PVS Sensors Inc.

PVS Sensors Inc. is a wholly owned subsidiary of Dynamic Fluid Components Inc.

COMPANY PROFILE

PVS offers a range of USA manufactured pressure, vacuum, and differential switches designed for applications in the Industrial and Mobile Hydraulic field as well as for applications in the Pneumatic, Water, Process, Refrigerant, Air Conditioning and other associated markets. In addition, PVS designs and manufactures custom switch products to meet specific customer needs.

The USA manufactured products are complimented by a competitive range of imported Temperature Switches and Pressure Transducers.

Products are available from our South Carolina manufacturing facility. No matter if your needs are big or small the PVS engineering and sales staff will help supply or custom design your pressure switch needs.

PVS Sensors Inc.

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PVS Sensors Inc.

DEFINITIONS AND TERMINOLOGY

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.

DEAD BAND - The dead band sometimes referred to as "differential" or "hysteresis" is the change in pressure between actuation and deactuation set points.

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 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.

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.

NORMALLY CLOSED SWITCHING ELEMENT (NC) - 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 (NO) - 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 fluid.

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

Electrical Specifications

Please refer to individual data pages for electrical specifications.

Circuit Definitions

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	C Circuit
Black	1	Common
Green	2	N. Closed
Red	3	N. Open

TECHNICAL DATA

PVS Pressure, Vacuum and Temperature Switches are sealed, vibration resistant and ruggedly built to provide a reliable protection for automatic control of equipment and processes. They are designed for direct or remote mounting and offer a quality product at a competitive price.

Microswitch - Each PVS pressure, vacuum and temperature switch except for the EPA model contains a precision, snap-action microswitch which meets or exceeds industrial standards for reliability; electrical capacity and long life.

The snap action micro switch meets underwriters and CSA specifications for 5 amp or 3 amp rating dependent upon specification type - consult factory for additional data.

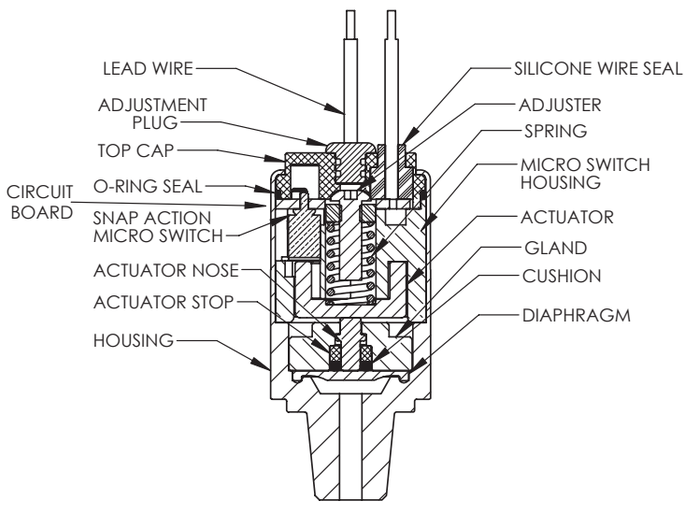
Setting - The set point of each switch is present at the factory as follows:

- Field adjustable series - bottom of range
- Factory set series - at the desired set point

The switches can be ordered for operation with either rising or falling temperature, vacuum or pressure. Reset of the microswitch is automatic and depends upon the dead band or differential of the particular model.

Switch Protection - Standard PVS switches offer excellent protection and long life in most applications. They are also sealed for weatherproof protection. The corrosion-resistant materials in the wetted areas and the standard nitrile diaphragm are suitable for most media. Where required the switches are available with VITON® or EPDM diaphragms and, in some cases, optional steel, brass or stainless steel housings and wetted areas.

Mechanism - Where the pressure switch is subject to higher pressure, either dynamic or static, of over 500 psi, the diaphragm operating mechanism includes an O-ring cushion which absorbs the slight operation motion required while preventing extrusion of the diaphragm material into the piston-to-cylinder clearance.



