

**PRESSURE, VACUUM, LEVEL & TEMPERATURE SWITCHES**



**SWITCHING  
SOLUTIONS**

**INC**

**Electrical:**

5 A 12/24 VDC-125 VAC

3 A 250 VAC

Gold contacts may be required for less than 12VDC & 20 milliamp

**Switch Type:**

Snap Action

**Protection:**

DIN 43650A-IP65, Terminals-IP00

**Temperature Range:**

-20°F to 180°F (-29°C to 82°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

Nitrile (Optional Viton® & EPDM)

**Housing Material:**

Brass

**Maximum Overpressure:**

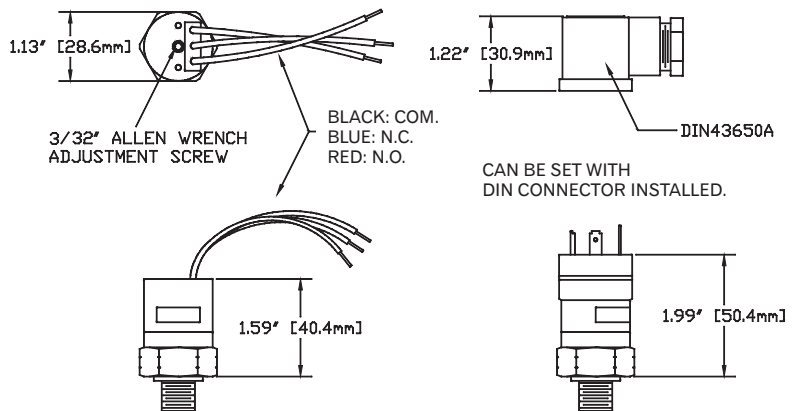
350 PSI (25 BAR)

**Repeatability:**

+/- 2% of full set point range

**Weight:**

0.26 lbs. (0.12 Kg.) max



Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	3-7	0.21-0.48	0.5-1.2	0.03-0.08
2	5-30	0.32-2.07	1-2.5	0.07-0.17
3	25-150	1.72-10.3	2-10	0.14-0.69

**Ordering Information:**

SPA-	2-	4 M-	C-	H-	1
SPA - Field Adjustable	See Adjustment Range above or state factory set point	2M - 1/8"NPT 4M - 1/4"NPT 4G - 1/4"BSPP	A - SPST/NO B - SPST/NC C - SPDT	FL - Flying leads, 18" HC - DIN Cable Clamp HC - 5A DIN Light 12 VDC HC - 5B DIN Light 24 VDC HC - 5C DIN Light 110/230 VAC HN - DIN 1/2" Conduit (Female) H - DIN43650A male half only SP - 1/4" Spades	Blank (standard) 1. Viton 2. EPDM 3. SS Housing 7. Gold Contact 8. 10A Micro switch* SR - Snubber

Note: For other port thread sizes, electrical terminations and ranges, see page 20.

\*Only available in SPA/F-2 and SPA/F-3

**Electrical:**

4/8/15 A resistive - 24/12/6 VDC

1/0.5 A inductive - 120/240 VAC

**Switch Type:**

Creep Action

**Protection:**

Terminals-IP00

**Temperature Range:**

-40°F to 248°F (-40°C to 120°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

Kapton

**Housing Material:**

Brass, glass reinforced polyester

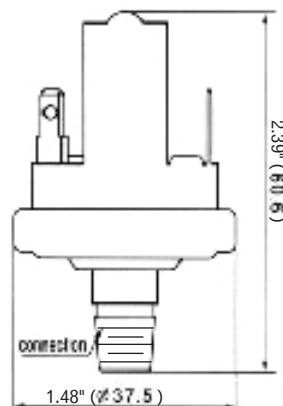
**Maximum Overpressure:**

Model 1 - 150 PSI (3.5 BAR)

Model 2 - 250 PSI (17 BAR)

**Weight:**

0.14 lbs. (0.06 Kg.)



Model	Adjustment Range	
	PSI	Bar
1	0.5-24	0.035-1.65
2	25-150	1.72-10.3

**Ordering Information:**

SPAL-	2-	2M-	A-	SP-	3
SPAL- Field Adjustable	See Adjustment Range above	2M - 1/8"NPT	A - SPST-NO B - SPST-NC D - SPDT-NO/NC E - SPDT-NO/NC Adjustable deadband	FL - Flying leads, 18" SP - 1/4" Spades TS - #8-32 Screws	Blank (standard) 3. SS Housing
SPFL- Factory Set	or state factory set point				

### Electrical:

16(4) A - 125/250 VAC

1 HP 125 VAC

2 HP 250 VAC

### Switch Type:

Creep Action

### Protection:

Terminals IP00

### Temperature Range:

-20°F to 257°F (-29°C to 125°C)

### Mechanical Range:

1,000,000 Cycles

### Diaphragm Material:

Stainless steel

### Housing Material:

Brass, glass reinforced polyester

### Maximum Overpressure:

Model 1 - 58 PSI (4 BAR)

Model 2 - 72 PSI (5 BAR)

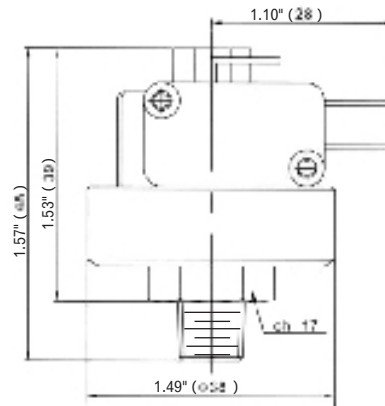
Model 3 - 87 PSI (6 BAR)

Model 4 - 116 PSI (8 BAR)

Model 5 - 145 PSI (10 BAR)

### Weight:

0.16 lbs. (0.07 Kg.)



Model	Adjustment Range	
	PSI	Bar
1	2.9-17.4	0.2-1.2
2	14.5-36	1-2.5
3	21.7-58	1.5-4
4	29-87	2-6
5	58-130	4-9

### Ordering Information:

SPAH-	2-	2M-	C-	QC-	1
SPAH- Field Adjustable	See Adjustment Range above	2M - 1/8"NPT	C - SPDT	QC1 - Quick connect 4.88mm	Blank (standard) 1. Viton
SPFH- Factory Set	or state factory set point			QC2 - Quick connect 6.35mm	2. EPDM 3. SS Housing 7. Gold contact 30. Rubber protection boot.

Note: For other port thread sizes, electrical terminations and ranges, contact factory.

