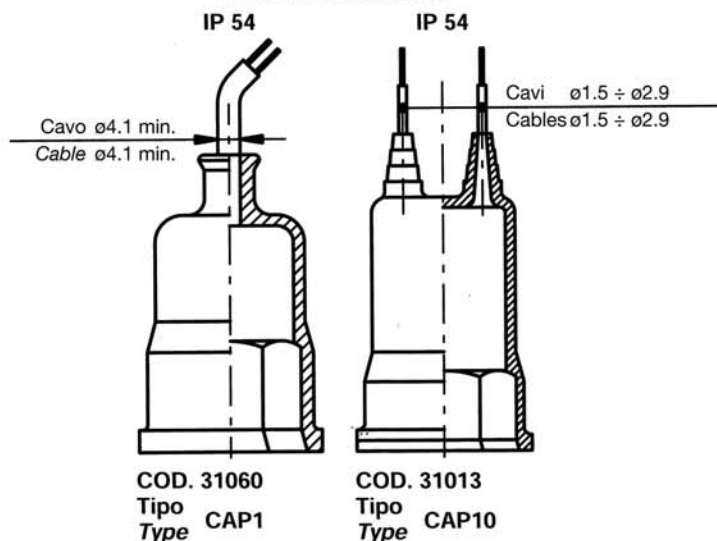
Special executions (on request)

I	Body in AISI 303 stainless steel
P	Pocan contact holder temp. -40 °C + 140 °C
AP	Execution for high pressure with body in tropicalized steel
G	Gold plated 3 micron contacts for low current
SG	Degreased for oxygen
TG	Tested for gases

IN COMPLIANCE WITH CE 89/336 STANDARDS EMC No. 147E/96 REPORT



CAPPUCCIO DI PROTEZIONE PROTECTION CAPS



Campo di lavoro Bar Adjusting range Bar	Max. pres. statica support. in Bar Max static pressure Bar	Contatto NA  NO contact		Contatto NC  NC contact		A	B	C	Tolleranza di intervento in Bar a 25 °C Tolerance Bar at 25 °C	Differenziale fisso a 25 °C Fixed hysteresis at 25 °C in bar	Esecuzione	Corpo	Peso	
		CODICE Code	SIGLA Type PMN...	CODICE Code	SIGLA Type PMN...									Execution
0,1 ÷ 1	80	31430	PMN1A	31440	PMN1C	50	10	G 1/8K	± 0,1	0,1	NBR Membrana Membrane	Ottone Brass	63	
		31500	PMN2A	31510	PMN2C	50	10	G 1/8K	± 0,15	0,15			63	
0,15 ÷ 2	80	31501	PMN2A14K	31511	PMN2C14K	52	12	G 1/4K					69	
		31502	PMN2A10K	31512	PMN2C10K	50	10	M10 x 1K					63	
2 ÷ 10	80	31520	PMN10A	31530	PMN10C	50	10	G 1/8K					± 0,3	0,2
		31521	PMN10A14K	31531	PMN10C14K	52	12	G 1/4K	69					
		31522	PMN10A10K	31532	PMN10C10K	50	10	M10 x 1K	63					
10 ÷ 20	300	31540	PMN20A	31550	PMN20C	50	10	G 1/8K	± 0,4	0,3		63		
		31541	PMN20A14K	31551	PMN20C14K	52	12	G 1/4K				69		
		31542	PMN20A10K	31552	PMN20C10K	50	10	M10 x 1K				63		
20 ÷ 50	300	31560	PMN50A	31570	PMN50C	50	10	G 1/8K	± 1	0,8		63		
		31561	PMN50A14K	31571	PMN50C14K	52	12	G 1/4K				69		
		31562	PMN50A10K	31572	PMN50C10K	50	10	M10 x 1K				63		
50 ÷ 80	300	31580	PMN80A	31590	PMN80C	50	10	G 1/8K	± 2	5,5		63		
		31581	PMN80A14K	31591	PMN80C14K	52	12	G 1/4K				69		
		31582	PMN80A10K	31592	PMN80C10K	50	10	M10 x 1K				63		
50 ÷ 150	300	31410	PMN150A	31420	PMN150C	50	10	G 1/8K	± 5	10	NBR Pistone Piston	Acciaio tropicalizzato Tropicalized steel	63	
		31411	PMN150A14K	31421	PMN150C14K	52	12	G 1/4K					69	
		31412	PMN150A10K	31422	PMN150C10K	50	10	M10 x 1K					63	
100 ÷ 250	600	31450	PMN250A	31460	PMN250C	50	10	G 1/8K	± 10	15			63	
		31451	PMN250A14K	31461	PMN250C14K	52	12	G 1/4K					69	
		31452	PMN250A10K	31462	PMN250C10K	50	10	M10 x 1K					63	
50 ÷ 300	600	31470	PMN300A	31480	PMN300C	52	10	G 1/8K	± 15	20			79	
		31471	PMN300A14K	31481	PMN300C14K	54	12	G 1/4K					85	
		31472	PMN300A10K	31482	PMN300C10K	52	10	M10 x 1K					79	
0,15 ÷ 2	150	31507	PMN2AI	31517	PMN2CI	50	10	G 1/8K	± 0,2	0,15			NBR Membrane	Acciaio Inox AISI 303 AISI 303 stainless steel
	80	31507MI	PMN2AIMI	31517MI	PMN2CIMI	50	10	G 1/8K				INOX Membrane	63	
2 ÷ 10	150	31527	PMN10AI	31537	PMN10CI	50	10	G 1/8K	± 0,3	0,2		NBR Membrane	63	
	80	31527MI	PMN10AIMI	31537MI	PMN10CIMI	50	10	G 1/8K				INOX Membrane	63	
10 ÷ 20	150	31547	PMN20AI	31557	PMN20CI	50	10	G 1/8K	± 0,4	0,3		NBR Membrane	63	
	80	31547MI	PMN20AIMI	31557MI	PMN20CIMI	50	10	G 1/8K				INOX Membrane	63	
20 ÷ 50	150	31567	PMN50AI	31577	PMN50CI	50	10	G 1/8K	± 1	0,8		NBR Membrane	63	
	100	31567MI	PMN50AIMI	31577MI	PMN50CIMI	50	10	G 1/8K			INOX Membrane	63		
50 ÷ 80	150	31587	PMN80AI	31597	PMN80CI	50	10	G 1/8K	± 2	5,5	Membrana NBR	63		
50 ÷ 150	300	31417	PMN150AI	31427	PMN150CI	50	10	G 1/8K	± 5	10	Piston NBR	63		

PS11 – Ultra-Long Life OEM Pressure Switches

- ▶ 0.55 to 12 psi (40 to 800 mbar)
- ▶ 1,000,000 Cycle Life
- ▶ Factory Fixed or Adjustable Set Points

For low pressure applications, the longevity of our PS11 Series is hard to beat. A life expectancy of 1 million cycles means long-term reliability. Their snap-action microswitch resets automatically and meets or exceeds industry standards. The brass housing offers chemical resistance at an affordable price.

Specifications

Operating Temperature	-40°F to +180°F (-40°C to +80°C)
Switch*	5 Amp at 24 VDC and 250 VAC; 0.5 Amp @ 24 VDC (-G option)
Repeatability	±2% of Full Set Point Range at 70°F (20°C) ambient temp.
Wetted Parts	
Diaphragm	Nitrile (optional Viton®, EPDM or Kapton®)
Fitting	Brass
Housing	Brass
Electrical Termination	DIN 43650A IP00; Terminals IP00; Flying Leads IP00
Proof Pressure	150 psi (10 bar)
Approvals	CE, UL Approved units available
Weight, Approximate	0.31 lbs. (0.14 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.

How To Order

Use the **Bold** characters from the chart below to construct a product code.

SELECT	PS11	-10	-4MNB	-C	-HC	-XX	-XXXX
1. Pressure Range Code Insert Pressure Range Code from table below							
2. Pressure Fitting ¹ -2MNB 1/8" NPTM Brass; -4MNB 1/4" NPTM Brass; -2FNB 1/8" NPTF Brass; -4MGB 1/4" BSPM Brass; -4MSB 7/16"-20 SAE Male, Brass; -6MSB 9/16"-18 SAE Male, Brass							
3. Circuit -A SPST/NO; -B SPST/NC; -C SPDT -AA DPST/NO; -BB DPST/NC; -CC DPDT							
4. Electrical Termination ² -FLXX Flying Leads ³ ; -ELXX 1/2" Male NPT Conduit w/Flying Leads ³ ; -H DIN 43650A Male Half Only; -HC DIN 43650A 9mm Cable Clamp; -HN DIN 43650A 1/2" NPT Female Conduit							
5. Options -V Viton® Diaphragm; -E EPDM Diaphragm; -K Kapton® Diaphragm; -IP Ingress Protection ⁴ ; -G Gold Contacts (for loads less than 12 mA @ 12 VDC); -OXY Oxygen Cleaned; -WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male; -DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional) A. Specify set point -FS (in PSI or mBAR, see example) ⁵ B. Set Point Actuation R on Rising Pressure; F on Falling Pressure Example: -FS200MBARF for 200 mBAR Falling or -FS3PSIR for 3 PSI Rising							

Notes:

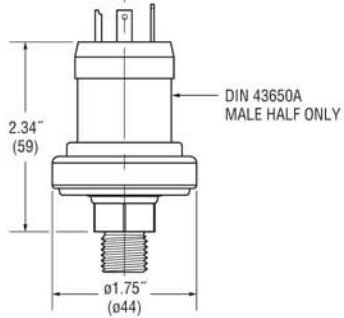
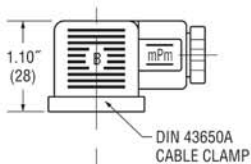
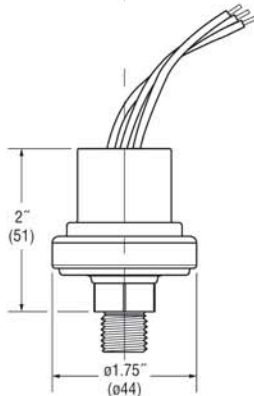
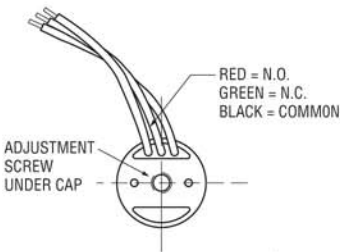
- Other connectors available. Consult factory.
- DIN units are available with -C SPDT circuit only.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -EL30.
- Ingress Protection requires Fixed Set Point -FS.
- Set Point must be within Pressure Range selected in Step 1 above.
- Plastic housing is vented to atmosphere. Consult factory for non vented version.

Pressure Range Table

Pressure Range Code	Pressure Range	Average Dead Band
10	1-4 psi (68.9-275.8 mbar)	.07-.02 psi (5-15 mbar)
20	3.5-12 psi (241.3-827.4 mbar)	.3-.6 psi (20-45 mbar)



Dimensions



PS41 – Economical Miniature Pressure Switches

► 3 to 100 psi (0.2 to 7 bar) – formerly PS-E series

These miniature pressure switches are designed for demanding applications where space and/or price are strong concerns. The switches utilize a piston/diaphragm design, which incorporates the high proof pressure of piston technology with the sensitivity of diaphragm designs. Switches are field adjustable via an Allen head screw that is hidden to protect against unauthorized tampering.

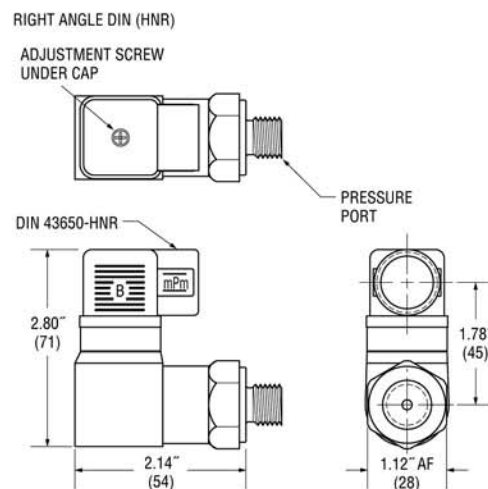
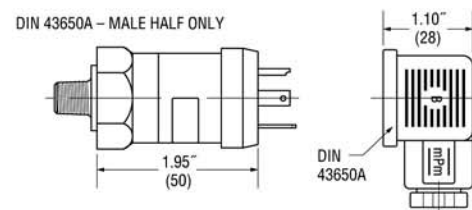
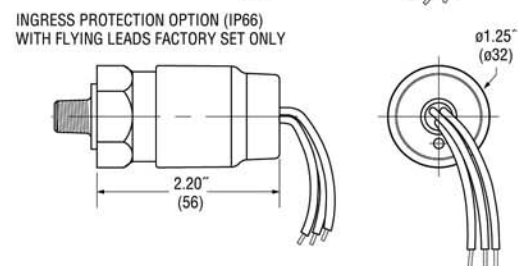
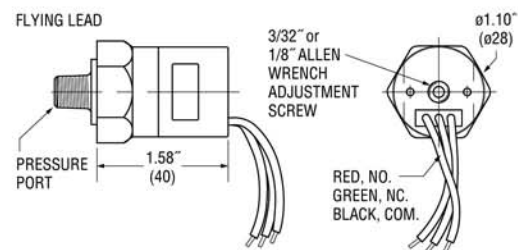
Specifications

Operating Temperature	-40°F to +180°F (-40°C to +80°C)
Switch*	5 Amp at 12/24 VDC and 125/250 VAC (optional 10 Amp or 1 Amp Gold Contacts)
Repeatability	±2% of Full Set Point Range @ 70°F (20°C)
Wetted Parts	
Diaphragm Material	Nitrile (optional EPDM, Viton® or Neoprene)
Fitting	Brass (optional 316 Stainless Steel)
Electrical Termination	DIN 43650A IP65; Terminals IP00; Flying Leads IP65; Option IP: IP66
Proof Pressure	350 psi (25 bar)
Approvals	CE, UL Approved units available
Weight, Approximate	0.3 lbs. (0.14 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.
Viton® is a registered trademark of Dupont.



Dimensions



How To Order

Use the **Bold** characters from the chart below to construct a product code.

SELECT	PS41	-10	-4MNB	-C	-H	-XX	-XXXX
1. Pressure Range Code	Insert Pressure Range Code from table below						
2. Pressure Fitting ¹	Brass <u>316 Stainless Steel</u> -2MNB 1/8" NPTM -2MNS 1/8" NPTM -4MNB 1/4" NPTM -4MNS 1/4" NPTM -2MGB 1/8" BSPM -4MGS 1/4" BSPM -4MGB 1/4" BSPM -4MSS 7/16"-20 SAE Male -4MSB 7/16"-20 SAE Male -6MSB 9/16"-18 SAE Male						
3. Circuit	-A SPST/NO; -B SPST/NC; -C SPDT						
4. Electrical Termination	-SP Spade Terminals ² ; -FLXX Flying Leads ³ ; -FLSXX Flying Leads w/PVC Shrink Tubing ³ ; -ELXX 1/2" NPT Male Conduit w/Flying Leads ⁴ ; -CABXX 18 AWG PVC Cable ⁵ ; -H DIN 43650A Male Half Only ⁶ ; -HR Right Angle DIN 43650A Male Half Only ⁶ ; -HC DIN 43650A 9mm Cable Clamp ⁶ ; -HCR Right Angle DIN 43650A 9mm Cable Clamp ⁶ ; -HN DIN 43650A with 1/2" Female NPT Conduit ⁶ ; -HNR Right Angle DIN 43650A with 1/2" Female NPT Conduit ⁶ ;						
5. Options ⁷	-V Viton Diaphragm; -N Neoprene Diaphragm; -E EPDM Diaphragm; -10A 10A @ 125/250 VAC Max. Rating; -G Gold Contacts (for loads less than 12 mA @ 12 VDC); -RD Reduced Differential (50% reduction typical); -IP Ingress Protection ⁸ ; -OXY Oxygen Cleaned; -WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male; -DE Deutsch Connector, Male, DT04 Series						
6. Fixed Set Point (optional)	A. Specify set point -FS (in PSI or BAR, see example) ⁹ B. Set Point Actuation R on Rising Pressure; F on Falling Pressure Example: -FS0.5BARF for 0.5 BAR Falling or -FS5PSIR for 5 PSI Rising						

Notes:

- Other connectors available. Consult factory.
- Requires -10A or -G option.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -EL18 or -EL30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- DIN connectors require -C SPDT circuit.
- Options -10A, -G or -RD cannot be combined.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices. Ingress Protection requires Fixed Set Point -FS.
- Set Point must be within Pressure Range selected in Step 1 above.