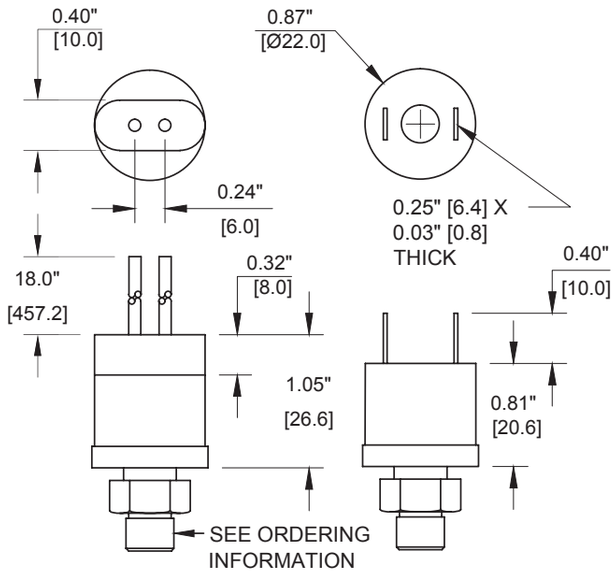
Model BPA Shown

PVS Sensors Inc.

LPF Pressure Switch

Medium Pressure

Delrin® Plastic Material
(® Registered Trademark of DuPont)



ELECTRICAL:

125/250 VAC - 12/24 VDC
Maximum Amperage @ 12VDC - 10 Amp

PROTECTION:

IP68 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

DIFFERENTIAL:

8 to 16% of set point

MAXIMUM OVERPRESSURE:

700 PSI (48 Bar)

WETTED MATERIAL:

Diaphragm: Stainless Steel
Housing: Brass
Optional: Stainless Steel

TEMPERATURE RANGE:

-5° to +180° F (-20° C to +80° C)
Ambient and Medium

WEIGHT:

0.10 LBS
(0.05 kg)

REPEATABILITY:

± 3 PSI of full set point range

ORDERING INFORMATION

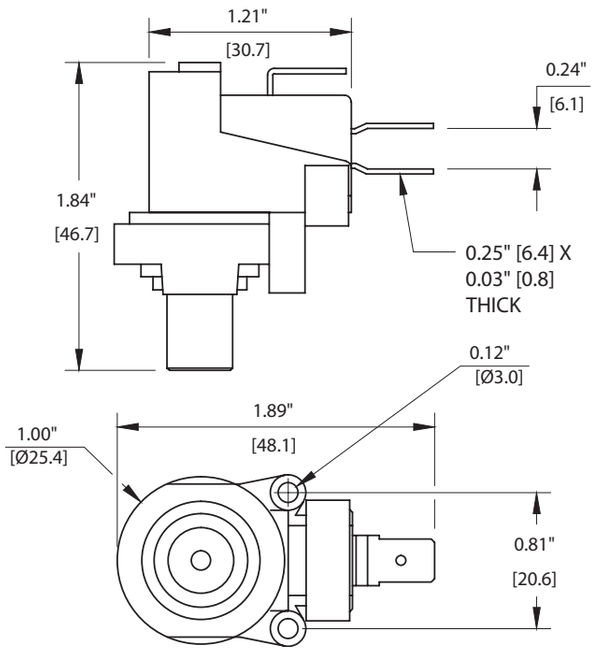
Minimum Order Required - Consult Factory

LPF	*- 50*	*- R*	*- 4M*	*- A*	*- FL*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
LPF	Specify PSI: 5 TO 450 PSI	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling	2M - 1/8 NPT 4M - 1/4 NPT 2G - 1/8 BSPP 4G - 1/4 BSPP 4S - 7/16 X 20 SAE MALE	A - SPST / NO B - SPST / NC	SP - 1/4" x 1/32" Spade FL - 18" Flying Leads	* - Omit If Standard 1 - Stainless Steel Body 2 - All Stainless Steel Wetted Area 3 - Longer Leads Specify Length

PVS Sensors Inc.