4 Actuation point can be adjusted during development of specification. Factory setting is required for production.

**Electrical:**

3/5 A 24/12 VDC  
375 VA 110/220 VAC

**Switch Type:**

Snap Disk

**Protection:**

Terminals IP00

**Temperature Range:**

-58°F to 250°F (-50°C to 120°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

Stainless steel

**Housing Material:**

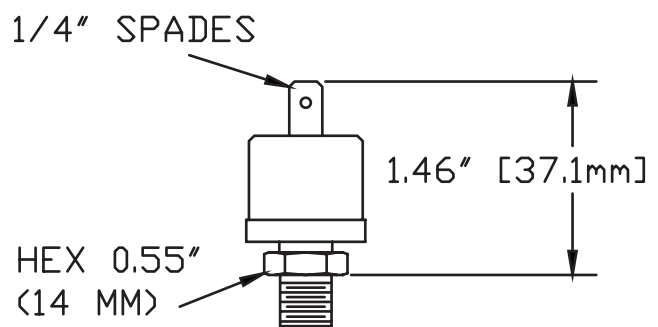
Brass

**Maximum Overpressure:**

500 PSI (35 BAR)

**Weight:**

0.07 lbs. (0.03 Kg.)



Adjustment Range	
PSI	Bar
2.5-400	0.15-27

**Ordering Information:**

SLF-	50R-	2M-	A-	SP-
Factory Set	State factory set point	2M - 1/8"NPT	A - SPST/NO B - SPST/NC	SP - 1/4" Spades TS - #8-32 Screws FL - Flying Leads

Note: For other port thread sizes, electrical terminations and ranges, contact factory.  
Actuation point has to be specified.

### Electrical:

5 A 12/24 VDC-125 VAC

3 A 250 VAC

Gold contacts may be required for less than 12VDC & 20 milliamp

### Switch Type:

Snap Action

### Protection:

DIN 43650A-IP65, Terminals-IP00

### Temperature Range:

-20°F to 180°F (-29°C to 82°C)

### Mechanical Range:

1,000,000 Cycles

### Diaphragm Material:

Nitrile (Optional Viton® & EPDM)

### Housing Material:

Zinc plated steel

### Maximum Overpressure:

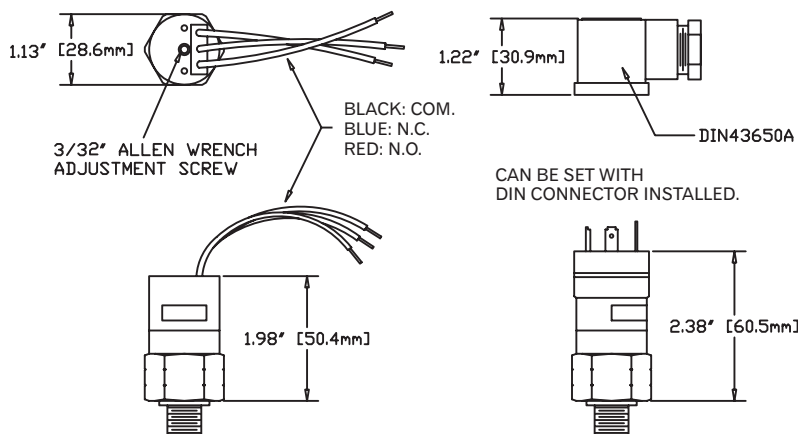
9000 PSI (600 BAR)

### Repeatability:

+/- 2% of full set point range

### Weight:

0.41 lbs. (0.19 Kg.) max



Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
4	30-120	2-8	9-20	0.6-1.4
5	75-300	5-21	12-36	0.8-2.5
6	300-1200	21-83	69-80	4.7-5.5
7	1000-3000	69-207	180-360	12.4-24.8
8	2000-5000	138-345	200-400	13.8-27.6

### Ordering Information:

SMA-	2-	4M-	C-	H-	1
SMA - Field Adjustable	See Adjustment Range above or state factory set point	2M - 1/8"NPT 4M - 1/4"NPT 4G - 1/4"BSPP	A - SPST/NO B - SPST/NC C - SPDT	FL - Flying leads, 18" HC - DIN Cable Clamp HC - 5A DIN Light 12 VDC HC - 5B DIN Light 24 VDC HC - 5C DIN Light 110/230 VAC HN - DIN 1/2" Conduit (Female) H - DIN43650A male half only SP - 1/4" Spades	Blank (standard) 1. Viton 2. EPDM 3. SS Housing 7. Gold Contact 8. 10A Micro switch* SR - Snubber
SMF - Factory set		4S - 7/16"-20SAE 4SLN - "+ Swivel 6S - 9/16"-18SAE			

Note: For other port thread sizes, electrical terminations and ranges, see page 20.

\*Only available in SMA/F-2

**Electrical:**

48 VDC - 0.5 A (Resist.)

**Switch Type:**

Creep Action

**Protection:**

Switch sealed IP65 except exposed terminals IP00

**Temperature Range:**

-20°F to 180°F (-29°C to 82°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

Nitrile (Optional Viton® & EPDM)

**Housing Material:**

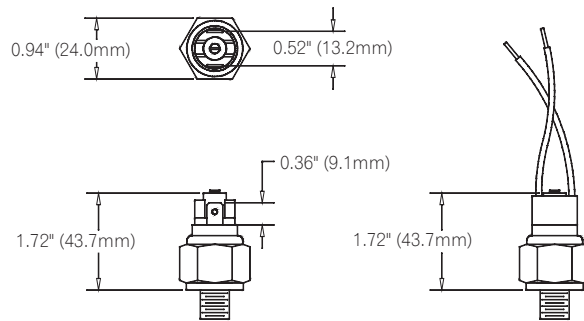
Zinc plated steel

**Maximum Overpressure:**

8500 PSI Static (586 BAR)

**Weight:**

0.17 lbs. (0.08 Kg.) max



Model	Adjustment Range	
	PSI	Bar
1	2-30	0.14-2.1
2	30-150	2.1-10.3
3	150-300	10-20
4	300-700	20-48
5	700-2200	48-152
6	1000-3000	69-207

**Ordering Information:**

SMBA-	2-	4M-	A-	SP-	1
SMBA - Field Adjustable	See Adjustment Range above	2M - 1/8"NPT 4M - 1/4"NPT	A - SPST/NO B - SPST/NC	FL - Flying leads	Blank (standard)
SMBF - Factory Set	or state factory set point	2G - 1/8"BSPP 4G - 1/4"BSPP 4S - 7/16"-20SAE 6S - 9/16"-18SAE		SP - 1/4" Spades DR - Deutsch (integral)	1. Viton® 2. EPDM 30. Rubber protection boot.

Note: For other port thread sizes, electrical terminations and ranges, see page 20.