Pressure Range Table

Pressure Range Code	Pressure Range	Average Dead Band
10	3-7 psi (0.2-0.5 bar)	1-2 psi (0.07-0.14 bar)
20	5-30 psi (0.35-2.1 bar)	2-4 psi (0.14-0.28 bar)
30	25-100 psi (1.7-6.9 bar)	3-12 psi (0.21-0.85 bar)

PS71 – General Purpose Mini Pressure Switches

▶ 10 to 5000 psi (.7 to 344 bar) *formerly PS-EH series*

These versatile general purpose switches with snap action microswitches can be used in a wide range of hydraulic and pneumatic applications. Their proven piston/diaphragm design offers outstanding accuracy over a very wide pressure range with an outstanding 9000 psi proof pressure. Their modular construction allows Gems to offer a large number of standard pressure fittings in two materials as well as numerous electrical ratings and terminations. Users can easily configure this model to meet their needs.

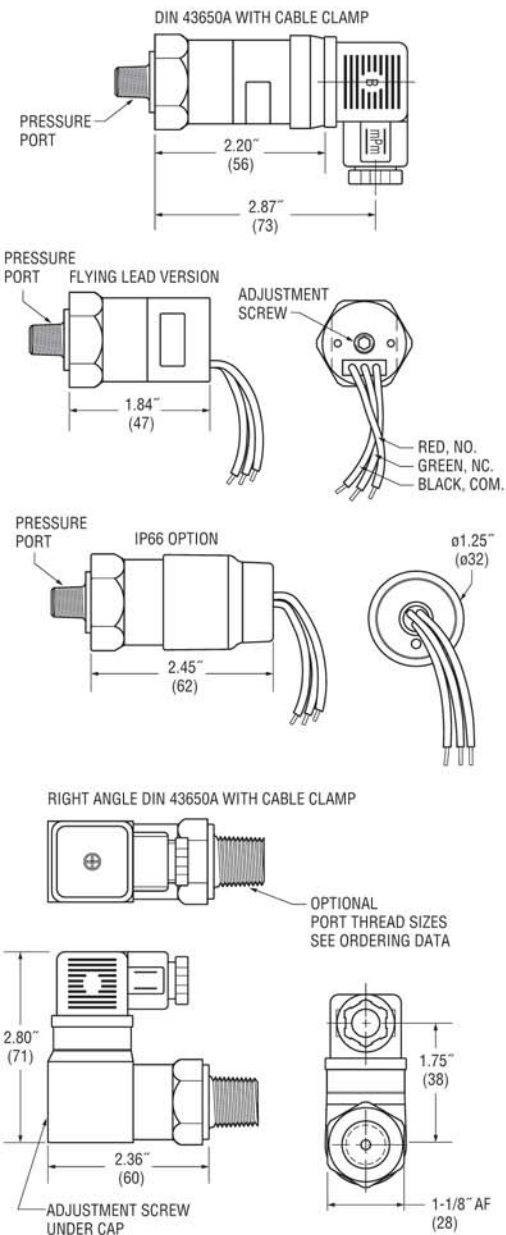
Specifications

Operating Temperature	-40°F to +180°F (-40°C to +80°C)
Switch*	5 Amp at 12/24 VDC and 125/250 VAC (Optional 10 Amp or 1 Amp with Gold contacts)
Repeatability	±2% of Full Set Point Range @ 70°F (20°C)
Wetted Parts	
Diaphragm	Nitrile (optional EPDM, Viton® or Neoprene)
Fitting	Zinc Plated Steel (Optional 316 SS)
Electrical Termination	DIN 43650A IP65; Spade Terminals IP00; Flying Leads IP65; Conduit with Flying Leads IP00; IP option IP66
Proof Pressure	9000 psi (600 bar)
Approvals	CE, UL Approved units available
Weight, Approximate	0.4 lbs. (0.15 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.
Viton® is a registered trademark of Dupont.



Dimensions



How To Order

Use the **Bold** characters from the chart below to construct a product code.

SELECT	PS71	-10	-4MNZ	-C	-H	-XX	-XXXX
1. Pressure Range Code	Insert Pressure Range Code from table below						
2. Pressure Fitting ¹	12L14 Zinc Plated Steel -2MNZ 1/8" NPTM -4MNZ 1/4" NPTM -2MGZ 1/8" BSPM -4MGZ 1/4" BSPM -4MSZ 7/16"-20 SAE Male -6MSZ 9/16"-18 SAE Male 316 Stainless Steel -2MGS 1/8" BSPM -4MNS 1/4" NPTM -4MGS 1/4" BSPM						
3. Circuit	-A SPST/NO; -B SPST/NC; -C SPDT						
4. Electrical Termination	-SP Spade Terminals ² ; -FLXX Flying Leads ³ ; -FLSXX Flying Leads w/PVC Shrink Tubing ³ ; -ELXX 1/2" NPT Male Conduit w/Flying Leads ⁴ ; -CABXX 18 AWG PVC Cable ⁵ ; -H DIN 43650A Male Half Only ⁶ ; -HR Right Angle DIN 43650A Male Half Only ⁶ ; -HC DIN 43650A 9mm Cable Clamp ⁶ ; -HCR Right Angle DIN 43650A 9mm Cable Clamp ⁶ ; -HN DIN 43650A with 1/2" Female NPT Conduit ⁶ ; -HNR Right Angle DIN 43650A with 1/2" Female NPT Conduit ⁶						
5. Options ⁷	-V Viton [®] Diaphragm; -E EPDM Diaphragm; -N Neoprene Diaphragm; -10A 10A @ 125/250 VAC Max. Rating; -G Gold Contacts (for loads less than 12 mA @ 12 VDC); -RD Reduced Differential (50% reduction typical); -IP Ingress Protection ⁸ ; -OXY Oxygen Cleaned ⁹ ; -R Restrictor (low damping coefficient) Brass; -SR Spiral Restrictor (high damping coefficient) 12L14 Steel w/Black Oxide Finish; -WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male; -DE Deutsch Connector, Male, DT04 Series						
6. Fixed Set Point (optional)	A. Specify set point -FS (in PSI or BAR, see example) ¹⁰ B. Set Point Actuation R on Rising Pressure; F on Falling Pressure Example: -FS2BARF for 2 BAR Falling or -FS20PSIR for 20 PSI Rising						

Notes:

- Other connectors available. Consult factory.
- Requires -10A or -G option.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 18" is standard. Specify cable length in inches (max. 48"). e.g. -EL18 or -EL30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- DIN connectors require -C SPDT circuit.
- Options -10A, -G or -RD cannot be combined.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices. Ingress Protection requires Fixed Set Point -FS.
- Requires stainless steel housing.
- Set Point must be within Pressure Range selected in Step 1 above.

Pressure Range Table

Pressure Range Code	Adjustment Ranges	Average Dead Band
10	10-30 psi (0.7-2.1 bar)	4-6 psi (0.25-0.40 bar)
20	25-75 psi (1.7-5.2 bar)	5-10 psi (0.35-0.65 bar)
30	65-300 psi (4.5-20.7 bar)	20-40 psi (1.3-2.6 bar)
40	250-1000 psi (17.2-69 bar)	40-85 psi (2.6-5.7 bar)
50	1000-3000 psi (69-206.8 bar)	120-220 psi (8-15 bar)
60	2500-5000 psi (172.4-344.7 bar)	300-500 psi (21-35 bar)

PS75 – Rugged Cylindrical Pressure Switch

- ▶ Side Mounted DIN Connection *formerly PS-FA series*
- ▶ Top Mounted Electrical Connection *formerly PS-FB series*
- ▶ 5 to 6000 psi (0.35 to 414 bar)
- ▶ Wear Disc Design for Longer Life
- ▶ DPDT Models Available

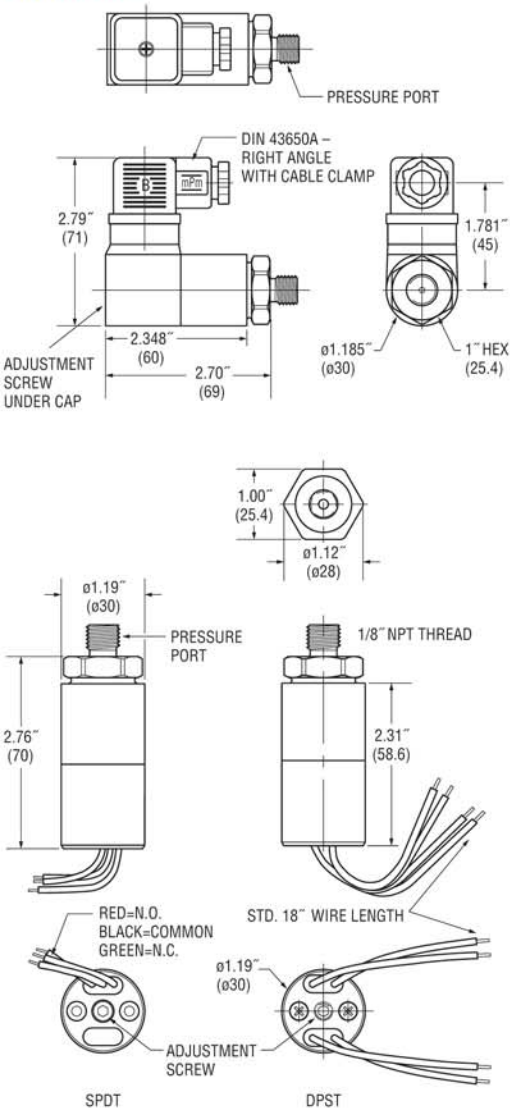
Gems PS75 Series have all metal surfaces for overload stops and deliver reliable operation under extremely high pressure surges. They are designed with a wear disc and cushioning ring for increased life. The switches use a piston/diaphragm design, which combine the high proof pressure of piston technology with the sensitivity of a diaphragm design. They can be field or factory adjusted.

Specifications

Operating Temperature	-40°F to +180°F (-40°C to +82°C)
Switch	5 Amp SPDT @ 120/240 VAC and 12/24 VDC; 1 Amp with Gold Contacts (-G option)
Repeatability	2% of full set point @ 70°F (20°C)
Wetted Parts	
Diaphragm	Nitrile (optional Viton®, Neoprene or EPDM)
Fitting	Zinc-Plated Steel (optional 316 Stainless Steel)
Housing	Zinc-Plated Steel (optional 316 Stainless Steel)
Electrical Termination	DIN 43650A IP65; Conduit with Flying Leads IP00; Flying Leads IP65
Proof Pressure	9000 psi (600 bar)
Approvals	CE, UL Approved units available
Weight, Approximate	0.5 lbs. (0.23 kg)



Dimensions



How To Order

Use the **Bold** characters from the chart below to construct a product code.

SELECT	PS75	-10	-4MNZ	-C	-H	-XX	-XXXX
1. Pressure Range Code	_____						
Insert Pressure Range Code from table below							
2. Pressure Fitting ¹	_____						
12L14 Zinc Plated Steel	316 Stainless Steel						
-2MNZ 1/8" NPTM	-4MNS 1/4" NPTM						
-4MNZ 1/4" NPTM	-4MGS 1/4" BSPM						
-4FNZ 1/4" NPTF	-4FGS 1/4" BSPF						
-4MGZ 1/4" BSPM	-6MSS 9/16"-18 SAE Male						
-4FGZ 1/4" BSPF							
-4MSZ 7/16"-20 SAE Male							
-6MSZ 9/16"-18 SAE Male							
-4SSZ 7/16"-20 SAE Male Swivel							
3. Circuit	_____						
-A SPST/NO; -B SPST/NC; -C SPDT;							
-AA DPST/NO ² ; -BB DPST/NC ² ; -CC DPDT ²							
4. Electrical Termination	_____						
-FLXX Flying Leads ³ ; -ELXX 1/2" NPT Male Conduit w/Flying Leads ⁴ ;							
-H DIN 43650A Male Half Only ⁵ ; -HR Right Angle DIN 43650A Male Half Only ⁵ ;							
-HC DIN 43650A 9mm Cable Clamp ⁵ ;							
-HCR Right Angle DIN 43650A 9mm Cable Clamp ⁵ ;							
-HN DIN 43650A with 1/2" Female NPT Conduit ⁵ ;							
-HNR Right Angle DIN 43650A with 1/2" Female NPT Conduit ⁵ ;							
5. Options	_____						
-V Viton [®] Diaphragm; -N Neoprene Diaphragm; -E EPDM Diaphragm;							
-G Gold Contacts (for loads less than 12 mA @ 12 VDC);							
-RD Reduced Differential (50% reduction typical); -OXY Oxygen Cleaned ⁶ ;							
-R Restrictor (low damping coefficient) Brass;							
-SR Spiral Restrictor (high damping coefficient) 12L14 Steel w/Black Oxide Finish;							
-WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male;							
-DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional)	_____						
A. Specify set point -FS (in PSI or BAR, see example) ⁷							
B. Set Point Actuation	_____						
R on Rising Pressure; F on Falling Pressure							
Example: -FS1BARF for 1 BAR Falling or -FS20PSIR for 20 PSI Rising							

Notes:

1. Manifold mounts available. Consult factory.
2. Requires -FL or -EL electrical termination.
3. 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FL30.
4. 18" is standard. Specify cable length in inches (max. 48"). e.g. -EL18 or -EL30.
5. DIN connectors require -C SPDT circuit.
6. Requires stainless steel pressure fitting.
7. Set Point must be within Pressure Range selected in Step 1 above.

Pressure Range Table

Pressure Range Code	Pressure Range	Average Dead Band	Proof Pressure
10	5-25 psi (0.35-1.7 bar)	2-4 psi (0.25-0.40 bar)	500 psi (35 bar)
20	15-75 psi (1.0-5.2 bar)	5-10 psi (0.35-0.65 bar)	9000 psi (600 bar)
30	50-150 psi (3.5-10.3 bar)	20-40 psi (1.3-2.6 bar)	9000 psi (600 bar)
40	150-650 psi (10.3-44.8 bar)	40-85 psi (2.6-5.7 bar)	9000 psi (600 bar)
50	500-1750 psi (34.5-120.7 bar)	120-220 psi (8-15 bar)	9000 psi (600 bar)
60	1000-3500 psi (69.0-241.3 bar)	300-500 psi (21-35 bar)	9000 psi (600 bar)
70	2500-6000 psi (172.4-413.7 bar)	300-500 psi (21-35 bar)	9000 psi (600 bar)

PS77 – Economical Industrial Pressure Switch

- ▶ 0.35 to 413 bar (5 to 6000 psi) *formerly PS-K series*
- ▶ Up to 20 amp switching capabilities
- ▶ Wear disc design for longer life
- ▶ Adjustable deadband on 20 amp models

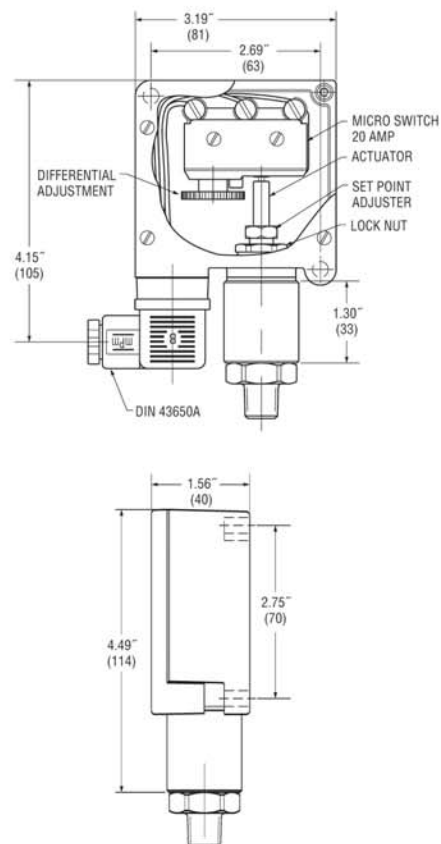
Gems PS77 Series pressure switches incorporate a wear disc and cushioning ring that provide resistance to pressure surges. The industrial enclosure houses either an SPDT 20 Amp switch featuring a dead band adjustment or a DPDT 10 amp switch. The switches use a piston/diaphragm design, which combines the high proof pressure of piston technology with the sensitivity of diaphragm designs. The switches can be field or factory adjusted.