MPF Pressure Switch

Low Pressure



ELECTRICAL:

12/24 VDC - 125/250 VAC

5A (0.25 - 15 PSI)

16A (0.87 - 15 PSI)

21A (1.25 - 15 PSI)

SWITCH TYPE:

Snap Action

PRESSURE RANGE:

0.25 - 15 PSI

PROOF PRESSURE:

50 PSI

TEMPERATURE RANGE:

-14° to +180° F (-10° C to +80° C)
Ambient and Medium

WEIGHT:

0.036 lbs.
(0.02 kg)

APPLICATION MEDIUM:

Air, Water, and Inert Gases

MECHANICAL LIFE:

1,000,000 Cycles

CONNECTION:

1/8" NPT - standard
(optional 4mm tube connection available)

WETTED MATERIAL:

Diaphragm: Silicone
Housing: Plastic

ORDERING INFORMATION

Special Order Only - Minimum Quantity Required - Consult Factory

See Next Page for Foot Actuator

MPF	*- 5*	*- R*	*- 3*	*- A*	*- 2*
Model	**Set Point**	**Direction**	**Connection**	**Circuit**	**Rating**
MPF	Specify Set Point 0.25 - 15 PSI	R - PSI Rising F - PSI Falling BR - Bar Rising BR - Bar Falling	1 - 4mm OD Tube Side Entry 2 - 4mm OD Tube Bottom Entry With Fixed Nut 3 - 1/8" NPT (standard)	A - SPST - NO B - SPST - NC C - SPDT	1 - 5A (0.25 - 15 PSI) 2 - 16A (1.0 - 15 PSI) 3 - 21A (1.25 - 15 PSI)

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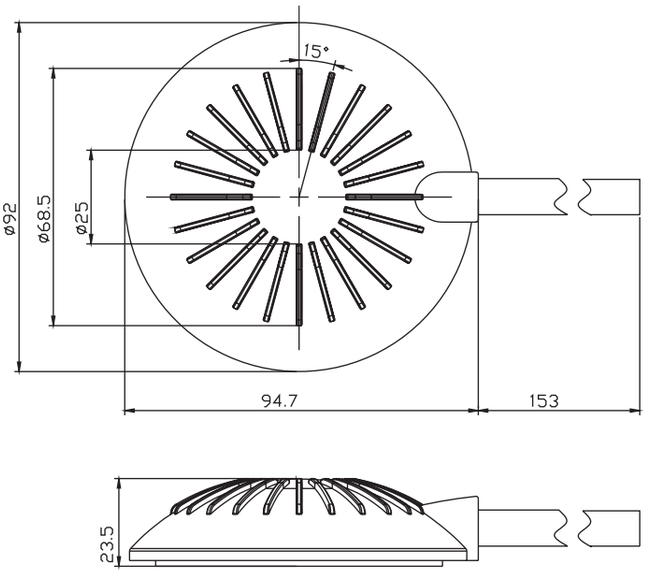
MSC Foot Actuator

Foot Actuator MSC-F



Foot Actuator MSC-F

FOOT ACTUATOR FOR MPF SWITCH

Used in conjunction with MPF Pressure Switch with 4mm hose connection

MATERIAL:
Rubber - Black

TUBE SIZE:
4mm x 6mm

WEIGHT:
0.70 LBS
(0.30 kg)

TEMPERATURE RANGE:
-5° F to +185° F (-20° C to +85° C)

MECHANICAL LIFE:
5,000,000 cycles

OPERATING PRESSURE:
3 PSI (200 mbar)

CONNECTION:
4mm Tube Connects to Air Switch

ORDERING INFORMATION

MSC	***- F***	***- 2***
Model	**Size**	**Tube Length**
MSC	F - Actuator	1 - 40" 2 - 60" 3 - 79"

APA/APF Pressure Switch

Low Pressure

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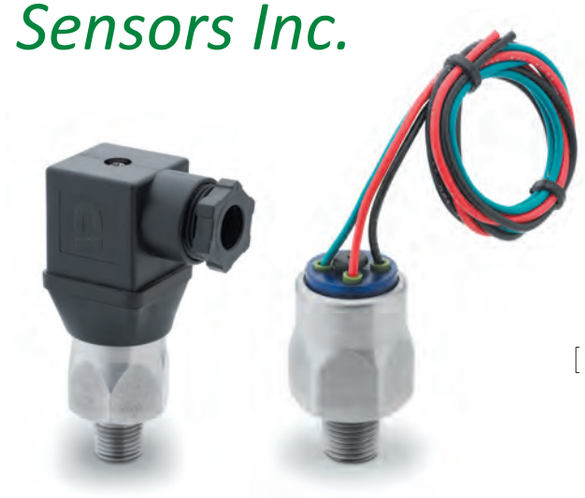