**Electrical:**

5 A Resistive to 220 VAC  
 4 A Resistive to 24 VDC  
 Max working voltage - 250 VAC

**Switch Type:**

Snap Action

**Protection:**

Switch sealed IP65 except  
 exposed terminals IP00

**Temperature Range:**

-20°F to 180°F (-29°C to 82°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

NBR 70 SH

**Housing Material:**

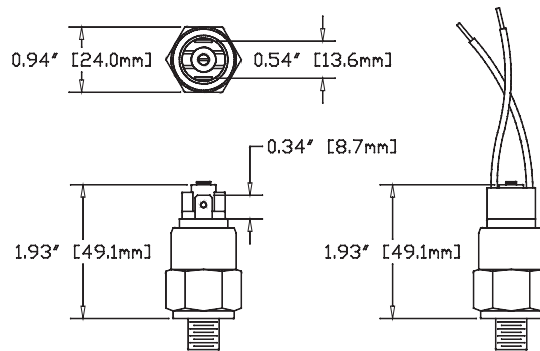
Zinc plated steel

**Maximum Overpressure:**

8500 PSI Static (586 BAR)

**Weight:**

0.22 lbs. (0.1 Kg.) max



Model	Adjustment Range	
	PSI	Bar
1 (Diaphragm)	2-30	0.14-2.1
2 (Diaphragm)	30-150	2.1-10.3
3 (Diaphragm)	150-300	10-20
4 (Diaphragm)	300-700	20-48
5 (Piston)	700-2200	48-152

**Ordering Information:**

SMCA-	2-	4M-	C-	FL-	1
SMCA - Field Adjustable	See Adjustment Range above	2M - 1/8"NPT 4M - 1/4"NPT	A - SPST/NO B - SPST/NC	FL - Flying leads	Blank (standard)
SMCF - Factory Set	or state factory set point	4G - 1/4"BSPP 4S - 7/16"-20SAE 6S - 9/16"-18SAE	C - SPDT	SP - 1/4" Spades	1. Viton® 2. EPDM 30. Rubber protection boot.

Note: For other port thread sizes, electrical terminations and ranges, see page 20.

\*CE approval pending, please contact factory.

**Electrical:**

5 A 12/24 VDC-125 VAC

3 A 250 VAC

Gold contacts may be required for less than 12VDC & 20 milliamp

**Switch Type:**

Snap Action

**Protection:**

DIN 43650A-IP65 Terminals-IP00

**Temperature Range:**

-20°F to 180°F (-29°C to 82°C)

**Mechanical Range:**

1,000,000 Cycles

**Diaphragm Material:**

Nitrile (Optional Viton & EPDM)

**Housing Material:**

Brass

**Maximum Overpressure:**

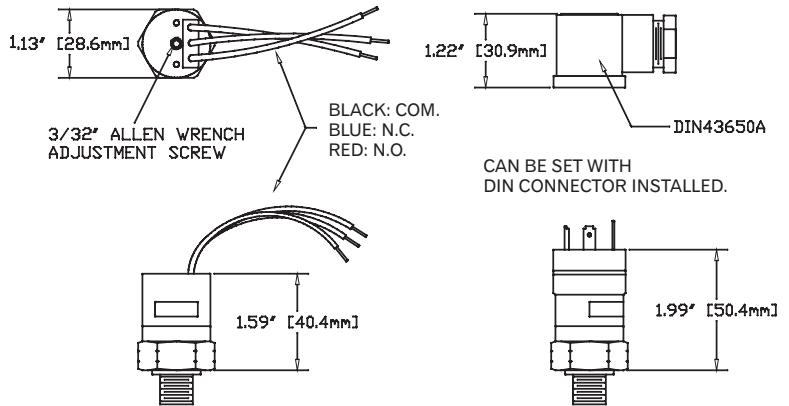
350 PSI (25 BAR)

**Repeatability:**

+/- 2% of full set point range

**Weight:**

0.26 lbs. (0.12 Kg.) max



Model	Adjustment Range		Average Differential	
	Hg	MilliBar	Hg	MilliBar
1	5-30"	160-1000	2-4"	67-133

**Ordering Information:**

SVA-	1	4M-	C-	H-	1
SVA - Field Adjustable	See Adjustment Range above or state factory set point	2M - 1/8"NPT 4M - 1/4"NPT 4G - 1/4"BSPP	A - SPST/NO B - SPST/NC C - SPDT	FL - Flying leads, 18" HC - DIN Cable Clamp HC - 5A DIN Light 12 VDC HC - 5B DIN Light 24 VDC HC - 5C DIN Light 110/230 VAC HN - DIN 1/2" Conduit (Female) H - DIN43650A male half only SP - 1/4" Spades	Blank (standard) 1. Viton 2. EPDM 3. SS Housing 7. Gold Contact 9. Wide deadband (reduced range to 10/30 Hg)
SVF - Factory set		4S - 7/16"-20SAE 4SLN - "+Swivel 6S - 9/16"-18SAE			

Note: For other port thread sizes, electrical terminations and ranges, see page 20.

### Electrical:

5 A 12/24 VDC-125 VAC

3 A 250 VAC

Gold contacts may be required for less than 12VDC & 20 milliamp

### Switch Type:

Snap Action

### Protection:

DIN 43650A-IP65

### Temperature Range:

-20°F to 180°F (-29°C to 82°C)

### Mechanical Range:

1,000,000 Cycles

### Diaphragm Material:

Nitrile (Optional Viton & EPDM)

### Housing Material:

Anodized Aluminum - body  
Plated Steel - fittings

### Maximum Overpressure:

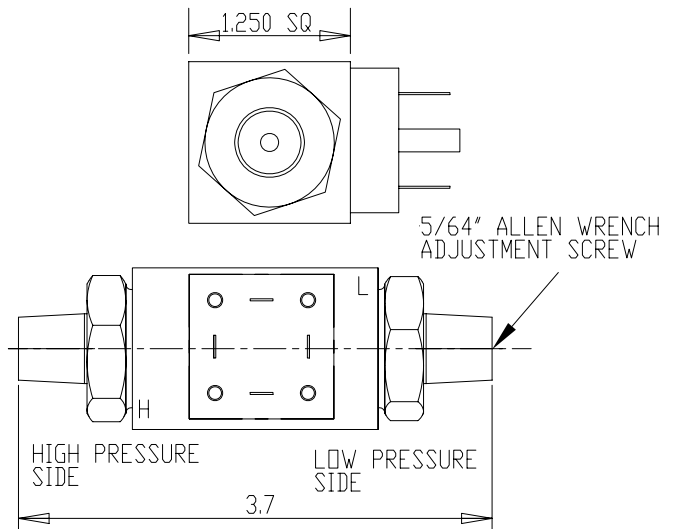
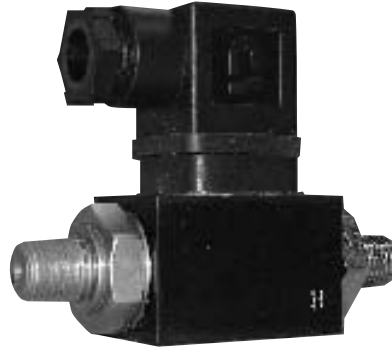
500 PSI (25 BAR)

### Repeatability

± 2% of Full set point range

### Weight:

0.75 lbs. (0.35 Kg.)