Specifications

Operating Temperature	-40°C to +80°C (-40°F to +180°F)
Switch	20 Amp @ 240Vac (-C circuit) 10 Amp @ 250Vac (-CC, -Z, -ZZ circuits)
Repeatability	2% of Highest Set Point @ 20°C (70°F)
Wetted Parts	
Diaphragm	Nitrile (Optional Viton®, Neoprene or EPDM)
Fitting	Zinc Plated Steel (Optional 316 SS)
Electrical Termination	DIN 43650A or 1/2" NPTF Conduit; Plastic Case IP65
Proof Pressure	600 bar (9000 psi)
Approvals	CE
Weight, Approximate	0.45 kg (1.0 lbs.)



Dimensions



Wiring

	DIN
Common	#1
N.C.	#2
N.O.	#3

How to Order

Use the **Bold** characters from the chart below to construct a product code.

PS77 Series _____

Pressure Range Code _____
Insert Pressure Range Code from table below

Pressure Fitting _____

<i>12L14 Zinc Plated Steel</i>	<i>316 Stainless Steel (housing also 316SS)</i>
2MNZ 1/8" NPTM	4MNS 1/4" NPTM
4MNZ 1/4" NPTM	4MGS 1/4" BSPM
4FNZ 1/4" NPTF	4FGS 1/4" BSPF
4MGZ 1/4" BSPM	6MSS 9/16"-18 SAE Male
4FGZ 1/4" BSPF	
4MSZ 7/16"-20 SAE Male	
6MSZ 9/16"-18 SAE Male	
4SSZ 7/16"-20 SAE Male Swivel	

Circuit _____
C SPDT **CC** DPDT **Z** SPDT-DB

Electrical Termination _____

ELXX 1/2" NPT Male Conduit w/Flying Leads¹
H DIN 43650A Male Half Only² **HC** DIN 43650A 9mm Cable Clamp²
HN DIN 43650A with 1/2" Female NPT Conduit²

Options _____

V Viton® Diaphragm **N** Neoprene Diaphragm **E** EPDM Diaphragm
G Gold Contacts (for loads less than 12mA @ 12Vdc) **OXY** Oxygen Cleaned³
R Restrictor (low damping coefficient) Brass
SR Spiral Restrictor (high damping coefficient) 12L14 Steel w/Black Oxide Finish

Fixed Set Point (optional) _____

A. Specify set point **FS** (in BAR or PSI, see example)⁴ _____
 B. Set Point Actuation _____

R on Rising Pressure **F** on Falling Pressure
 Example: **FS1BARF** for 1 BAR Falling or **FS20PSIR** for 20 PSI Rising

Notes:

1. 18" is standard. Specify lead length in inches (max. 48"), e.g. **EL18** or **EL30**.
2. DIN connectors require **C** SPDT circuit.
3. Requires stainless steel pressure fitting.
4. Set Point must be within Pressure Range selected in Step 1 above.

Pressure Range Table

Pressure Range Code	Pressure Range	Adjustable Dead Band	Proof Pressure
10	0.35-1.7 bar (5-25 psi)	0.17-0.43 bar (3-6 psi)	35 bar (500 psi)
20	1.0-5.2 bar (15-75 psi)	0.5-1.25 bar (8-19 psi)	600 bar (9000 psi)
30	3.5-10.3 bar (50-150 psi)	1.0-2.5 bar (15-37 psi)	600 bar (9000 psi)
40	10.3-44.8 bar (150-650 psi)	4.5-11 bar (65-160 psi)	600 bar (9000 psi)
50	34.5-120.7 bar (500-1750 psi)	12-30 bar (175-430 psi)	600 bar (9000 psi)
60	69.0-241.3 bar (1000-3500 psi)	24-60 bar (300-875 psi)	600 bar (9000 psi)
70	172.4-413.7 bar (2500-6000 psi)	42-105 bar (600-1500 psi)	600 bar (9000 psi)

PRESSOSTATO REGOLABILE SUBMINIATURA TIPO MS-PS

Campo di lavoro 0,2...300 bar

Adjustable pressure switches MS-PS series Adjustment ranges 0.2 to 300 bar

IMPIEGO

La gamma di pressostati regolabili a membrana serie MS per pressioni fino a 100 bar e serie PS a pistone per pressioni fino 300 bar, sono disponibili con contatti in scambio SPDT e portata contatti 6(2)A / 250Vac nella versione standard e 30mA / 30Vdc nella versione con contatti dorati. Vengono forniti con differenziale fisso pari a ~15% del valore d'intervento. Possono essere realizzati con corpo esagonale Ch24 in ottone, acciaio tropicalizzato, acciaio inox AISI 303 o AISI316 secondo la versione richiesta. I pressostati serie MS-PS vengono normalmente impiegati per controllare la pressione nei settori automazione, oleodinamica, distribuzione gas, sistemi antincendio, sollevamento, industria farmaceutica, impianti di lubrificazione, refrigerazione ecc. Agendo sulla vite di regolazione, posta nella torretta, è possibile regolare il valore d'intervento del pressostato. Fare attenzione, in fase di regolazione, a non mandare a pacco la molla di contrasto. **Su richiesta del cliente è possibile fornire pressostati già tarati al valore desiderato.**

DATI TECNICI

Portata contatti	6(2)A / 250Vca
Portata contatti	2(1)A / 24Vcc
Portata max contatti dorati	30mA / 30Vcc
Isolamento interruttore	Gr. C secondo VDE 0110
Isteresi	~15% del valore d'intervento
Campo di temperatura	-30°C...+140°C (in funzione della membrana/guarnizione)
Protezione senza cappuccio	IP00
Protezione con CAP13	IP65
Protezione con CAP16	IP54
Max interventi a 25°C	120/1' (membrana)
Max interventi a 25°C	10/1' (membrana acciaio inox)
Max interventi a 25°C	60/1' (pistone)
Vita meccanica	10 ⁶ cicli
Coppia di serraggio max	5 Kgm
Coppia di serraggio CAP13	0.5 Kgm

MATERIALI

Corpo Ch 24	Vedi tabella
Contatti elettrici argentati	Ag. CdO
Materiale cappuccio CAP13	Nylon nero (-10°C... +110°C)
Castelletto portacontatti	Pocan

SPIEGAZIONE DELLE SIGLE DI ORDINAZIONE

MS	Pressostato in esecuzione a membrana
PS	Pressostato in esecuzione a pistone
Campo di lavoro	
MS 2	0.2...2bar
MS 10	1...10bar
MS 50	10...50bar
MS 100	10...100bar
PS 150	30...150bar
PS 300	50...300bar
Tipo contatto	
SC	Esecuzione con contatti in scambio SPDT
Materiale corpo Ch24	
-	Esecuzione standard con corpo in ottone (MS2 - MS10) e corpo in acciaio tropicalizzato (MS50 - MS100 - PS150 e PS300)
I	Esecuzione con corpo in acciaio inox AISI 303
W	Esecuzione con corpo in acciaio inox AISI 316
Membrana o guarnizione	
NT	HNBR -25°C...+140°C
V	FKM -5°C...+90°C
S	Silicone rosso -30°C...+120°C
E	EPDM -20°C...+110°C
C	Neoprene -10°C...+110°C
MI	Acciaio inox solo per MS2 e MS10 per pressione max. 80bar -30°C...+140°C
Filettature disponibili - Quota "A"	
R18	G 1/8" cilindrico Quota "B" = 10
R14	G 1/4" cilindrico Quota "B" = 12
M10	M10x1 cilindrico Quota "B" = 10
M12	M12x1.5 cilindrico Quota "B" = 12
18NPT	1/8NPT conico Quota "B" = 10
Taratura	
T ...	Pressostati con taratura in salita al valore richiesto (es. T2 taratura in salita a 2bar)
T ...D	Pressostati con taratura in discesa al valore richiesto (es. T5D taratura in discesa a 5bar)
Esecuzioni speciali	
AP	Esecuzione in alta pressione 300bar con corpo in acciaio tropicalizzato (modelli MS2 - MS10)
G	Contatti dorati per bassa corrente ≤30mA
SG	Pressostati sgrassati per utilizzo con ossigeno
TG	Pressostati testati per utilizzo con gas

IN CONFORMITÀ ALLE NORME CE 89/336 RELAZIONE EMC N° 147E/96

USE

MS-PS adjustable pressure switches, available either in diaphragm execution up to 100 bar or piston execution up to 300 bar, have been designed with SPDT contacts standard rated at 6(2)A / 250Vac or 30mA / 30Vdc if gold-plated contacts are required. MS-PS pressure switches are supplied with fixed hysteresis at ~15% of set-point value. They can be supplied with 24 AF hexagonal body in brass, tropicalized steel or, only on request, 303 and 316 stainless steel. MS-PS pressure switches are particularly suitable to monitor pressure in automation, hydraulics, gas distribution, fire prevention, lifting systems, pharmaceutical industry, lubrication plants, refrigeration and so on. Using the adjusting screw housed in the switch housing, it is possible to set the pressure switch at the required value. Pay attention not to affect the spring.

Pressure switches factory set to a specific value can be supplied on customer's request.

SPECIFICATIONS

Switch rating	6(2)A / 250Vac
Switch rating	2(1)A / 24Vdc
Max rating - gold contacts	30mA / 30Vdc
Switch insulation	C according to VDE 0110
Hysteresis	~15% set-point value
Temperature range	-30°C to 140°C (according to diaphragm / gasket material)
Protection (terminals)	IP00
Protection with CAP13	IP65
Protection with CAP16	IP54
Max cycle rate at 25°C	120/min. (diaphragm type)
Max cycle rate at 25°C	10/min. (with SS diaphragm)
Max cycle rate at 25°C	60/min. (piston type)
Mechanical life	10 ⁶ operations
Tightening torque	5 Kgm
CAP13 tightening torque	0.5 Kgm

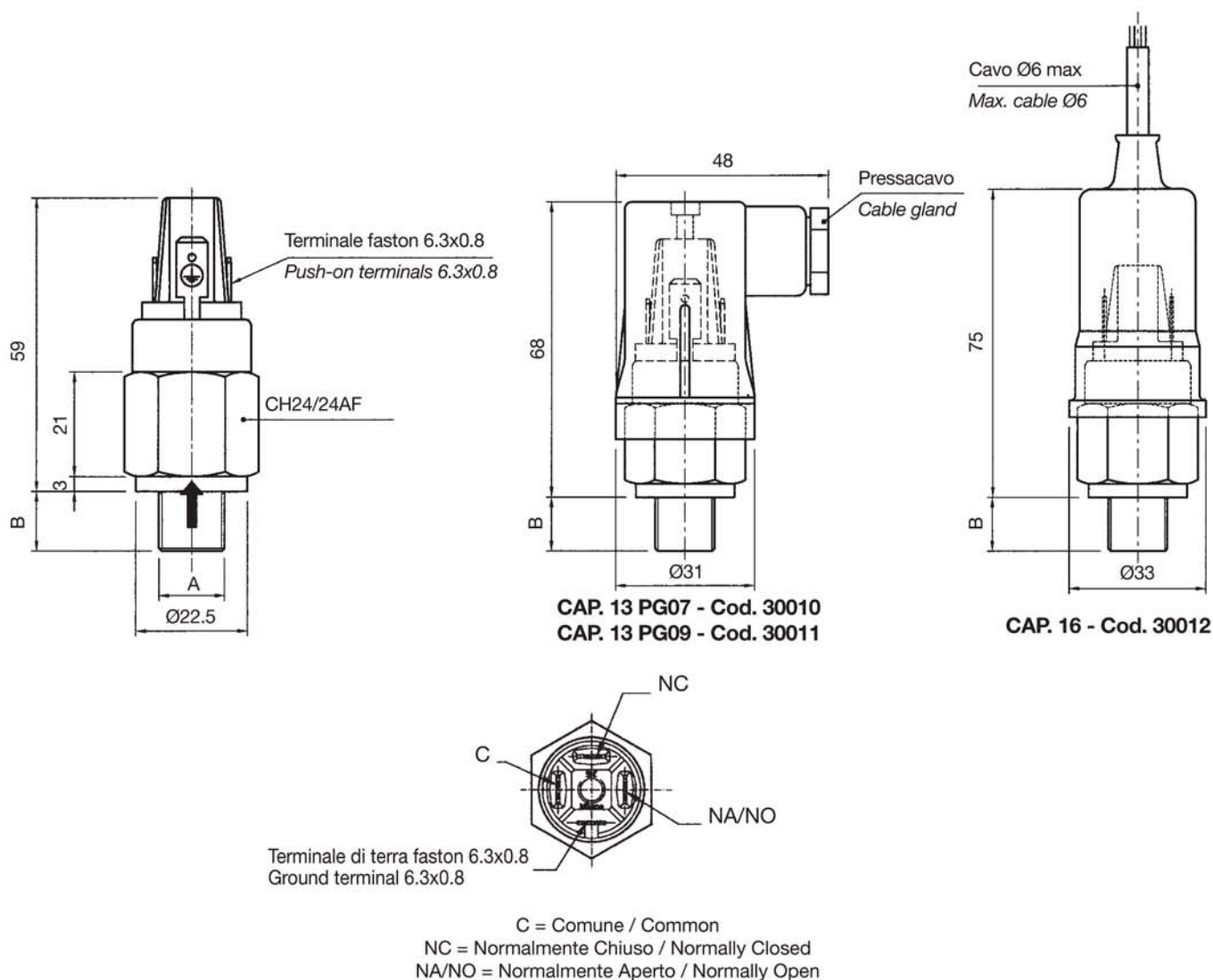
MATERIALS

24 AF body	See reference table
Silver-plated contacts	Ag. CdO
CAP13	Black Nylon (-10°C to +110°C)
Switch housing	Pocan

ORDERING INFORMATION

MS	Diaphragm pressure switch
PS	Piston pressure switch
Adjustment range	
MS 2	0.2 - 2 bar
MS 10	1 - 10 bar
MS 50	10 - 50 bar
MS 100	10 - 100 bar
PS 150	30 - 150 bar
PS 300	50 - 300 bar
Contact	
SC	SPDT C/O contact
24 AF body material	
-	Standard execution in brass (MS2 - MS10) and tropicalized steel (MS50 - MS100 - PS150 - PS300)
I	AISI 303 stainless steel
W	AISI 316 stainless steel
Diaphragm or gasket	
NT	HNBR -25°C to +140°C
V	FKM -5°C to +90°C
S	Red silicone -30°C to +120°C
E	EPDM -20°C to +110°C
C	Neoprene -10°C to +110°C
MI	Stainless steel only for MS2 and MS10 models - max. pressure 80bar -30°C to +140°C
Threads - "A" reference	
R18	G 1/8" parallel "B" = 10
R14	G 1/4" parallel "B" = 12
M10	M10x1 parallel "B" = 10
M12	M12x1.5 parallel "B" = 12
18NPT	1/8NPT taper "B" = 10
Setting	
T ...	Set up rising to the required value (ex. T2 rising set-point adjustment at 2 bar)
T ...D	Set up falling to the required value (ex. T5D falling set-point adjustment at 5 bar)
Options	
AP	High pressure execution (300 bar) for MS2 - MS10 models with body in tropicalized steel
G	Gold-plated contacts for low current applications ≤30mA
SG	Pressure switches degreased for applications with oxygen
TG	Pressure switches tested for applications with gas

IN COMPLIANCE WITH CE 89/336 RULES EMC N° 147E/96 REPORT



CARATTERISTICHE GENERALI / GENERAL SPECIFICATIONS

Tipo Model	Campo di lavoro Adjustment range (bar)	Max. pressione statica supportabile (bar) Max. static pressure (bar)					Differenziale fisso max a 25 °C Fixed hysteresis at 25 °C (bar)	Tolleranza d'intervento a 25 °C Tolerance at 25°C (bar)	Esecuzione Execution
		Esec. standard corpo ottone Standard execution in brass	Esec. standard corpo acciaio tropicalizzato Standard execution in tropicalized steel	Esec. AP solo MS 2/10 corpo acciaio tropicalizzato AP execution in tropicalized steel only MS 2/10	Esec. corpo Acc. Inox AISI 303 AISI 303 stainless steel execution	Esec. corpo Acc. Inox AISI 316 AISI 316 stainless steel execution			
MS 2	0,2 - 2	80			150	150	-15% set-point	±0,2	Membrana Diaphragm
MS 10	1 - 10	80			150	150	-15% set-point	±0,4	
MS 2...AP	0,2 - 2			300			-15% set-point	±0,2	
MS 10...AP	1 - 10			300			-15% set-point	±0,4	
MS 50	10 - 50		300		150	150	-15% set-point	±2	
MS 100	10 - 100		300		150	150	-15% set-point	±3	Pistone Piston
PS 150	30 - 150		300		250	250	-15% set-point	±5	
PS 300	50 - 300		600		400	400	-15% set-point	±15	

PRESSOSTATI REGOLABILI

Adjustable Pressure Switches

MSA

IMPIEGO

Questa serie di pressostati regolabili è stata studiata per essere impiegata nel campo della pneumatica per controllare una minima o una massima pressione d'aria compressa in un circuito di comando o di alimentazione di una macchina.