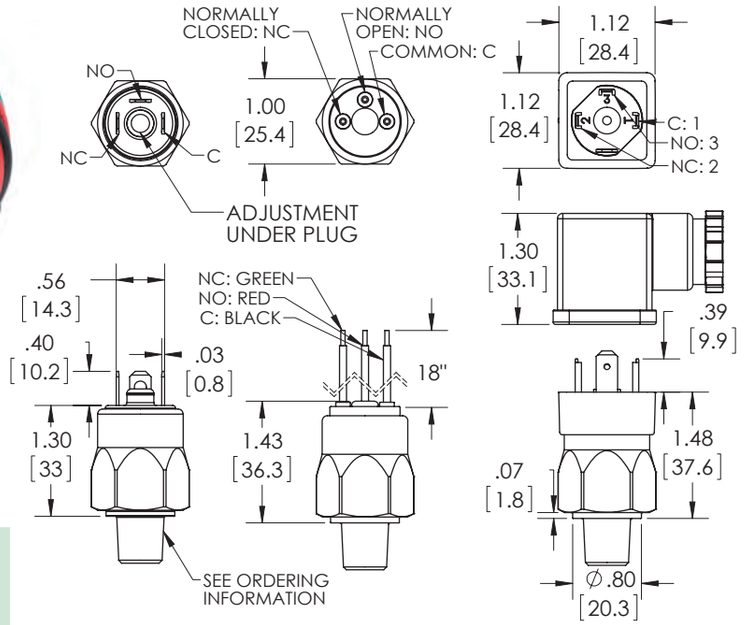

Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	3 - 20	0.2 - 1.4	2 - 5	0.13 - 0.4
2	15 - 80	1.03 - 6	4 - 7	0.27 - 0.5
3	40 - 135	2.7 - 9.3	7 - 10	0.5 - 0.7

Color coded top cap for identification of the switch circuit.
A - RED, SPST / NO B – GREEN, SPST / NC C – BLACK, SPDT

ELECTRICAL:

3 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
5 AMP Optional

PROTECTION:

IP67 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

WEIGHT:

0.15 LBS
(0.07 kg)

MAXIMUM OVERPRESSURE:

1000 PSI (70 Bar)

TEMPERATURE RANGE:

Buna –N: 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON® : -40° to +230° F (-40° to 110°C)
VITON® : 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N Standard
(optional EPDM, KAPTON®, and VITON®)
Housing: Electroless Nickel Plated Steel
(optional 316 SS)

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

ORDERING INFORMATION

APA	*- * 2*	*- * R*	*- 4M*	*- A*	*- FL*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
APA - Field Adjustable APF - Factory Set	See Above Adjustment Ranges ** Model APF Specify Set Point Required*	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling **Omit For Model APA*	2M - 1/8 NPT* 4M - 1/4 NPT* 2G - 1/8 BSPP 4G - 1/4 BSPP 4S - 7/16 X 20* SAE MALE 6S - 9/16 X 18 SAE MALE *Metric Available by Special Order* ** Denotes Standard*	A - SPST / NO B - SPST / NC C - SPDT	SP - 1/4" x 1/32" Spade TS - 6-32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2 Conduit (female) DR - Deutsch Receptacle DP - Deutsch Plug DI - Deutsch Integral *(APF Model Only)*	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 4 - 316 SS Housing 6 - Oxygen Cleaned 7 - Gold Contacts 9 - 5 AMP Rating 10 - Brass Housing 11A - DIN Light NO/NC 110V 11B - DIN Light NO/NC 12VDC 11C - DIN Light NO/NC 24VDC 11D - Indicating Light