Model	Adjustment Range	
	PSI	Bar
1	10-30	0.7-2
2	25-60	1.7-4

### Ordering Information:

DSPA-	1-	4M/4M-	C-	H-	1
DSPA- Field Adjustable	See Adjustment Range above	High Port 4M - 1/4"NPT	C - SPDT	HC - DIN Cable Clamp HC - 5A DIN Light 12 VDC HC - 5B DIN Light 24 VDC HC - 5D. DIN Light 110/230 VAC	Blank (standard)
DSPF- Factory Set	or state factory set point	Low Port 4M - 1/4"NPT		HN - DIN 1/2" Conduit (Female) H - DIN43650A male half only	1. Viton 2. EPDM 7. Gold Contact 8. 10A Micro switch*

**10** Note: For other port thread sizes, electrical terminations and ranges, see page 20.

### Electrical:

48 VDC - 0.8 A  
 24 VDC - 1A (Resistive)  
 12 VDC - 2A (Resistive)

### Protection:

Terminals IP00  
 Body IP65

### Temperature Differential:

10°F (5°C)

### Mechanical Range:

100,000 Cycles

### Temperature Exposure Limit:

300°F (149°C)

### Housing Material:

Brass, others on request

### Maximum Overpressure:

350 PSI (25 BAR)

### Installation Torque:

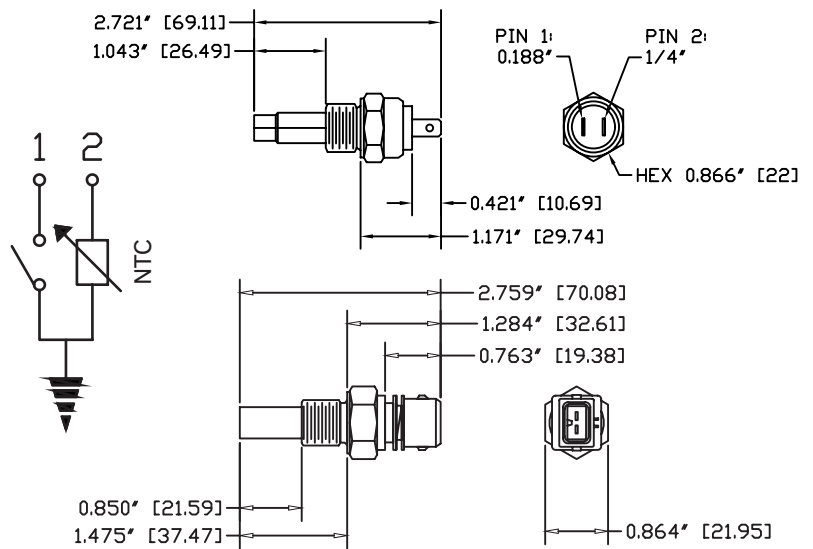
19 lb-ft (25 Nm)

### Weight:

0.25 lbs. (0.11 Kg.)

### Temperature Resistance (ohm)

122°F (50°C)	717
176°F (80°C)	374
230°F (110°C)	105



**The S1TAF model is a factory set temperature alarm switch and can be set from 77°F to 293°F (25°C to 145°C)**

### Ordering Information:

S1TAF-	90R-	4M-	A-	SP
S1TAF - Factory Set	77°F-293°F (25°C-145°C) State set point	4M - 1/4"NPT 6M - 3/8"NPT 8M - 1/2"NPT	A - SPST/NO NTC 2000 B - SPST/NC NTC 2000	SP - 1/4" Spades J- Junior power connector AMP 106462/1

Note: For other port thread sizes, electrical terminations and ranges, contact factory.  
 Other NTC characteristics available upon request.

### Electrical:

120 VAC - 15A (Resistive)  
 240 VAC - 10A (Resistive)  
 12 VDC - 12A (Resistive)  
 24 VDC - 6A (Resistive)

### Protection:

DIN 43650A - IP65  
 Terminals IP00  
 Body IP65

### Temperature Differential:

25°F (12°C)

### Mechanical Range:

100,000 Cycles

### Temperature Exposure Limit:

300°F (149°C)

### Housing Material:

Brass

### Maximum Overpressure:

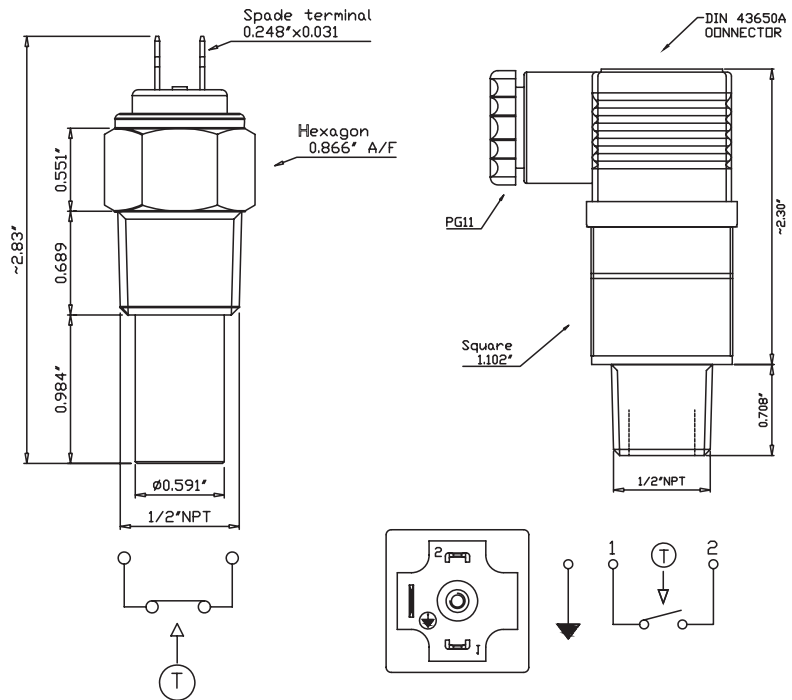
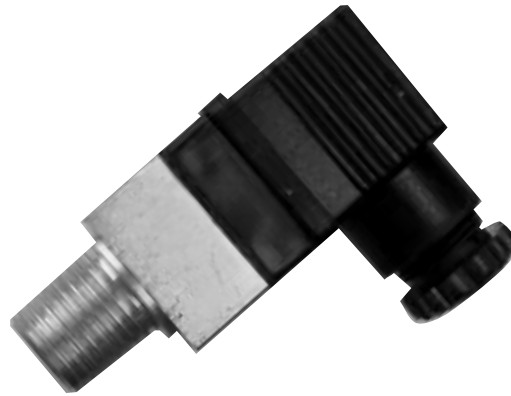
350 PSI (25 BAR)

### Installation Torque:

19 lb-ft (25 Nm)

### Weight:

0.31 lbs. (0.14 Kg.) max.