I pressostati serie MSA sono realizzati con un contatto in scambio SPDT in grado di controllare un carico elettrico da 6A con una tensione di 220Vca e di comandare direttamente sia carichi induttivi che resistivi senza l'impiego di circuiti ausiliari.

E' opportuno montare i pressostati in posizione verticale, sulla linea da controllare, per evitare di raccogliere, all'interno del corpo in entrata, impurità che possano influire sul regolare funzionamento o modificare la pressione di intervento.

Per mezzo della vite di regolazione è possibile tarare il pressostato al valore di pressione desiderato, previa la rimozione della boccola.

Su richiesta vengono forniti pressostati già tarati al valore di pressione desiderato.

USE

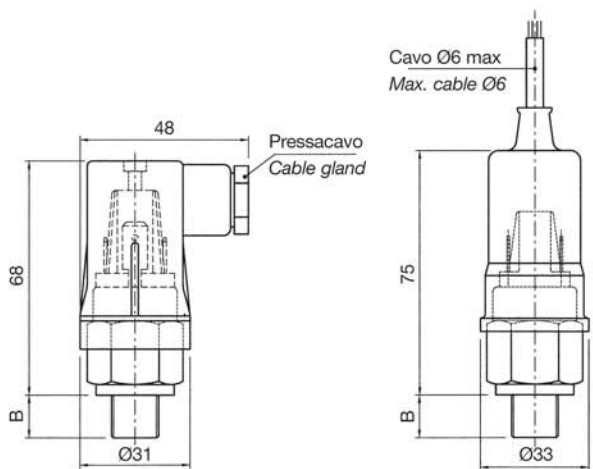
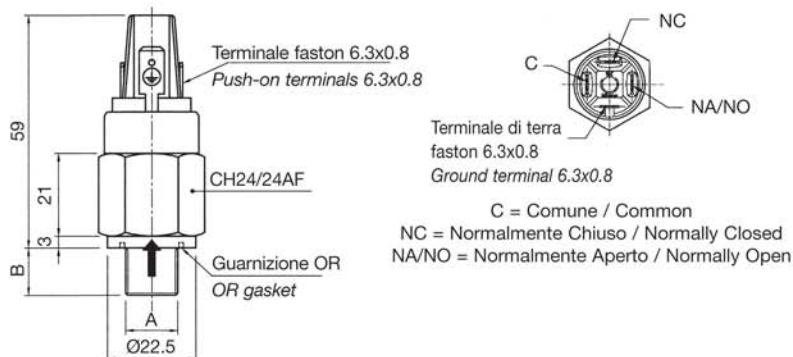
This series of pressure switches has been designed to be used in pneumatics to monitor the min. or max. pressure of compressed air in the control or feeding circuit of a machine.

MSA pressure switches are available with SPDT contacts rated at 6A/220Vac and can work directly with both inductive or resistive loads without any other accessory circuit.

It is advisable to fix the pressure switch vertically to the line to avoid that any condensation or residues, remaining inside, could affect the correct working or change the set-point adjustment.

Using the proper adjusting screw it is possible to set the switching point required.

Pressure switches factory-set to a required value can be supplied on request.



CAP. 13 PG07 - Cod. 30010
CAP. 13 PG09 - Cod. 30011

CAP. 16 - Cod. 30012

DATI TECNICI

Portata contatti
Portata contatti
Protezione senza cappuccio
Protezione con CAP13
Protezione con CAP16
Differenziale fisso max. a 25°C
Temperatura di lavoro
Numero max. di interventi a 25°C
Vita meccanica
Coppia di serraggio

6(2)A/250 Vca
2(1)A/24 Vcc
IP 00
IP 65
IP 54
~15% valore di taratura
-25°...+140°C
120 / 1'
10° cicli
2 Kgm

SPECIFICATIONS

Switch rating
Switch rating
Protection (terminals)
Protection with CAP13
Protection with CAP16
Fixed hysteresis max @25°C
Temperature range
Max cycle rate at 25°C
Mechanical life
Tightening torque

6(2)A/250 Vca
2(1)A/24 Vdc
IP 00
IP 65
IP 54
ca. 15% of set-point value
-25°...+140°C
120 / min.
10° operations
2 Kgm

MATERIALE COMPONENTI

Corpo Ch 24
Contatti elettrici argentati
Membrana
Materiale cappuccio CAP13
Materiale cappuccio CAP16
Castelletto portacontatti

Alluminio anodizzato blu
Ag. CdO
HNBR
Nylon nero
NBR
Pocan

MATERIALS

24AF body
Silver-plated contacts
Diaphragm (Std.)
CAP13
CAP16
Switch housing

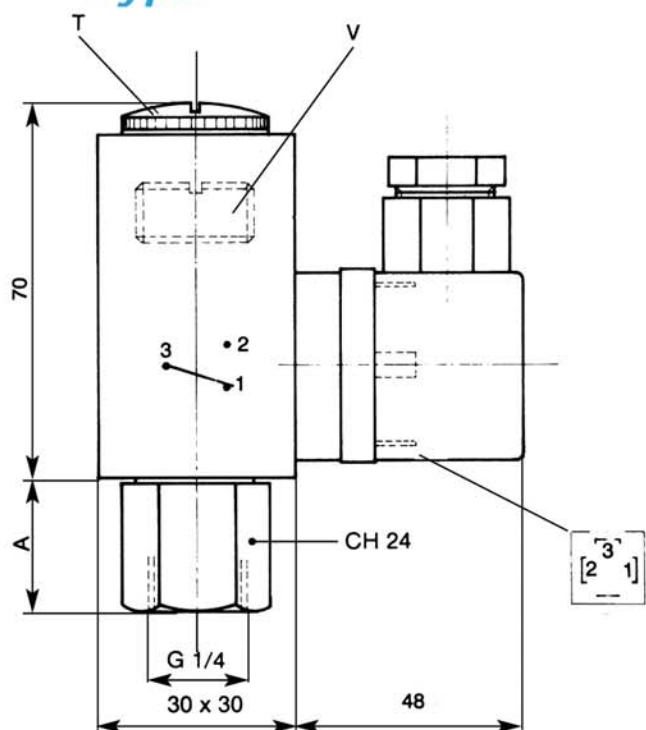
Blue anodized aluminium
Ag. CdO
HNBR
Black Nylon
NBR
Pocan

TIPO	Campo di lavoro (bar)	Tipo di contatto	Max pressione statica supportabile (bar)	Dimensioni				Tolleranza d'intervento in bar a 25°C	Esecuzione	Corpo
MODEL	Adjustment range (bar)	Contact	Max static pressure (bar)	A	B	C	D	Tolerance in bar at 25°C	Execution	Body
MSA2SCR18	0.2 - 2	SC - SPDT	30	G 1/8"	10	22.5	OR 2043	± 0.2	Membrana HNBR HNBR diaphragm	Alluminio anodizzato blu Blue anodized aluminium
MSA2SCR14	0.2 - 2	SC - SPDT	30	G 1/4"	12	22.5	OR 2056	± 0.2		
MSA10SCR18	1 - 10	SC - SPDT	30	G 1/8"	10	22.5	OR 2043	± 0.4		
MSA10SCR14	1 - 10	SC - SPDT	30	G 1/4"	12	22.5	OR 2056	± 0.4		

PRESSOSTATI REGOLABILI

Adjustable Pressure Switches

TIPO PML... PPL
Type



IMPIEGO

I pressostati regolabili serie miniatura vengono normalmente impiegati negli impianti di lubrificazione, circuiti oleodinamici, pneumatici, idrici, di riscaldamento, ecc. La serie PML..., con l'elemento sensibile a membrana antioolio, viene utilizzata per una temperatura massima di 60 °C e una pressione di esercizio di 100 bar; la seconda serie PPL... a pistoncino può lavorare ad una pressione max di esercizio di 350 bar. I pressostati PML... PPL... sono costituiti da un corpo in alluminio anodizzato, raccordo inferiore di collegamento in acciaio, membrana di separazione in NBR, oppure pistoncino in acciaio, microinterruttore in scambio, connettore per collegamenti elettrici. Per regolare l'intervento del pressostato al valore desiderato, agire sulla vite di regolazione V, posta sotto il tappo di protezione T mediante un cacciavite. È opportuno bloccare la vite di regolazione V con apposito bloccante, dopo aver effettuato la regolazione al valore di pressione desiderato. Su richiesta del Cliente, forniamo i pressostati tarati al valore della pressione desiderata.

IN CONFORMITÀ ALLE NORME CE 89/336 RELAZIONE EMC N° 189E/96

DATI TECNICI

Tensione massima	250 Vca
Tensione di lavoro	220 Vca
Intensità di corrente	3 A (resistivi) 2 A (induttivi)
Contatti elettrici in scambio	SPDT
Temperatura di lavoro	-5° +60 °C
N° cicli max a membrana	100/1'
Vita meccanica	10° interventi
Protezione	IP 65 DIN 40050
Differenziale fisso	≤ 30% del valore effettivo

USE

These adjustable pressure switches can be used both in lubrication plants and pneumatic, hydraulic, water and heating circuits. PML... series, designed with an oil-proof membrane sensitive device, can be used at a max temperature of 60°C and an operating pressure of 100 bar. PPL...series, designed with a piston, can work with a max operating pressure of 350 bar. PML...and PPL... pressure switches are designed with an anodized aluminium body, lower connection terminal in steel, NBR membrane or steel piston, changeover micro-switch and electrical connector. To set the pressure switch at the required value, turn with a screwdriver the V adjusting screw housed under the T protection cap.

Once the setting has been performed, it is advisable to secure the V adjusting screw using a suitable seal.

On request, pressure switches set at the required value are supplied.

IN COMPLIANCE WITH CE 89/336 RULES REPORT EMC N° 189E/96

TECHNICAL DATA

Maximum voltage	250 Vac
Working voltage	220 Vac
Current	3 A (resistive) 2 A (inductive)
Changeover contacts	SPDT
Working temperature	-5° +60 °C
Membrane max. No. cycles	100/1'
Operative life	10° operations
Protection	IP 65 DIN 40050
Fixed differential	≤ 30% of operating pressure

CODICE CODE	TIPO TYPE	Campo di lavoro bar Adjusting range bar	A	Tolleranza d'intervento bar a 25 °C Tolerance bar at 25 °C	Max. press. statica sup. port. in bar Max static pressure Bar	Esecuzione Execution	Peso Weight Gr.
31350	PML 10	0,5 ÷ 10	12	± 0,2	300	NBR Membrana Membrane	285
31351	PML100	10 ÷ 100	12	± 1	300		
31375	PPL150	30 ÷ 150	15	± 7	600	NBR Pistone Piston	335
31376	PPL350	150 ÷ 350	25	± 7	600		

PRESSOSTATO REGOLABILE TIPO PSM - PSP

Adjustable pressure switch type

IMPIEGO

I pressostati PSM-PSP regolabili con campo di lavoro da 0,2 ÷ 300 bar vengono usati nei settori della: automazione, pneumatica, oleodinamica, lubrificazione, sistemi di sicurezza ecc. Sono stati concepiti per poter lavorare nel rispetto delle norme CE, con contatti in scambio, differenziale regolabile fino ad un massimo del 30% del valore di fondo scala. Possono essere collegati alla linea da controllare senza l'ausilio di guarnizioni di tenuta perché vengono forniti con una guarnizione OR di materiale opportuno in funzione del fluido da controllare. Per mezzo della vite di regolazione centrale si può regolare il punto di intervento e con un'altra il differenziale di ripristino del contatto.

Su richiesta del cliente, forniamo pressostati tarati al valore desiderato.

DATI TECNICI ESECUZIONE STANDARD

Tensione massima	250 Vca
Tensione di lavoro	220 Vca
Differenziale	10% ÷ 30% del valore effettivo
Intensità di corrente	6 (2) A
Temperatura di lavoro	-5° + 90 °C
Protezione	IP 65 DIN 40050
Connettore PG 9 o PG11	DIN 43650
Numero max. interventi a 25 °C	120 al 1' (a membrana)
Numero max. interventi a 25 °C	60 al 1' (a pistoncino)
Vita meccanica	10° cicli
Coppia di serraggio max.	5 Kgm.

MATERIALI PER ESECUZIONE STANDARD

Corpo Ch27	Vedi tabella
Connettore e pressocavo	Nylon 6,6
Membrana	NBR
Pistoncino per alte pressioni	NBR
Contatti elettrici in scambio	SPDT

SPIEGAZIONE DELLE SIGLE DI ORDINAZIONE

PSM...	Pressostato con contatti SPDT a membrana
PSP...	Pressostato con contatti SPDT a pistone

Campo di lavoro

PSM 2	0,2 ÷ 2 bar
PSM 10	1 ÷ 10 bar
PSM 50	10 ÷ 50 bar
PSM 100	10 ÷ 100 bar
PSP 150	30 ÷ 150 bar
PSP 300	50 ÷ 300 bar

Materiale corpo

-	Corpo ottone (PSM 2 e PSM 10)
-	Corpo acc. tropicalizzato (PSM 50/100, PSP 150/300)
I	Corpo Acc. Inox AISI 303
W	Corpo Acc. Inox AISI 316

Membrane disponibili

-	Membrana NBR (standard) -5° +90 °C
NT	Membrana HNBR -40° +140 °C
V	Membrana Viton -5° +90 °C
S	Membrana Silicone -30° +120 °C
N	Membrana Neoprene -10° +90 °C
E	Membrana EPDM -20° +110 °C
MI	Membrana in Acc. Inox (solo PSM2 e PSM10)

Attacchi filettati "A"

R18	Filetto G1/8 cilindrico
R14	Filetto G1/4 cilindrico
M10	Filetto M10 x 1 cilindrico
M12	Filetto M12 x 1.5 cilindrico
18NPT	Filetto 1/8 NPT

Pressocavo

-	Connettore PG09 (standard)
11	Connettore PG11

Esecuzioni speciali

G	Contatti dorati per basso corrente ≤ 30 mA
SG	Sgrassati per ossigeno
T...	Taratura in salita (es. T2 taratura a 2bar)
T...D	Taratura in discesa (es. T2D taratura in discesa a 2bar)
T...F...	Taratura del pressostato e del differenziale se >10% max. 30% valore effettivo (es. T40 F10 taratura in salita a 40bar con differenziale di 10 bar) TARATURA IN ELETTROTEC.
AP	Esecuzione per PSM2 e PSM10 in acc. tropicalizzato per alta pressione max. 300bar
TG	Testati per utilizzazione con gas

ESEMPIO DI ORDINAZIONE: PSM 50 W NT 11 M12 T40F10

IN CONFORMITÀ ALLE NORME CE 89/336 RELAZIONE EMC N° 148E/96

USE

The adjustable PSM- PSP pressure switches with a 0.2 ÷ 300 bar operating range are used in automation, pneumatic and hydraulic circuits, lubrication and safety systems etc. These pressure switches have been designed to work according to the CE standards, with changeover contacts and a differential adjustable up to the 30% of the full scale value.

The PSM - PSP pressure switches can be connected to the pipeline to be checked without using any seal, because they are equipped with a OR gasket, made of a material suitable to the specific type of fluid flowing in. The set point can be adjusted by means of the central adjusting screw. Another screw is specifically intended to adjust the hysteresis to reset the contact.

On request, pressure switches set at the required value are supplied.

TECHNICAL DATA FOR STANDARD EXECUTION

Max. voltage	250 Vac
Working voltage	220 Vac
Adjustable hysteresis	10% ÷ 30% actual value
Current	6 (2) A
Working temperature	-5° + 90 °C
Protection	IP 65 DIN 40050
PG9 or PG11 connector	DIN 43650
Max. number of strokes at 25 °C	120 at 1' (execution membrane)
Max. number of strokes at 25 °C	60 at 1' (execution piston)
Mechanical life	10° cycles
Tightening torque	max. 5 Kgm.