The S2TAF model is a factory set bi-metal type temperature alarm switch and can be set from 77°F to 293°F (25°C to 145°C)

### Ordering Information:

S2TAF-	90R	4M-	A-	SP-	
S2TAF - Factory Set	77°F-293°F (25°C-145°C) State set point	4M - 1/4\" NPT 6M - 3/8\" NPT 8M - 1/2\" NPT 8S - 3/4\"-16 SAE	A - SPST/NO B - SPST/NC	SP - 1/4\" Spades SP1 - 1/4\" Single spade (body ground) HC - DIN cable clamp HN - DIN 1/2\" conduit (female) H - DIN 43650A male half only	Blank - Standard 3 - SS housing

**Description:**

A low cost transducer for use in low noise environments.

**Body:**

Zinc plated carbon steel

**Installation:**

Any position

**Maximum Dimensions:**

M2 Execution: L 1.5" x H 3.2"

(L 38 mm x H 81 mm)

M3 Execution: L 1.9" x H 3.4"

(L 48 mm x H 87 mm)

**Working Temperature:**

-4°F to 176°F (-20°C to 80°C)

**Non-linearity + hysteresis:**

<1% of the end of scale

**Zero Thermic Drift:**

<3% of the end of scale

from 32°F to 158°F (0°C to 70°C)

**Weight:**

0.22 lbs. (0.1 Kg.)

**Mechanical Life:**

2 x 10<sup>6</sup> cycles of 20°C

**Electric Features:**

Power supply standard executions:

4-20 mA signal 2 wires:

from 12 to 28 Volt DC

0-10 Volt signal 3 wires:

from 15 to 28 Volt DC

Connection: according to DIN 43650

Protection: according to DIN 40050: IP65

Stocking temp.: from -35°C to + 110°C

Input impedance: 100 Ohm

**Electric connections:**

4-20 mA execution: 1=positive, 2=signal

0-10 V execution: 1=supply, 2=out, 3=GND



Model	Adjustment Range		Max. Working Pressure	
	PSI	Bar		
4	-14.5-14.5	-1-1	40	3
40.1	0-30	0-2	108	7.5
40	0-70	0-5	175	12
41	0-145	0-10	363	25
42	0-290	0-20	725	50
43	0-725	0-50	1740	120
44	0-1450	0-100	2900	200
45	0-2900	0-200	5800	400
49	0-5800	0-400	8700	600
59.6	0-8700	0-600	11600	800

**Ordering Information:**

TR-	-40-		2-	M3-	1/4NPT
TR	See measuring range above	Blank-	2- 4-20mA	M2-	1/4" BSPP male
TRW*		Zinc plated steel	2 wire	Connector 16x16-PG7	1/4 NPT male
		X- Stainless steel	3- 0-10 V	M3-	SAE-4 male
		steel	3 wire	Connector 30x30-PG9	
		AISI 316 L	.4- 0.5-4.5 V	M12-	
			(available only for TR49)	Connector 12x1-PG7	
				HN -	
				DIN 1/2" Conduit (Female)	

Note: For other port thread sizes, electrical terminations and ranges, contact factory.

\*Only for -14.5 PSI to 14.5 PSI (-1 to 1 bar)

### Description:

Rapid Level Float Switch.  
Revolutionary new series of electro-magnetic level gauges.

Packed in "Kit" form.  
Only a few seconds are required to obtain the desired length: just cut the control rod to length.

There are no electrical components submersed in the fluid.

Can be used in heavily contaminated fluids and refrigerating oils. Tolerates the presence of metallic particles.

Multiple switching options are available to customize your system.

Models suitable for high temperatures and corrosive liquids are available.

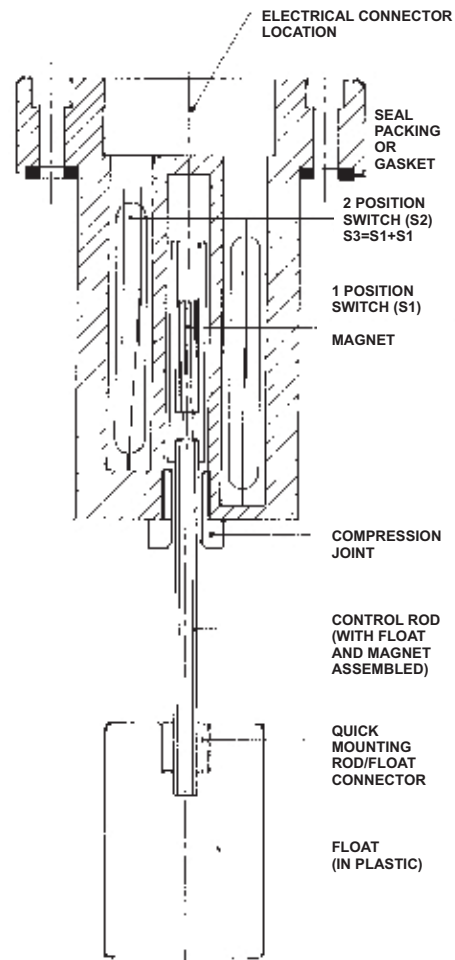
### Switch Specifications:

Open or closed contacts switch  
Standard: 3A. 60W. 60 V.A. 250V  
On request: 5A. 250 V.A 250V

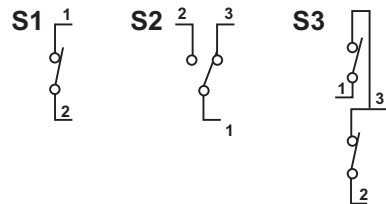
### Exchange Contact Switch:

1 A 30W. 60 V.A. 220V

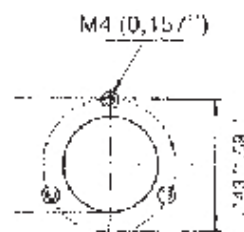
Each level is supplied outfitted with screws and oiltight gasket



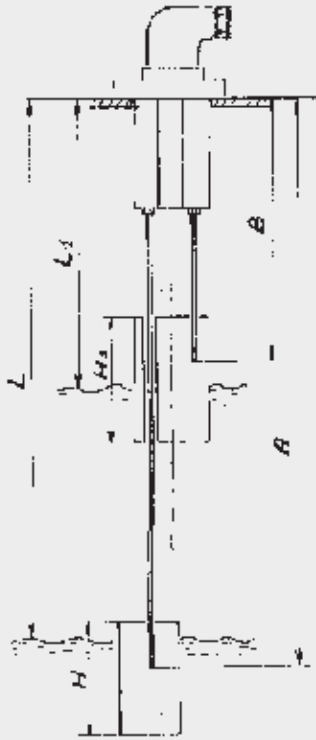
### Wiring Schematics: (absence of fluid)



### Mounting Pattern F3:



LR - F3



L/L1	A	B
120	116	116
140	137	137
160	158	158
180	179	179
200	200	200
220	221	221
240	242	242
260	263	263
280	284	284
300	305	305
320	326	326
340	347	347
360	368	368
380	389	389
400	410	410
420	431	431
440	452	452
460	473	473
480	494	494
500	515	515
520	511	536
540	532	557
560	553	578
580	574	599

L/L1	A	B
600	595	620
620	616	641
640	637	662
660	658	683
680	679	704
700	700	725
720	721	746
740	742	767
760	763	788
780	784	809
800	805	830
820	826	851
840	847	872
860	868	
880	889	
900	910	
920	931	
940	952	
960	973	
980	994	
1000	1015	

L = Liquid Level in mm  
 A = Minimum Rod Level in mm  
 B = Maximum Rod Level in mm

H = 60(L = 120:500 mm)  
 H = 90(L = 501:1000 mm)  
 H1 = 70(L = 120:1000 mm)  
 H1 = 33(L = 85 mm)

When measuring length of rod for cutting, don't forget to keep the rod extended!

### Description:

Packed in a kit form which includes the head/ connector assembly, control rod and float.

Switches are in the head assembly thus there are no wires to position inside the control rod.

The control rod is stainless steel and can be cut to length easily.

The float is fixed to the control rod & does not contain any magnets. This eliminates the collection of ferrous material present in some fluids.

The control rod and float move as one piece into the head assembly to actuate the switches.

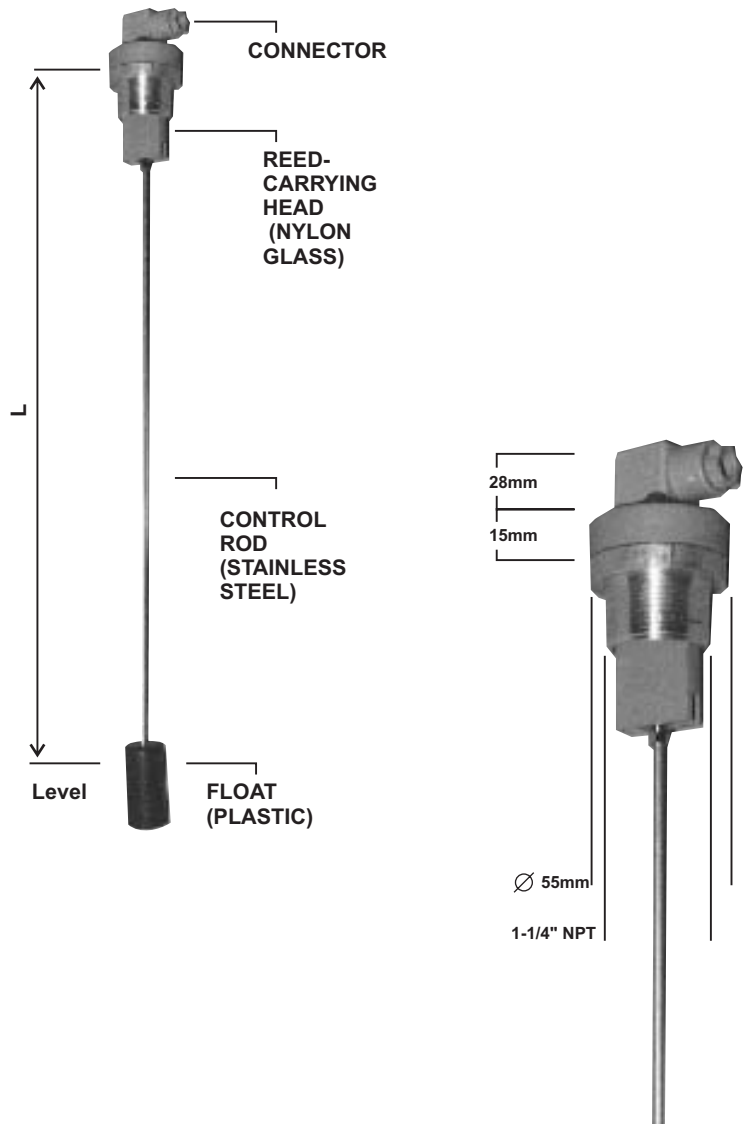
Standard model is supplied with control rod closing the switch with falling oil level. If you need open contacts add "A" to the standard code. ie: RLG1-F3-S3 "A"

For lengths over 500 mm or in systems with turbulence in the tank, specify type "R" reinforced rods.

### Mounting connection:

T3: 1-1/4" NPT thread

F3: Flange 3 mounting holes



### Ordering Information:

RL-G1	-	F3	S1A	A500
Series: RL-G1- One float type RL-L- Single float side mounting	Rod type: - Standard rod R- Reinforced rod	Fastening type: F3- 3 Hole flange T3- 1-1/4 NPT	Wiring scheme: ( in absence of liquid) <b>Normally closed</b> S1 N/A for RL-L S2 S3 <b>Normally open</b> S1A N/A for RL-L S2A S3A	Control rod (lower): A500- Standard rod 500mm A1000- Standard rod 1000mm

### Description:

The RL/G2's head accepts two control rods. Each control rod activates a separate switch. Each switch can be wired with S1, S2, S3, configuration. This option allows a wide variety of signal options.

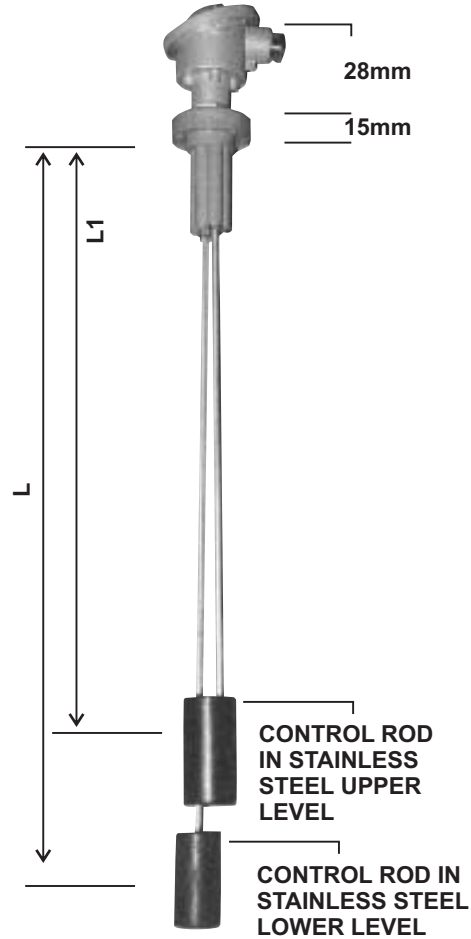
The standard model is supplied with control rod 1 closing the switch contacts with falling oil level and control rod 2 closing the switch contacts with rising oil level.

For open switch contacts add "A" to the standard code.

For lengths over 500mm or in systems with turbulence in the tank, specify the "R" reinforced rod.

### Mounting Connection:

T3 = 1-1/4" NPT thread  
F3 = Flange, 3 mounting holes.