PRESSURE SWITCH FOR STANDARD EXECUTION

Ch27 Body	See table
Connector and cable clamp	Nylon 6,6
Membrane	NBR
Piston for high pressure	NBR
Changeover contacts	SPDT

ORDERING CODE

PSM...	Membrane pressure switch with SPDT contacts
PSP...	Piston pressure switch with SPDT contacts

Adjusting range

PSM 2	0,2 ÷ 2 bar
PSM 10	1 ÷ 10 bar
PSM 50	10 ÷ 50 bar
PSM 100	10 ÷ 100 bar
PSP 150	30 ÷ 150 bar
PSP 300	50 ÷ 300 bar

Body material

-	Brass (PSM 2 and PSM 10)
-	Tropicalized steel (PSM 50/100, PSP 150/300)
I	Stainless steel AISI 303
W	Stainless steel AISI 316

Available membranes

-	NBR membrane (standard) -5° +90 °C
NT	HNBR membrane -40° +140 °C
V	Viton membrane -5° +90 °C
S	Silicone membrane -30° +120 °C
N	Neoprene membrane -10° +90 °C
E	EPDM membrane -20° +110 °C
MI	Stainless steel membrane (only PSM2/10)

Available "A" threads

R18	G1/8" parallel
R14	G1/4" parallel
M10	M10 x 1 parallel
M12	M12 x 1.5 parallel
18NPT	1/8 NPT

Cable clamp

-	PG09 Cable clamp (standard)
11	PG11 Cable clamp

Special executions

G	Gold plated contacts for low current ≤ 30 mA
SG	Degreased for oxygen
T...	Set point adjustment rising at the required value (ex. T2 set point pressure rising at 2 bar)
T...D	Set point adjustment falling at the required value (ex. T2D set point pressure falling at 2 bar)
T...F...	Set point and hysteresis at the required value if > 10% max 30% actual value (ex. T40F10 set point at 40 bar with hysteresis of 10 bar) FACTORY SETTING.
AP	300bar high pressure execution in tropicalized steel for PSM 2 and PSM 10
TG	Gas tested

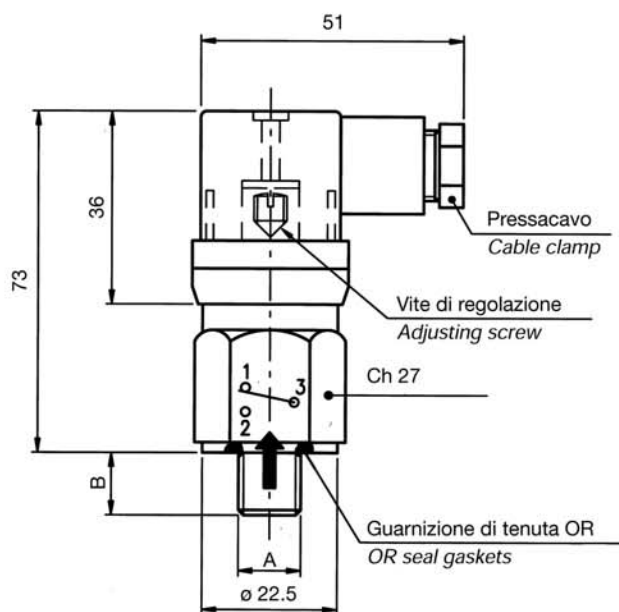
ORDERING EXAMPLE: PSM 50 W NT 11 M12 T40 F10

IN COMPLIANCE WITH CE 89/336 STANDARDS EMC N° 149E/96 REPORT

NAMEPLATE ORDER

PSM	10	W	V	R18	-	-
TYPE						
PSM - PSP						
RANGE						
2 - 10 - 50 - 100 - 150 - 300						
BODY						
(-) - I - W						
		MEMBRANE	GASKET			
		(-) - NT - V - S - N - E - MI	(-) - NT - V - S - N - E			
				SPECIAL EXECUTION		
				G - SG - T... - T...D - T...F -		
				AP - TG		
				CABLE CLAMP		
				(-) - 11		
				THREADS		
				R18 - R14 - M10 - M12 - 18NPT		
				A	B	
				G1/8	10	
				G1/4	12	
				M10 x 1	10	
				M12 x 1.5	12	
				1/8NPT	10	

(-) Standard execution



CARATTERISTICHE GENERALI / GENERAL CHARACTERISTICS

Pressostato	Campo di lavoro	Max. pressione statica supportabile (bar)					Tolleranza d'intervento a 25 °C	Esecuzione	Peso
Pressure switch	Adjusting range	Max. static pressure (bar)					Tolerance bar at 25 °C	Execution	Weight
Tipo Type	(bar)	Esec. standard corpo ottone Standard execution brass body	Esec. standard - corpo acciaio tropicalizzato Standard execution tropicalized steel	Esec. AP solo PSM 2/10 corpo acciaio tropicalizzato AP execution only PSM 2/10 tropicalized steel	Esec. corpo in Acc. Inox AISI 303 - Stainless steel AISI 303 body execution	Esec. corpo in Acc. Inox AISI 316 - Stainless steel AISI 316 body execution	(bar)		(gr.)
PSM 2	0,2 ÷ 2	80			150	150	± 0,2	NBR Membrana Membrane	100
PSM 10	1 ÷ 10	80			150	150	± 0,4		100
PSM 2...AP	0,2 ÷ 2			300			± 0,2		100
PSM 10...AP	1 ÷ 10			300			± 0,4		100
PSM 50	10 ÷ 50		300		150	150	± 2		100
PSM 100	10 ÷ 100		300		150	150	± 3	NBR Pistone Piston	100
PSP 150	30 ÷ 150		300		250	250	± 5		100
PSP 300	50 ÷ 300		600		400	400	± 15		100



PRESSOSTATO ELETTRONICO CON SENSORE CERAMICO

*Electronic Pressure Switch
with Ceramic Sensor*

EPS02

La nuova serie di pressostati elettronici modello EPS02 è stata realizzata per soddisfare le richieste di impiego nei più svariati settori industriali nell'ambito di processi e sistemi di monitoraggio e controllo della pressione. La serie EPS02 è provvista di un connettore trasparente DIN43650 nel cui interno sono alloggiati un LED rosso, per la segnalazione del raggiungimento del valore di commutazione impostato, e un LED verde, preposto ad indicare la corretta alimentazione (+24Vdc). Il tipo di uscita è disponibile in due versioni: Open Collector PNP oppure Open Collector NPN. In questo modello, il punto di intervento, l'isteresi e il tipo di contatto in uscita – Normalmente Aperto o Normalmente Chiuso – sono facilmente configurabili dall'utilizzatore stesso con l'ausilio di due pulsanti tattili e di un LED di colore verde inseriti all'interno del corpo di alluminio sotto il tappo nero di protezione. Il principio di funzionamento di questi pressostati si basa sulle proprietà piezoresistive del sensore ceramico al loro interno, che sollecitato dalla pressione applicata, determina una variazione lineare e proporzionale del ponte di resistenze nella pastiglia ceramica. Tale variazione genera il segnale che, successivamente amplificato, consente di attivare il LED rosso di segnalazione. La precisione di commutazione, la ripetibilità e la struttura robusta ne fanno un prodotto indicato per ogni tipo di applicazione, anche le più gravose.

DATI TECNICI

Tensione di alimentazione: 24Vdc $\pm$ 15%
 Protezione: inversione di polarità / sovraccarico
 Consumo corrente: 25mA
 Connessione elettrica: connettore DIN 43650
 Grado di protezione: IP65
 Uscita pressostato: Open Collector PNP o NPN, max. 500 mA
 Contatto: NA o NC programmabile
 Regolazione punto di intervento: 4%... 100% fs
 Regolazione punto di isteresi: 2%... 98% fs
 Temperatura compensata: -10°C...+70°C, precisione totale $\pm$ 2% fs
 Precisione: $\pm$ 0,5% fs a 25°C
 Tempo di risposta: < 5 mSec.
 Temperatura max. fluido: -20°C... +80°C
 Temperatura max. ambiente: -20°C... +80°C
 Temperatura di stoccaggio: -40°C... +100°C
 Vita meccanica: 2 milioni di cicli a 25°C
 Corpo: alluminio anodizzato rosso
 Flangia: acciaio AVP nichelato
 Elemento sensibile: cella ceramica piezoresistiva in Al₂O₃
 Guarnizione di tenuta: NBR (standard) (altri materiali su richiesta)
 Attacco al processo: G 1/4" cilindrico (standard) (altre filettature a richiesta)
 Montaggio: verticale
 Dimensioni: L 66mm x H 95mm
 Peso: ~ 200 grammi
 Conformità normative CE (EMC): EN 61000-6-3, EN 55022+A1+A2, EN 61000-6-1, EN 61000-4-2+A1+A2, EN 61000-4-3, EN 61000-4-4+A1+A2, EN 61000-4-5+A1, EN 61000-4-6+A1

The new electronic pressure switches EPS02 series have been specifically designed to meet the most various application requirements in industrial processing, pressure monitoring systems and control. EPS02 electronic pressure switches are equipped with a transparent DIN43650 plug, housing inside a red LED, to signal that the actuation point has been reached, and a green LED for supply voltage indication (+24Vdc). The output is available in a choice of PNP Open Collector or NPN Open Collector. The switching point, the hysteresis and the Normally Open/Normally Closed contact function can be all easily adjusted directly by the customer using the two configuration buttons and the reference green LED housed in the aluminium body under the black screw plug. Featuring proofed piezoresistive properties, the sensor, stressed by pressure, causes a linear and proportional variation of the measuring bridge in the ceramic cell. This variation generates the signal that, successively amplified, causes the signaling red LED to light. Great accuracy, repeatability and a rugged design make these switches suitable for any application, even the most demanding and severe.

SPECIFICATIONS

Supply voltage: 24Vdc $\pm$ 15%
 Protection: against polarity reversal/overload
 Current consumption: 25mA
 Electrical connection: DIN 43650 plug
 Electrical protection: IP65
 Output: PNP or NPN Open Collector output, max. 500 mA
 Contact: N/O or N/C eligible
 Set-point adjustment: 4%...100% FS
 Hysteresis adjustment: 2%... 98% FS
 Temperature compensation: -10°C...+70°C, error $\pm$ 2% FS
 Accuracy: $\pm$ 0,5% FS @ 25°C
 Response time: < 5 ms
 Max. fluid temperature: -20°C...+80°C
 Max. room temperature: -20°C...+80°C
 Storage temperature: -40°C...+100°C
 Mechanical life: 2.000.000 operations @ 25°C
 Body: red anodized aluminium
 Flange: AVP nickel-plated steel
 Sensor: piezoresistive ceramic cell Al₂O₃
 Seal gasket: NBR (standard) (other materials on request)
 Pressure port: G1/4" parallel (standard) (other threads on request)
 Mounting: standing
 Dimensions: 66mm wide x 95mm high
 Weight: ~ 200 grams
 CE conformity (EMC): EN 61000-6-3, EN 55022+A1+A2, EN 61000-6-1, EN 61000-4-2+A1+A2, EN 61000-4-3, EN 61000-4-4+A1+A2, EN 61000-4-5+A1, EN 61000-4-6+A1

Sigla Prodotto / Model								
	EPS02A20	EPS02A50	EPS02B10	EPS02B20	EPS02B50	EPS02C100	EPS02C200	EPS02C400
Range di pressione Pressure Range	0-2 bar	0-5 bar	0-10 bar	0-20 bar	0-50 bar	0-100 bar	0-200 bar	0-400 bar
Pressione di scoppio Burst Pressure	5 bar	12 bar	25 bar	50 bar	120 bar	250 bar	500 bar	650 bar

I dati tecnici indicati nel presente catalogo sono l'esito delle prove effettuate al momento dell'uscita del prodotto. Sono oggetto di continui studi e, pertanto, sono suscettibili di modifiche senza preavviso alcuno. ELETTRONTEC srl si riserva la facoltà di apportare modifiche al presente catalogo in qualsiasi momento. È vietata la riproduzione anche parziale.

The technical data written in this catalogue are the result of tests made at the time of the release of the product. Being these data subjected to continuous tests, they can be modified at any time without previous notice. Due to a policy of continuous development we reserve the right to amend specifications without prior notice. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission of ELETTRONTEC srl.

Adjustable pressure switches suitable for manifold mounting with graduated knob and fixed hysteresis

Adjustment ranges 10 to 360 bar

Series PSK

USE

New PSK... pressure switches have been particularly designed to monitor the minimum or maximum pressure in hydraulic and pneumatic circuits, lubrication plants and so on.

Thanks to the rugged construction and the very easy adjustment by means of a graduated knob with pressure indication and set-point reference, PSK... pressure switches can be either easily fixed on the line by the G1/4" BSP inside thread connection or manifold assembled through four proper holes (Ø5.25).

Designed with SPDT contact, switching at the adjusted set-point value, PSK... pressure switches are available both in diaphragm execution with adjustment ranges 10 to 100bar (max. over-pressure 300bar) and piston execution with adjustment ranges 100 to 360bar (max. over-pressure 600bar).

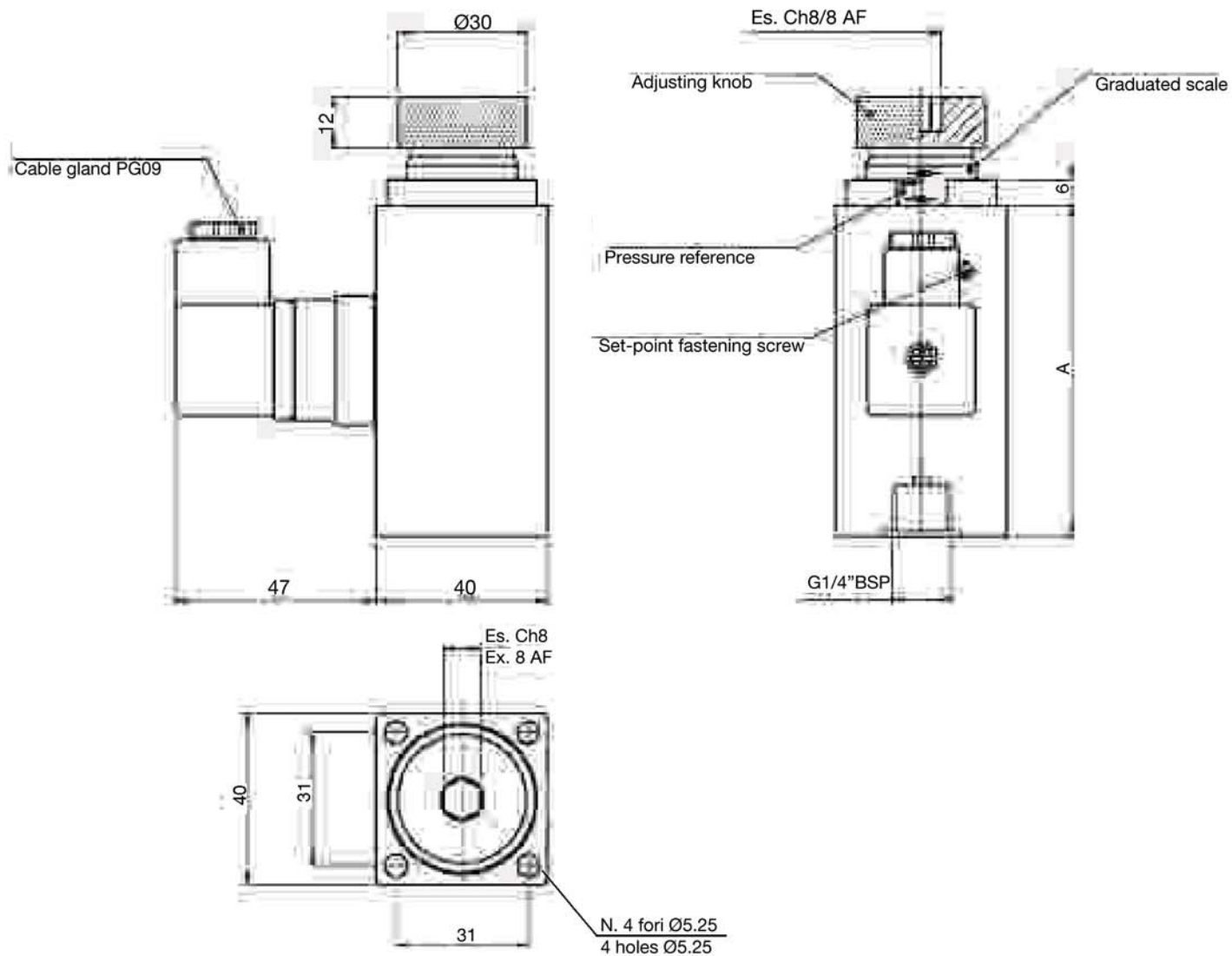
After pressure setting, it is possible to secure the adjustment knob using the proper fastening screw housed on the switch body.