### Ordering Information:

RL-G2	R	F3	S1A	S1	A1000	B900
Series: RL-G2- Double float type	Rod type: - Standard rod R- Reinforced rod	Fastening type: F3- 3 Hole flange T3- 1-1/4 NPT	Wiring scheme (lower float) in absence of liquid: Normally closed S1 S2 S3 Normally open S1A S2A S3A	Wiring scheme (upper float) in presence of liquid: Normally closed S1 S2 S3 Normally open S1A S2A S3A	Control rod (lower): A500- Standard rod 500mm A1000- Standard rod 1000mm	Control rod (upper): B400- Standard rod 400mm B900- Standard rod 900mm

### Description:

One part provides two functions, visual level indicator and electrical low level switch which reduces costs.

All electrical components are mounted outside of the tank, totally isolated from the liquid.

U shaped shield protects sight gauge.

Graduated scale for locating level of liquid.

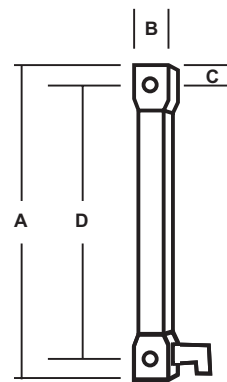
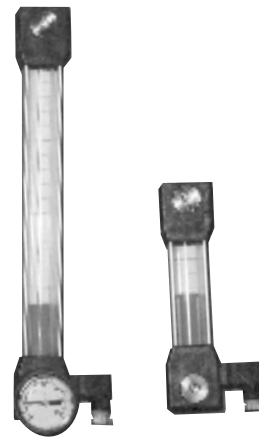
Available in 5" and 10" lengths.

Available as "Normally Open" (NO) or "Normally Closed" (NC) in the presence of liquid. Single Pole Single Throw (SPST) contact.

### Switch specifications:

1A, 20W, 200V. Externally mounted, magnetically operated reed switch.

Optional probe thermometer.



Model	A	B	C	D
LV/E1-127	153mm 6.023"	35mm 1.379"	13mm 0.512"	127mm 5.00"
LV/E1-254	280mm 11.02"	35mm 1.379"	13mm 0.512"	254mm 10.00"

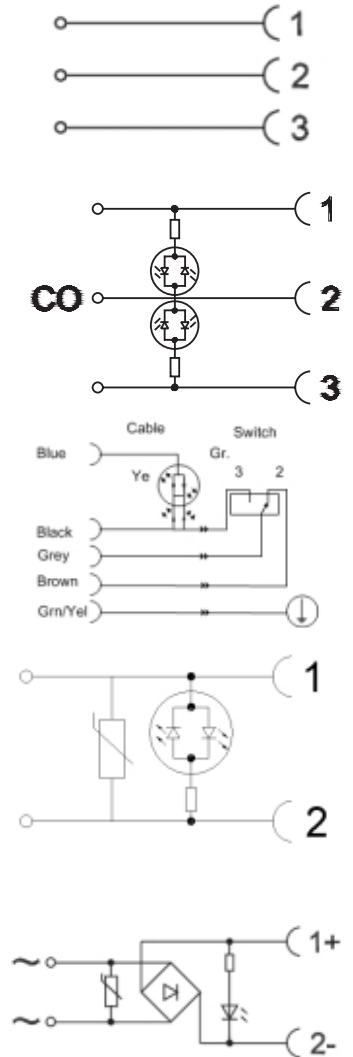
### Ordering Information:

Description*	5" Visual/Electrical Gauge	10" Visual/Electrical Gauge
Normally Open Contacts (NO)	LV/E1-127-M12-NO	LV/E1-254-M12-NO
Exchange Contacts	LV/E1-127-M12-Change	LV/E1-254-M12-Change
Normally Open Contacts (NO) with temperature probe	LV/E1-127-M12-NO-T	LV/E1-254-M12-NO-T
Exchange Contacts with temperature probe	LV/E1-127-M12-Change-T	LV/E1-254-M12-Change-T



30X30mm **DIN 43650-A, ISO 4400, Protection class IP65**

Part #	Colour	Voltage	Connector Description/Application
G1NU2000	Black		2 pole + Ground
G1GU2000	Grey		(Solenoid Only)
G1NU3000	Black		3 pole + Ground
G1GU3000	Grey		(Switch or Solenoid)
G1TU3L21	Transparent	12 / 24VDC	Two bipolar LED confirming voltage supply - switch circuit (Switch Only)
G1TU3L22	Transparent	115V	
CG1N03LX7AC25	Black	115V	Signals state of switch by two LED colours, power at switch green, switch made yellow. C/W 5 meters of cable PVC H05VVF - switch circuit (Switch Only)
CG1N03LX6AC25	Black	12 / 24VDC	
G1TU2VL2	Transparent	115V	Bipolar LED + Surge Protection, Polarity Indep.
G1TU2VL1	Transparent	12 / 24VDC	
CG1N02VL2C025	Black	115V	C/W 5 meters of cable PVC H05VVF (Solenoid Only)
G1TU2RL2	Transparent	115V	Full Bridge Rectifier, LED to confirm voltage, Surge protection
CG1N02RL2C025	Black	115V	C/W 5 meters of cable PVC H05VVF (Solenoid Only)



Overvoltage Protection 24VDC 42 - 52 Volts  
 Overvoltage Protection 115V 185 - 225 Volts



SMA-	2-	4M-	C-	6-	FLDP-	1-	3-	HS
SMA SMBA SMCA SVA DSPA				Optional wire length specify in inches			Additional Options: 1 - Viton® Seals 2 - EPDM Seals 3 - SS Housing 7 - Gold Contacts 8 - 10A Microswitch 9 - Wide Deadband 20 - Seal Adjustment Screws 30 - Rubber Boot, Removable SL - Split Flex Loom Cover HS - Shrinkwrap Cover WS - Weather Shielding	
<p>Optional specifications may be indicated by using the designations listed on this page. Not all combinations may be available. Please contact Switching Solutions Inc. for assistance.</p> <p><b>Example:</b>                      To add the following options to an SMA-2-4M-C-FL:                      1. 6" wire length with Deutsch plug and heat shrink cover.                      2. Viton® Seals                      3. Stainless steel housing                      The part number would become:                      SMA-2-4M-6-FLDP-1-3-HS</p>				<p><b>Electrical Connection:</b>                      FL - Flying leads, 18"                      SP - 1/4" Male Spade                      H - DIN43650, Base only                      HC - DIN43650, Cable Clamp                      HC - 5A DIN43650 With light 12 VDC                      HC - 5B DIN43650 With light 24 VDC                      HC - 5C DIN43650 With light 110/230 VAC                      HN - DIN43650 Plug 1/2" Conduit                      FLWF - Weather Pack (Female)                      FLWM - Weather Pack (Male)                      FLDP - Deutsch (Plug)                      FLDR - Deutsch (Receptacle)                      SJO - SJO Cable                      PVC - PVC Cable                      TS - #8-32 Screws</p>				

## Circuit Definitions

Form C is standard;  
others optional

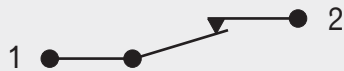
### Form A - SPST - NO

Single Pole - Single Throw  
Normally Open



### Form B - SPST - NC

Single Pole - Single Throw  
Normally Closed



### Form C - SPDT

Single Pole - Double Throw



## Standard Electrical Circuit:

Wire Color	DIN 43650 Number	Circuit
Black	1	Common
Blue	2	N. Closed
Red	3	N. Open

## Accuracy (repeatability):

Accuracy is the maximum allowable set point deviation of a single pressure or temperature switch under one given set of environmental and operational conditions.

## Actuation and Deactuation Point:

The actuation point (sometimes called set point) is the exact point at which the electrical circuit controlled by the switching element is opened (or closed) on increasing pressure or temperature. The deactuation point is the opposite, of the point at which the electrical circuit is closed (or opened) on decreasing pressure or temperature.

## Adjustable Range:

Difference between lowest and highest adjustable actuation or deactuation set points.

## CE:

The CE marking indicates compliance with the low voltage directive 2006/95/EC.

**Dead Band Differential:** Sometimes referred to as "hysteresis", is the change in pressure between actuation and deactuation set points.

## Diaphragm:

The membrane of flexible material [polyurethane, silicone, Viton®, Buna, fluorosilicone, EPDM, or Teflon®] which is deflected by input pressure, comprising the sensing element of a pressure, vacuum, or differential switch.

## Field Adjustable:

A sensor which has been designed to permit adjustment or calibration of set points in field application.

## Fluid:

In engineering terms, a liquid or gas which tends to conform to the shape of its container, and which alters its shape in response to applied force.

## Gauge Pressure:

A form of differential pressure measurement which uses atmospheric pressure (14.7psia) as the zero reference.

## Gold Contacts:

Gold switching elements provide high corrosion resistance and high reliability when switching low voltage circuits.

**Hysteresis:**

The maximum difference in output observed, at any measured value within a specified range, when the value is approached with increasing pressure, and then decreasing pressure. Hysteresis is usually expressed as a percent of full scale output (FSO).

**Impedance:**

In a circuit, the opposition to flow of an alternating current, consisting of ohmic resistance, inductive reactance, and capacitive reactance.

**Inductive Load:**

Load from electrical devices which are made of wound or coiled wire. Current passing through the windings creates a magnetic field which produces mechanical work. When an inductive circuit is switched open, energy stored in the coil can reverse flow, sparking at the switch contact surfaces.

**Maximum System Pressure:**

Rated pressure above the normal system pressure, including surges or spikes.

**Maximum Switching Current:**

The maximum current load or amperage an electrical switch is capable of carrying.

**Normally Closed Switching Element:**

Is one in which the terminals are wired so that current can flow through the switching element until pressure is applied to open the electrical circuit.

**Normally Open Switching Element:**

Is one in which the terminals are wired so that no current can flow through the switching element until the pressure is applied to close the electrical circuit.

**Pressure Range:**

Minimum and maximum pressure for which a sensor has been calibrated or specified.

**Pressure, Proof:**

Proof Pressure (normally 1-1/2 times system pressure) is the maximum static pressure which can be applied to any switch without causing permanent degradation.

**Pressure Sensing Element:**

That portion of the pressure switch that is in contact with and moves as a result of a change in pressure of the fluid. The most common type of pressure sensing elements are diaphragms, accordion bellows, bourdon tubes, and pistons.

**Pressure Switch:**

An instrument that upon the increase or decrease of a pressure or vacuum, opens or closes one or more electrical switching elements at a predetermined actuation point (setting).

**Pressure Switch:**

A device which converts pressure change into an electrical function.

**Repeatability:**

The ability of a switch to repeatedly actuate at the desired set point within sensor tolerance.

**Resistive Load:**

Load from devices which use electrical resistance to produce heat or light. Resistive loads cause current to flow in only one direction through a circuit.

**Set Point:**

The point at which motion of the pressure or vacuum or temperature sensing element causes the switch to function.

**Set Point Range:**

Range within which a switch can be set from lowest set point to highest set point (see Adjustable Range).

**Single Pole Double Throw (SPDT) Switching Element:**

A SPDT Switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (N/O) or normally closed (N/C), or both.

**Snap-Action Switch:**

A mechanically operated electric switch which, once its actuator has reached its operating (or release) point, immediately transfers to its opposite position without further travel of the actuator.

# Diaphragm Compatibility

Media	Nitrile	EPDM	Viton®
Acetic Acid		•	
Acetone		•	
Acetylene	•		
Air	•		
Alcohols	•		
Alkalies (weak)	•		
Alkalies (strong)		•	
Ammonia (Anhydrous)	•		
Ammonia (Hydroxide)		•	
Asphalt			•
Automotive Oils	•		
Beer	•		
Benzene			•
Boric Acid	•		
Brake Fluid		•	
Bunker Oil	•		
Butane	•		
Butyl Cellosolve		•	
Carbone Dioxide	•		
Carbon Monoxide	•		
Cellube		•	
Chlorobenzene			•
Citric Acid	•		
Coke Oven Gas			•
Coolanol	•		
Diesel Fuels	•		
Di-Ester Lube (MIL-L-7808)			•
Dowtherm A&E		•	
Ethanol	•		
Ether		•	
Ethylene	•		
Ethylene Glycol	•		
Freon 11, 12, 112, 114	•		
Freon 22		•	
Fyrquel		•	
Fuel Oil	•		
Gasoline	•		
Glycerin	•		
Helium	•		
Hexane	•		

Media	Nitrile	EPDM	Viton®
Hydraulic Oil (PET Base)	•		
Hydrocarbons	•		
Hydrogen	•		
Hydrogen Sulphide		•	
Isopropanol		•	
JP-3-6	•		
Kerosene	•		
LPG	•		
Lube Oil (PET Base)	•		
Methanol	•		
MEK		•	
Mineral Oil	•		
Motor Oils	•		
Naptha		•	
Natural Gas	•		
Nitric Acid		•	
Nitrogen	•		
Oleum Spirits			•
Oxygen	•		
Ozone		•	
Crude Oil	•		
Phosphoric Acid			•
Propane	•		
Propanol	•		
Pydral (135, 150, A200, 312, AC, F-9&625)			
Shell Iris 902	•		
Silicone Greases	•		
Silicone Oils	•		
Skydrol 500 & 7000		•	
Soap Solutions	•		
Steam below 320°F		•	
Stoddard Solvent	•		
Sulfuric Acid			•
Tolulene			•
Transmission Fluid A	•		
Trisodium Phosphate	•		
Turpentine	•	•	
Water to 220°F (104°C)	•		
Water to 302°F (150°C)		•	