TECHNICAL DATA

Voltage	220Vac
Max. current	3A (5A / 125Vac)
Temperature range	-5° ÷ +60°C (Standard)
Mechanical life	10 ⁶ cycles
Max. cycle rate-diaphragm rate	100/min
Max. cycle rate-piston type	60/min
Fixed hysteresis	30% set-point
Protection	IP65 DIN 40050
Knob accuracy - average value model PSK100	±10% set-point
Knob accuracy - average value model PSK360	±8% set-point

MATERIALS

Body	Yellow anodized aluminium
Adjusting knob	Aluminium
Diaphragm/Gasket	NBR
Graduated scale	Scotch laser film
Identification scale	Silk-screen printed aluminium - 1mm thick
Set-point fastening screw	Stainless steel
Base / Connector	PA (+G)



PRESSURE SWITCH HEIGHT

- A 77mm (diaphragm execution)
- A 90mm (piston execution)

<i>Part.No.</i>	<i>Description</i>	<i>Working range</i>	<i>Tolerance at 25°C</i>	<i>Execution</i>	<i>Max. static pressure</i>
31380	PSK 100	10÷100 bar	±4% set-point	Membrana HNBR HNBR diaphragm	300 bar
31381	PSK360	100÷360 bar	±7% set-point	Pistone Piston	600 bar

**Differential
pressure, vacuum and
overpressure switch
0.2 – 50 mbar**



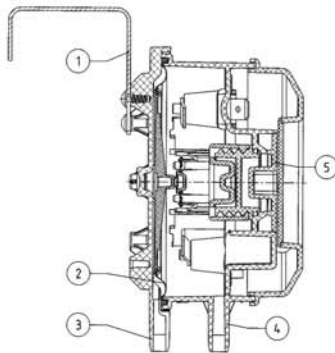


EDITION 02/2001

Technical overview

The type 604 pressure switch is used as a ΔP flow switch in ventilation ducts for the control of filters and fans, and in primary and secondary control systems for the control of air dampers.

The 604 pressure monitoring switches are also ideally suited to protect heating coils from overheating and for monitoring industrial air cooling circuits. Medium: air and non-corrosive gases.



The distinct advantages

- Extremely easy to install
- Only one fixing screw for cover
- Cable inlead case geometry
- Cable strain relief integrated in Pg 11
- Combi-bracket for vertical or horizontal installation
- High adjustment accuracy through individual scale engraving per switch
- Long-term stability of switching points through trapezoidal bead diaphragm
- Multi-layer contact gold-plated

Legend to cross-section drawing

- 1 Mounting bracket
- 2 Diaphragm
- 3 P1 connection of higher pressure or lower vacuum
- 4 P2 connection of lower pressure or higher vacuum
- 5 Scale (switching point setting)

Pressure ranges

See order code selection table.

Temperature ranges / Overpressure

Overpressure 50 mbar at medium and ambient temperature
-30 to +85 °C

Overpressure 75 mbar at medium and ambient temperature
-30 to +75 °C

Storage temperature -40 to +85 °C

Setting ranges / Switching differential

See diagrams, right

The switching differential is factory-set.

Lowest turn-on pressure

0.2 mbar

Repeatability

In the ranges 0.2 to 3 mbar
< +/- 0.025 mbar

In the ranges 0.5 to 20 mbar
< +/- 0.05 mbar

In the ranges 10 to 50 mbar
< +/- 0.15 mbar

Case construction

Main case:
fiberglass-reinforced plastic

Cover:
plastic

Weight

120 grams without bracket
144 grams with bracket type C

Installation arrangement

Standard diaphragm vertical (factory calibration)
When the switch is rotated to horizontal the switching points will change by 11 pascal (see back cover).

Pressure connections

Pipe $\varnothing$ 6.2 mm
Adapter 1/8"

Diaphragm

Silicone LSR
Tempered 200 °C,
free of gas emissions

Electrical connections

Screw terminals or AMP-connectors 6.3 or 4.8 mm according to DIN 46244

Cable gland Pg 11 with cable strain relief

Contact system

Standard : Changeover switch
Option : N/O contact

Contact material

Multi-layer contact (suitable for DDC)

5 (0.8*) A 250 VAC
2 A 30 VDC

* For inductive loads with 6-fold starting current
 $\cos \varphi$ 0.6

Tests

EN 61058, VDE 0630
DVGW according to
DIN 3398, part 2

EU conformity

Low voltage directive
73/23/EWG
Gas appliance directive 90/396/EWG
CE 0085 A P0918

Protection class

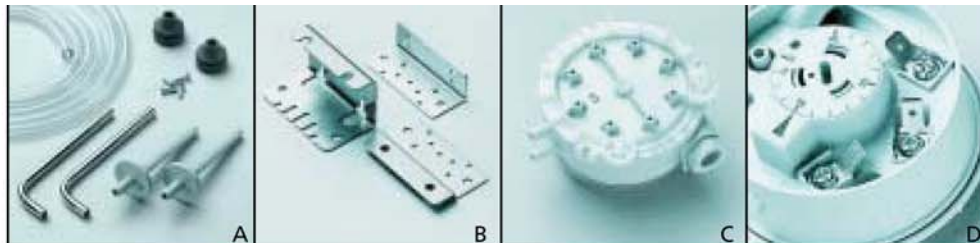
IP 00 without cover
IP 54 with cover

Service life

Mechanical, > 10⁶ switching cycles

Accessories

See order code selection table



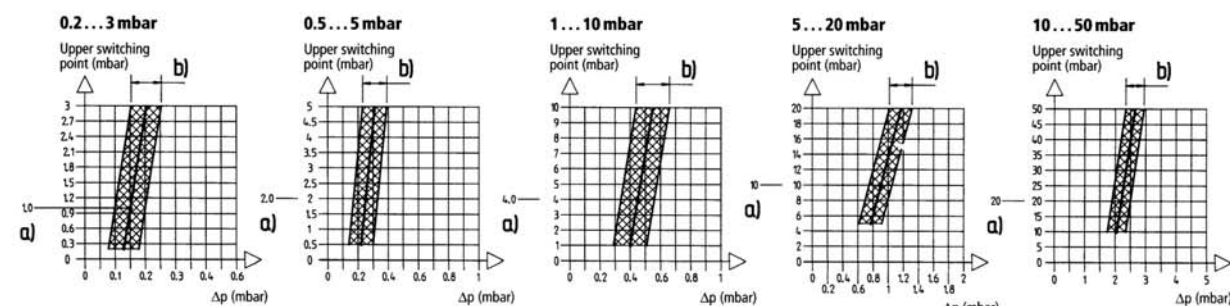
- A – Connection set
Fig. 1 / Fig. 2
- B – Mounting bracket
A, B, C
- C – Switch with
fastening clip
- D – Equipped with
AMP connectors

Versions

Compact A/C set (standard)	Pressure range	Connection set	Order no.
Consisting of switch with hose connection Ø 6.2 mm, scale in mbar, screw terminals, multi-layer contact up to 5 A (suitable for DDC), combi-bracket and hose connection set, single packaging.	0.2 – 3 mbar	Fig. 1 (Metal)	604.9000001
	0.5 – 5 mbar	Fig. 1 (Metal)	604.9100001
	1 – 10 mbar	Fig. 1 (Metal)	604.9200001
	5 – 20 mbar	Fig. 1 (Metal)	604.9400001
	10 – 50 mbar	Fig. 1 (Metal)	604.9500001
	0.2 – 3 mbar	Fig. 2 (Plastic)	604.9000002
	0.5 – 5 mbar	Fig. 2 (Plastic)	604.9100002
	1 – 10 mbar	Fig. 2 (Plastic)	604.9200002
	5 – 20 mbar	Fig. 2 (Plastic)	604.9400002
	10 – 50 mbar	Fig. 2 (Plastic)	604.9500002

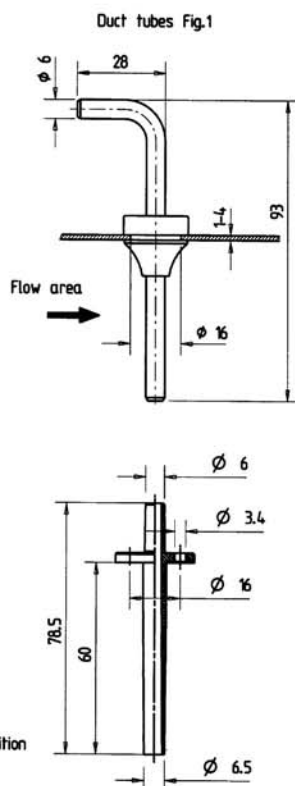
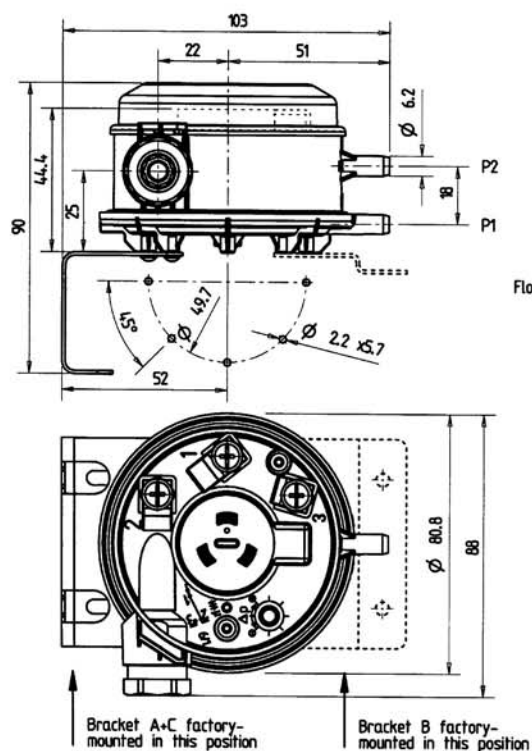
Order code selection table		EDITION 02/2001	604	9	X	X	X	X	X	X	X	X
ETL execution, fire classification V0				E								
Setting range	0.2 – 3 mbar	(20 – 300 Pa)		0								
	0.5 – 5 mbar	(50 – 500 Pa)		1								
	1 – 10 mbar	(100 – 1 000 Pa)		2								
	5 – 20 mbar	(500 – 2 000 Pa)		4								
	10 – 50 mbar	(1 000 – 5 000 Pa)		5								
Scale	Scale in mbar			0								
	Scale in Pa			1								
	Scale in inH ₂ O			2								
	without scale (rating plate in mbar)			3								
	without scale (rating plate in Pa)			4								
	without scale (rating plate in inH ₂ O)			5								
Pressure connection	Pipe ø 6.2 mm	without orifice						0				
	Pipe ø 6.2 mm	with orifice on P2						1				
	Inside thread G 1/8	without orifice						2				
	Inside thread G 1/8	with orifice on P2						3				
Electrical connection	Screw terminals							0				
	AMP connector 6.3 mm							1				
	AMP connector 4.8 mm							2				
Cover / Bracket	with cover	combi-bracket type C								0		
	with cover	bracket type A								1		
	with cover	bracket type B								2		
	with cover	without bracket								3		
	without cover	combi-bracket type C								5		
	without cover	bracket type A								6		
	without cover	bracket type B								7		
	without cover	without bracket								8		
Connection set with hose 2 m	without connection set									0		
	with connection set	as Fig. 1 in single packaging								1		
	with connection set	as Fig. 2 in single packaging								2		

Accessories, supplied separately	Order no.
Hose connection set Fig. 1	1 0 4 3 1 2
Hose connection set Fig. 2	1 0 0 0 6 4
Bracket type A ¹	1 0 0 2 9 5 ¹
Bracket type B ¹	1 0 0 0 9 8 ¹
Combi-bracket type C ¹	1 0 0 1 0 6 ¹
¹ Special screws for fastening switches to bracket (2 screws per switch required)	1 0 2 9 7 6
Fastening clip for bracket A, B, C or direct mounting for wall thickness 0.8 – 1.1 mm	1 0 0 2 9 4
for wall thickness 1.8 – 2.1 mm	1 0 0 2 9 3

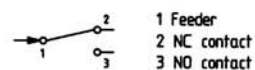


a) Factory-setting b) Δp tolerance

¹ See fixing screws «Wall thickness on customer site» on back page.



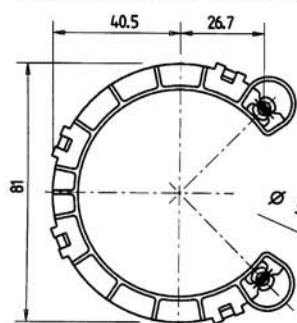
Electrical connections



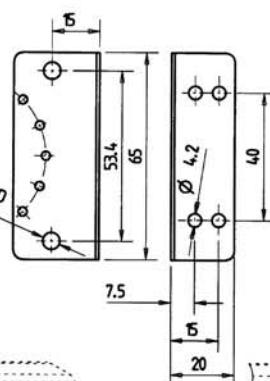
Fixing screws for direct wall-mounting without bracket

Wall thickness on customer site	Screw length	Order number
1 - 2 mm	6 mm	102976
4.1 - 6 mm	10 mm	102978

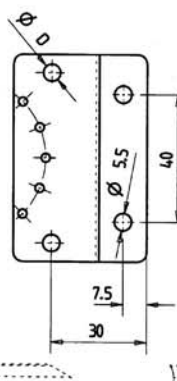
Mounting the switch with fastening clip



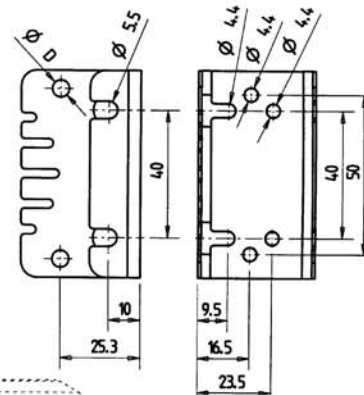
Bracket type A



Bracket type B



Bracket type C



D = Holes for fastening clip

Installation arrangement

Recommended orientation: vertical (factory calibration)



Horizontal mounting with cover upwards. Switching points 11 Pa higher than indicated on scale.



Horizontal mounting with cover downwards. Switching points 11 Pa lower than indicated on scale.

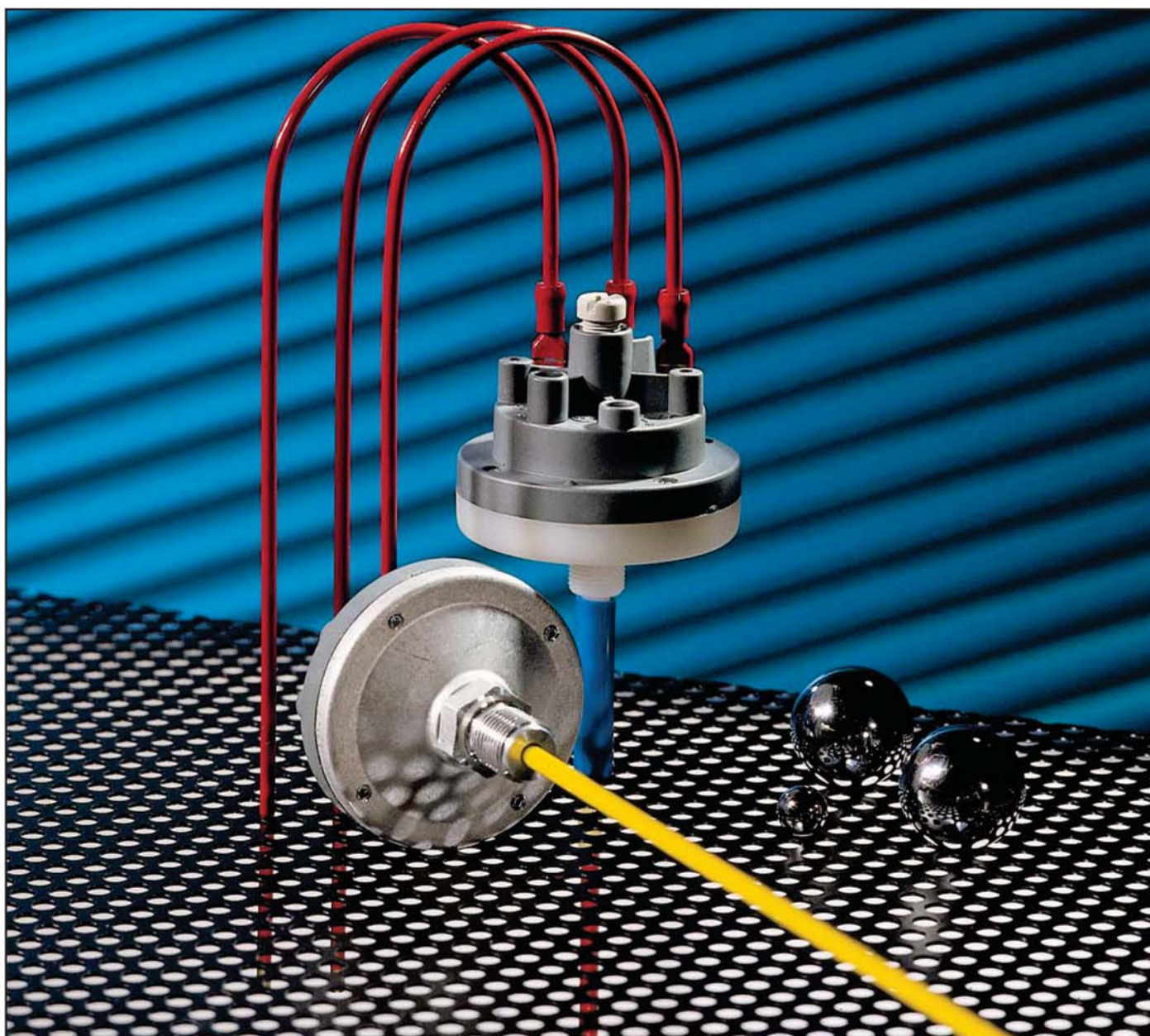


620

Overpressure and vacuum switch

– 900 mbar ... 6 bar

625

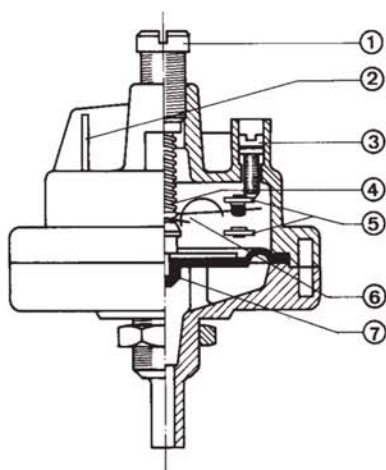




Technical overview

With their finely tuned range increments and long-term switching point stability, overpressure and vacuum switches of type 620/25 are suitable for monitoring liquids and gases in industrial equipment manufacturing applications in general, in process technology or in food automation.

The rugged mechanics are the assurance of high operating reliability, even in the presence of percussions or vibrations. A range of switches with many standard versions and ideal price/performance ratio, even in the case of small quantities.



Legend to cross-section drawing

- 1 Switching point setting
- 2 AMP tab connectors
- 3 Switching difference setting
- 4 Compression spring
- 5 Changeover contact
- 6 Contact element
- 7 Diaphragm

The distinct advantages

- High accuracy by 13 ideally designed pressure range increments
- Switching differences adjustable
- High long-term stability with reproducibility of switching points up to ± 0.3 mbar
- Customer-specific switching points adjustable in factory
- Rugged industrial switch with excellent price/performance ratio

Pressure ranges

See order code selection table

Maximum overpressure

Maximum overpressure and test pressure see setting ranges

Setting ranges

See graphic on the back

Lowest turn-on pressure

2 mbar

Switching point and switching difference adjustable

Smallest switching difference: 1 mbar

Repeatability

$\pm 5\%$ of the switching point of type A, F diaphragm material, but as a minimum ± 0.3 mbar

$\pm 10\%$ of the switching point of type C, E diaphragm material, but as a minimum ± 0.6 mbar

Temperature range

Medium temperature with diaphragm type 625:

NBR-based	0 ... + 80 °C
FPM	- 10 ... + 80 °C
EPDM	- 10 ... + 80 °C
Q (Silicon)	- 40 ... + 80 °C

Ambient temperature T 65

Type 620 see order code selection table

Case construction

Type series 620/25: Switch case fiberglass-reinforced

Type series 620: Base ABS or PA

Type series 625: Base aluminium or brass. Other specifications or surface treatment on request

Weight

Type 620	70 g
Type 625 with aluminium base	100 g
Type 625 with base brass	200 g

Installation arrangement

Unrestricted. For switching points calibrated in the factory indicate installation arrangement.

Pressure connections

Type 620

Connection pipe $\varnothing$ 6 mm, inside thread M5, thread M12x1 with counternut

Type 625

Thread G 1/8, G 1/4, M12x1 with counternut.

See order code selection table. Other threads on request

Diaphragm

A NBR-based	C FPM
E EPDM	F Silicon

Parts coming into contact with the medium, to base and diaphragm. Polyacetal and stainless steel 1.4301 with vacuum switch version.

Electrical connections

Screw terminals (option), AMP tab connectors 6.3 mm, cable gland PG 11 with cover

Contact system

Changeover contact

Contact material / Loading

Nominal voltage, type of current	250 VAC	250 VAC
Nominal current for resistive loading	1 A	6 A
Nominal voltage for motor loading	0.5 A	3 A
Contact material	AgCdO	AgCdO

Type of protection

Without cover	IP 00
With cover (for installation arrangement electrical connections upward)	IP 54

Service life

Mechanical and electrical service life: 10^6 switching cycles, if the permitted switching difference is respected according to the diagram on the back.

Accessories

See order code selection table

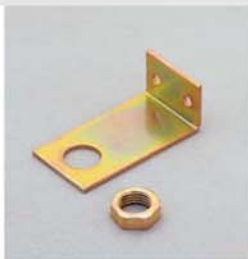
Versions



Plastic cover with Pg 11 on side



Screw terminals
AMP connector set



Mounting bracket



Type 620 with pressure case
ABS / PA



Type 625 with pressure case
alu/brass

Order code selection table

620. X X X X

Pressure ranges ¹ (mbar)	2 ... 8	p max 30	pt ² 50	Switching capacity 250 V 1 A				
	6 ... 75	300	500	1 A			1	
	12.5 ... 80	300	500	6 A			2	
	12.5 ... 200	300	500	1 A			3	
	25 ... 220	300	500	6 A			4	
							5	
Pressure connections/ Pressure case	Hose	Ø 6 mm	(M12x1) ABS	... 70 °C				0
	Hose	Ø 6 mm	(M12x1) PA 66	... 80 °C				1
	Inside thread	M5	(M12x1) ABS	... 70 °C				2
	Inside thread	M5	(M12x1) PA 66	... 80 °C				3
Diaphragm material	Type A – NBR-based							0
	Type C – FPM							2
	Type E – EPDM							4
	Type F – Q (Silicon)							6

Order code selection table

625. X X X X

Pressure							9			
Vacuum							6			
Pressure ranges ¹ (mbar)	2 ... 8	p max 30	pt ² 50	Switching capacity 250 V 1 A						
	6 ... 75	300	500	1 A				0		
	12.5 ... 80	300	500	6 A				1		
	12.5 ... 200	300	500	1 A				2		
	25 ... 220	300	500	6 A				3		
	80 ... 2000	6000	10 000	1 A				4		
	120 ... 2200	6000	10 000	6 A				5		
	1000 ... 6000	6000	10 000	6 A				6		
								7		
Vacuum ranges ¹	–4 ... –30	–50	–100	1 A				1		
	–15 ... –80	–300	–500	1 A				2		
	–30 ... –150	–300	–500	6 A				3		
	–50 ... –600	–1000	–1000	6 A				4		
	–100 ... –900	–1000	–1000	6 A				5		
Pressure connections/ Pressure case	G 1/8	Aluminium							1	
	M12x1	Aluminium							2	
	G 1/4	Brass							3	
	G 1/4	Aluminium							4	
	G 1/4	Nickel-plated brass 5 µm							A	
	G 1/8	Brass							B	
Diaphragm material	Type A – NBR-based									
	Type C – FPM									2
	Type E – EPDM									4
	Type F – Q (Silicon)									6

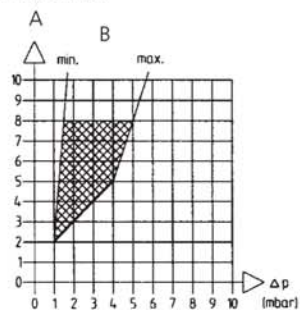
Accessories

Plastic cover with Pg 11 lateral	IP 54		1	0	5	8	3	6
Mounting bracket with hole	Ø 12.5 mm	for M12	1	0	4	2	5	9
Mounting bracket with hole	Ø 14 mm	for G 1/4	1	0	2	8	7	2
AMP Stecker-Set			1	0	3	4	7	9
Schraubklemmen-Set			1	0	3	4	9	1

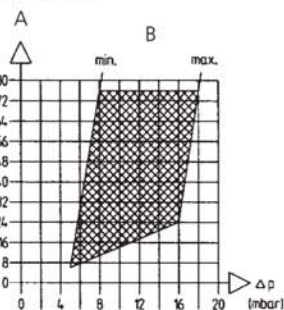
¹ Other pressure ranges on request

² pt = test pressure

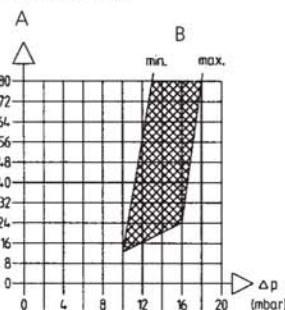
2 ... 8 mbar



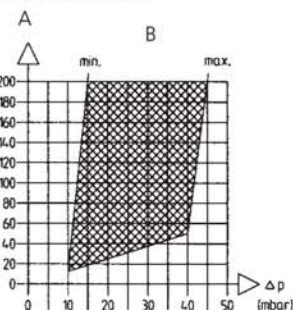
6 ... 75 mbar



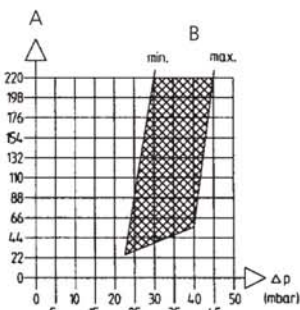
12.5 ... 80 mbar



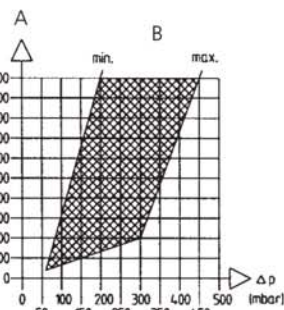
12.5 ... 200 mbar



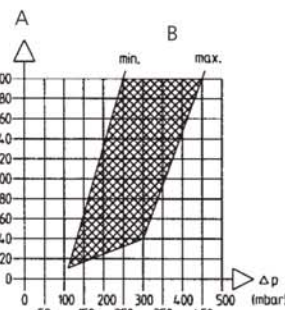
25 ... 220 mbar



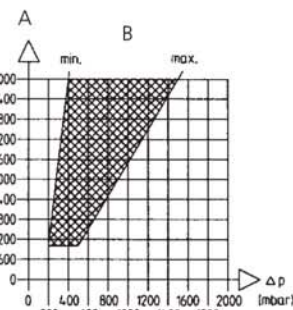
80 ... 2000 mbar



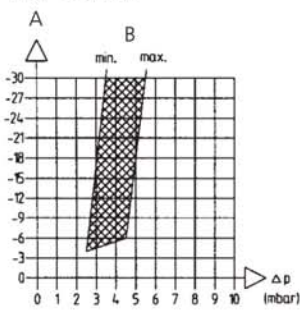
120 ... 2200 mbar



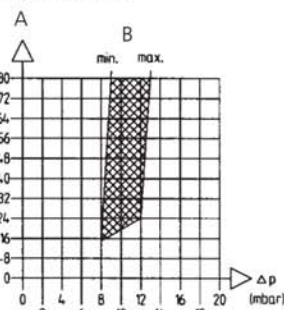
1000 ... 6000 mbar



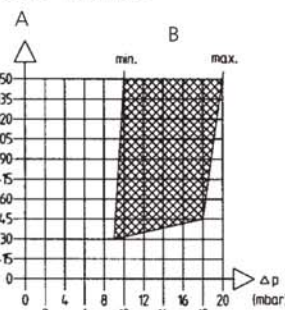
-4 ... -30 mbar



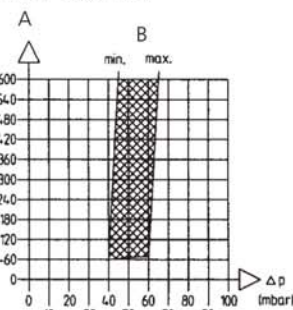
-15 ... -80 mbar



-30 ... -150 mbar

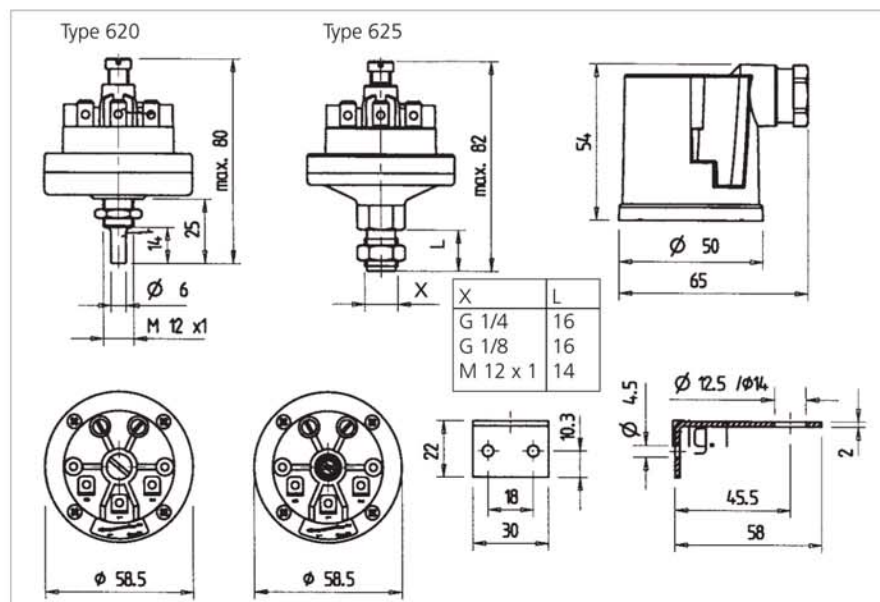
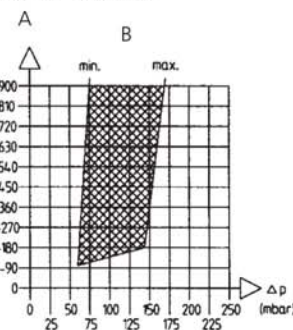


-50 ... -600 mbar

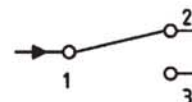


A Upper switching point (mbar) B Distance between contacts

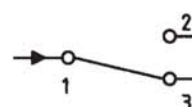
-100 ... -900 mbar



- 1 Common
- 2 NC contact
- 3 NO contact



For vacuum:
terminal 3 break contact



620

Overpressure and vacuum switch

– 900 mbar ... 6 bar

625

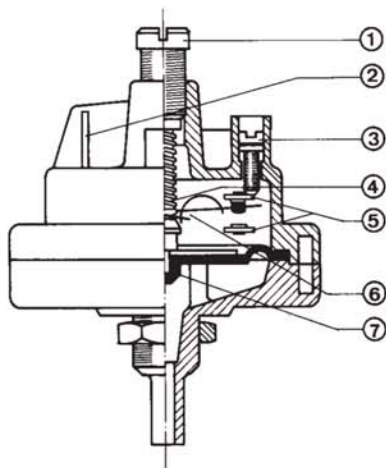




Technical overview

With their finely tuned range increments and long-term switching point stability, overpressure and vacuum switches of type 620/25 are suitable for monitoring liquids and gases in industrial equipment manufacturing applications in general, in process technology or in food automation.

The rugged mechanics are the assurance of high operating reliability, even in the presence of percussions or vibrations. A range of switches with many standard versions and ideal price/performance ratio, even in the case of small quantities.



Legend to cross-section drawing

- 1 Switching point setting
- 2 AMP tab connectors
- 3 Switching difference setting
- 4 Compression spring
- 5 Changeover contact
- 6 Contact element
- 7 Diaphragm

The distinct advantages

- High accuracy by 13 ideally designed pressure range increments
- Switching differences adjustable
- High long-term stability with reproducibility of switching points up to ± 0.3 mbar
- Customer-specific switching points adjustable in factory
- Rugged industrial switch with excellent price/performance ratio

Pressure ranges

See order code selection table

Maximum overpressure

Maximum overpressure and test pressure see setting ranges

Setting ranges

See graphic on the back

Lowest turn-on pressure

2 mbar

Switching point and switching difference adjustable

Smallest switching difference: 1 mbar

Repeatability

$\pm 5\%$ of the switching point of type A, F diaphragm material, but as a minimum ± 0.3 mbar

$\pm 10\%$ of the switching point of type C, E diaphragm material, but as a minimum ± 0.6 mbar

Temperature range

Medium temperature with diaphragm type 625:

NBR-based	0 ... + 80 °C
FPM	- 10 ... + 80 °C
EPDM	- 10 ... + 80 °C
Q (Silicon)	- 40 ... + 80 °C

Ambient temperature T 65

Type 620 see order code selection table

Case construction

Type series 620/25: Switch case fiberglass-reinforced

Type series 620: Base ABS or PA

Type series 625: Base aluminium or brass. Other specifications or surface treatment on request

Weight

Type 620	70 g
Type 625 with aluminium base	100 g
Type 625 with base brass	200 g

Installation arrangement

Unrestricted. For switching points calibrated in the factory indicate installation arrangement.

Pressure connections

Type 620

Connection pipe $\varnothing$ 6 mm, inside thread M5, thread M12x1 with counternut

Type 625

Thread G 1/8, G 1/4, M12x1 with counternut.

See order code selection table. Other threads on request

Diaphragm

A NBR-based	C FPM
E EPDM	F Silicon

Parts coming into contact with the medium, to base and diaphragm. Polyacetal and stainless steel 1.4301 with vacuum switch version.

Electrical connections

Screw terminals (option), AMP tab connectors 6.3 mm, cable gland PG 11 with cover

Contact system

Changeover contact

Contact material / Loading

Nominal voltage, type of current	250 VAC	250 VAC
Nominal current for resistive loading	1 A	6 A
Nominal voltage for motor loading	0.5 A	3 A
Contact material	AgCdO	AgCdO

Type of protection

Without cover	IP 00
With cover (for installation arrangement electrical connections upward)	IP 54

Service life

Mechanical and electrical service life: 10^6 switching cycles, if the permitted switching difference is respected according to the diagram on the back.

Accessories

See order code selection table

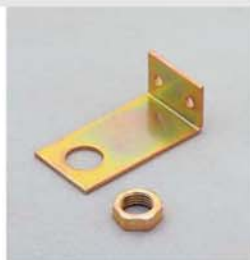
Versions



Plastic cover with Pg 11 on side



Screw terminals
AMP connector set



Mounting bracket



Type 620 with pressure case
ABS / PA



Type 625 with pressure case
alu/brass

Order code selection table

620. X X X X

Pressure ranges ¹ (mbar)	2 ... 8	p max 30	pt ² 50	Switching capacity 250 V				
	6 ... 75	300	500	1 A				1
	12.5 ... 80	300	500	6 A				2
	12.5 ... 200	300	500	1 A				3
	25 ... 220	300	500	6 A				4
								5
Pressure connections/ Pressure case	Hose	Ø 6 mm	(M12x1) ABS	... 70 °C				0
	Hose	Ø 6 mm	(M12x1) PA 66	... 80 °C				1
	Inside thread	M5	(M12x1) ABS	... 70 °C				2
	Inside thread	M5	(M12x1) PA 66	... 80 °C				3
Diaphragm material	Type A – NBR-based							0
	Type C – FPM							2
	Type E – EPDM							4
	Type F – Q (Silicon)							6

Order code selection table

625. X X X X

Pressure								9
Vacuum								6
Pressure ranges ¹ (mbar)	2 ... 8	p max 30	pt ² 50	Switching capacity 250 V				
	6 ... 75	300	500	1 A				0
	12.5 ... 80	300	500	6 A				1
	12.5 ... 200	300	500	1 A				2
	25 ... 220	300	500	6 A				3
	80 ... 2000	6000	10 000	1 A				4
	120 ... 2200	6000	10 000	6 A				5
	1000 ... 6000	6000	10 000	6 A				6
								7
Vacuum ranges ¹	–4 ... –30	–50	–100	1 A				1
	–15 ... –80	–300	–500	1 A				2
	–30 ... –150	–300	–500	6 A				3
	–50 ... –600	–1000	–1000	6 A				4
	–100 ... –900	–1000	–1000	6 A				5
Pressure connections/ Pressure case	G 1/8	Aluminium						1
	M12x1	Aluminium						2
	G 1/4	Brass						3
	G 1/4	Aluminium						4
	G 1/4	Nickel-plated brass 5 µm						A
	G 1/8	Brass						B
Diaphragm material	Type A – NBR-based							
	Type C – FPM							2
	Type E – EPDM							4
	Type F – Q (Silicon)							6

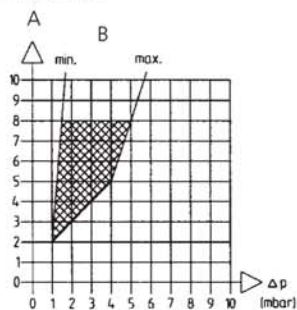
Accessories

Plastic cover with Pg 11 lateral	IP 54		1	0	5	8	3	6
Mounting bracket with hole	Ø 12.5 mm	for M12	1	0	4	2	5	9
Mounting bracket with hole	Ø 14 mm	for G 1/4	1	0	2	8	7	2
AMP Stecker-Set			1	0	3	4	7	9
Schraubklemmen-Set			1	0	3	4	9	1

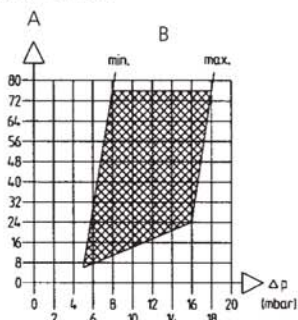
¹ Other pressure ranges on request

² pt = test pressure

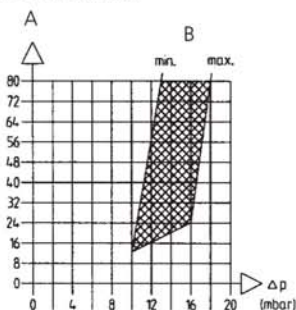
2 ... 8 mbar



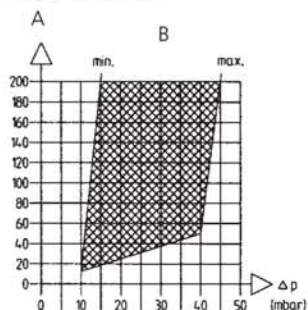
6 ... 75 mbar



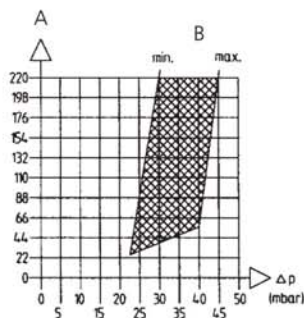
12.5 ... 80 mbar



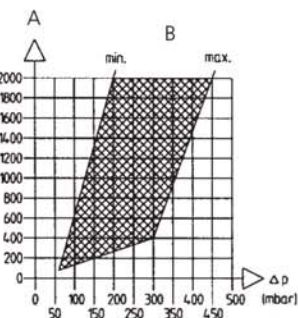
12.5 ... 200 mbar



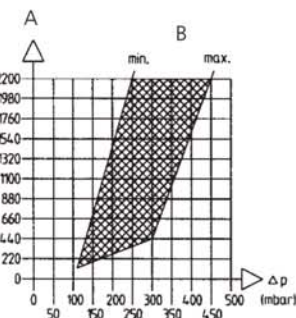
25 ... 220 mbar



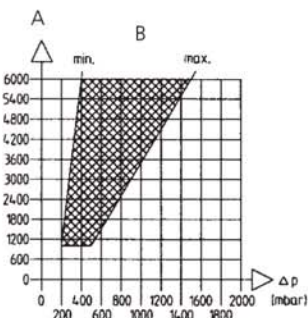
80 ... 2000 mbar



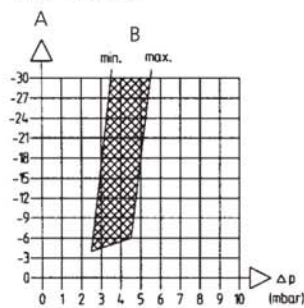
120 ... 2200 mbar



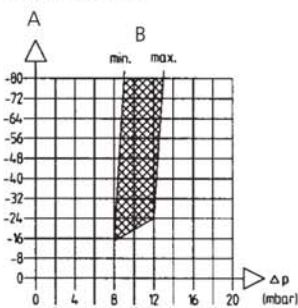
1000 ... 6000 mbar



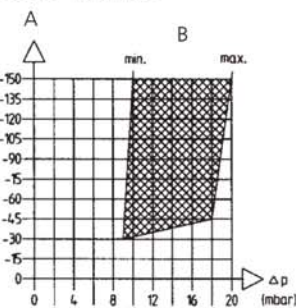
-4 ... -30 mbar



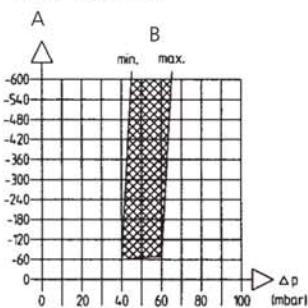
-15 ... -80 mbar



-30 ... -150 mbar

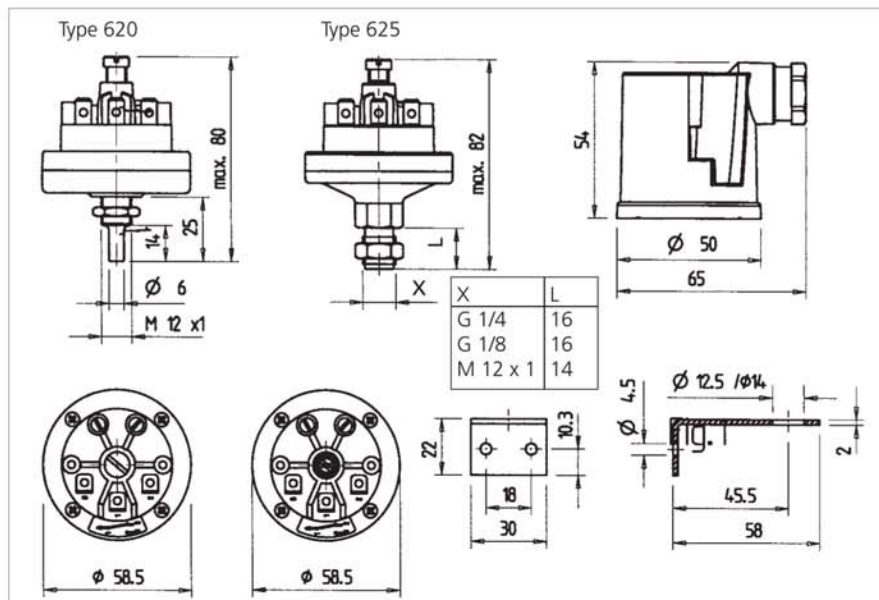
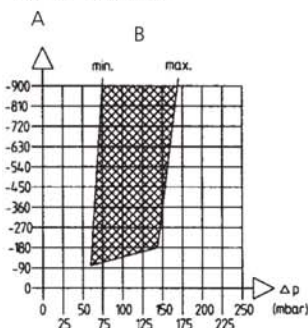


-50 ... -600 mbar

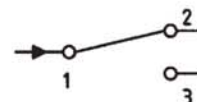


A Upper switching point (mbar) B Distance between contacts

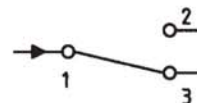
-100 ... -900 mbar



1 Common
2 NC contact
3 NO contact



For vacuum:
terminal 3 break contact



PS31 – Kapton® Diaphragm OEM Subminiature Pressure Switch

- ▶ 5 to 150 psi (.345 to 10 bar) *formerly PS-JL series*
- ▶ Ideal for Pneumatic and Low Pressure Hydraulic Applications
- ▶ Adjustable or Factory Set

These compact pressure switches are designed for OEM applications. Made economical with metal blade contacts in lieu of microswitches, the PS31 series features Kapton® diaphragms. Kapton® polyimide maintains excellent physical properties over a wide temperature range. It also offers superb chemical resistance with no known organic solvents.

Specifications

Operating Temperature	-40°F to +200°F (-40°C to +93°C)
Switch*	100 VA Max.
Repeatability	±5% of Full Set Point Range @ 70°F (20°C)
Wetted Parts	
Diaphragm	Teflon® Coated Kapton®
O-Ring	Nitrile
Fitting	Brass (optional 316 Stainless Steel)
Electrical Termination	Exposed Terminals IP00; IP option IP66
Deadband	<5% of Set Point
Proof Pressure	500 psi (35 bar)
Approvals	CE (limits switch voltage to 42 VDC)
Weight, Approximate	Brass: 0.14 lbs. (0.06 kg)

*Gold contacts (option G) may be required for less than 12 VDC and 20 mA.
Kapton® is a registered trademark of Dupont.

How To Order

Use the **Bold** characters from the chart below to construct a product code.

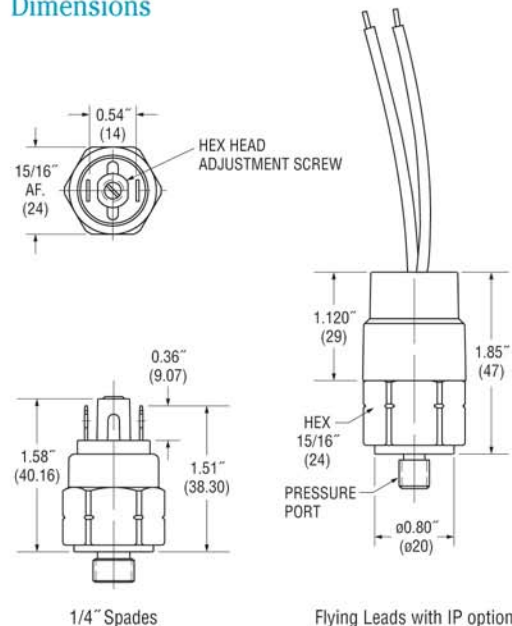
SELECT	PS31	-20	-4MNB	-A	-SP	-XX	-XXXX
1. Pressure Range Code							
Insert Pressure Range Code from table below right							
2. Pressure Fitting ¹							
Brass			316 Stainless Steel				
-2MNB 1/8" NPTM			-2MNS 1/8" NPTM				
-4MNB 1/4" NPTM			-4MNS 1/4" NPTM				
-2MGB 1/8" BSPM			-2MGS 1/8" BSPM				
-4MGB 1/4" BSPM			-4MGS 1/4" BSPM				
-8MGB 1/2" BSPM			-4MSS 7/16"-20 SAE Male				
-M10B M10 x 1.0, Straight			-6MSS 9/16"-18 SAE Male				
-M12B M12 x 1.5, Straight							
-4MSB 7/16"-20 SAE Male							
-6MSB 9/16"-18 SAE Male							
3. Circuit							
-A SPST/NO; -B SPST/NC							
4. Electrical Termination							
-SP Spade Terminals (standard); -TS Terminal Screws; -FLXX Flying Leads ² ;							
-FLSXX Flying Leads w/PVC Shrink Tubing ² ; -CABXX 18 AWG PVC Cable ³							
5. Options							
-G Gold Contacts (for loads less than 12 mA @ 12 VDC); -IP Ingress Protection ⁴ ;							
-OXY Oxygen Cleaned; -RB Rubber Boot (shipped loose);							
-WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male;							
-DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional)							
A. Specify set point -FS (in PSI or BAR, see example) ⁵							
B. Set Point Actuation							
R on Rising Pressure; F on Falling Pressure							
Example: -FS0.6BARF for 0.6 BAR Falling or -FS10PSIR for 10 PSI Rising							

Notes:

- Other connectors available. Consult factory.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices and requires Fixed Set Point (-FS).
- Set Point must be within Pressure Range selected in Step 1 above.



Dimensions



1/4" Spades

Flying Leads with IP option

Pressure Range Table

Pressure Range Code	Pressure Range
20	5-25 psi (0.345-1.7 bar)
30	20-60 psi (1.4-4.1 bar)
40	50-150 psi (3.4-10.3 bar)