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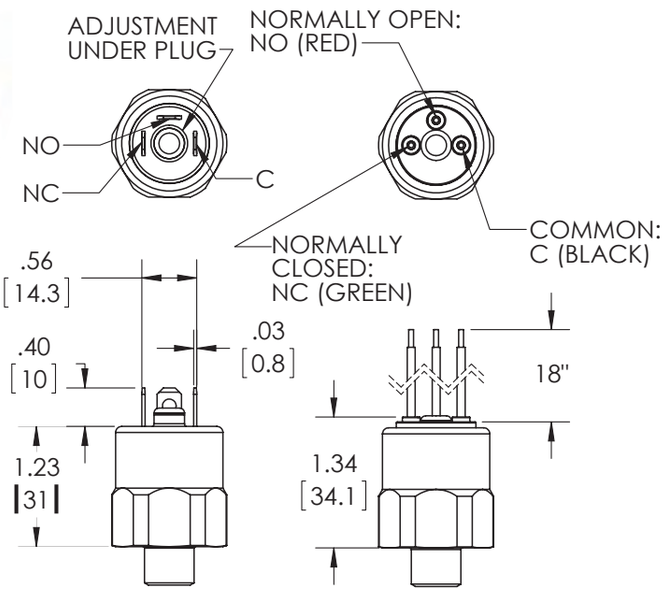
HPA/HPF Pressure Switch

Low Pressure

PVS Sensors Inc.

New Generation
High Impact Plastic Switch



Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	3 - 25	0.2 - 1.7	2 - 5	0.13 - 0.4
2	20 - 50	1.4 - 3.5	4 - 7	0.27 - 0.5

Color coded top cap for identification of the switch circuit.
A - RED, SPST / NO B – GREEN, SPST / NC C – BLACK, SPDT

ELECTRICAL:

3 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
5 AMP Optional

PROTECTION:

IP68 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

WEIGHT:

0.08 LBS
(0.04 kg)

MAXIMUM OVERPRESSURE:

350 PSI (25 Bar)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON® : -40° to +230° F (-40° to 110°C)
VITON® : 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N Standard
(optional EPDM, KAPTON®, and VITON®)
Housing: Glass Filled Nylon

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

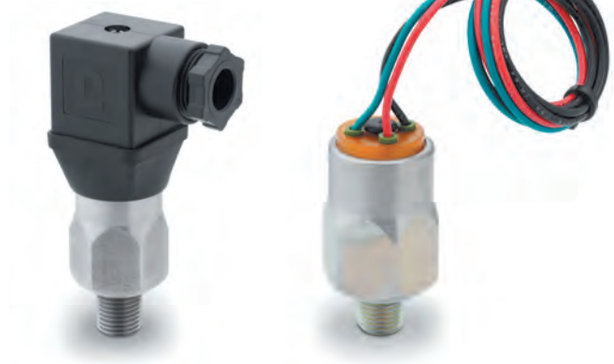
ORDERING INFORMATION

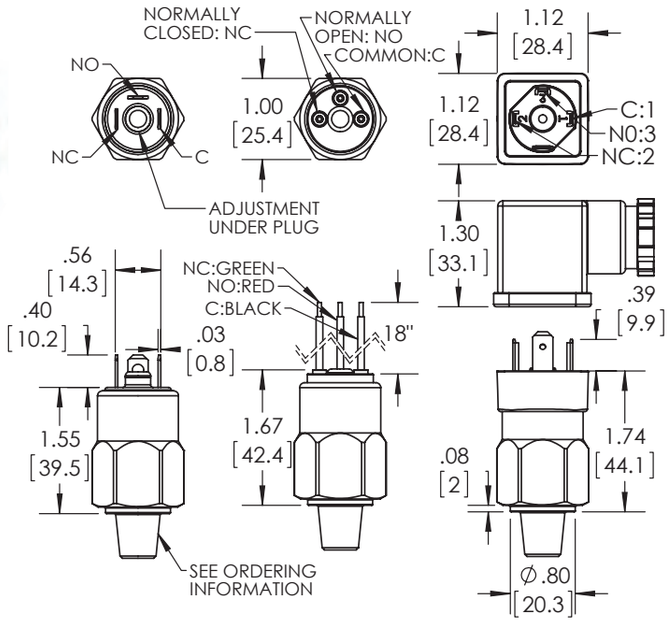
HPA	*- * 2*	*- * R*	*- 4M*	*- A*	*- FL*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
HPA - Field Adjustable HPF - Factory Set	See Above Adjustment Ranges ** Specify Set Point Required for model HPF*	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling **Omit For Model HPA*	2M - 1/8 NPT 4M - 1/4 NPT 2G - 1/8 BSPP 4G - 1/4 BSPP	A - SPST / NO B - SPST / NC C - SPDT	SP - 1/4" x 1/32" Spade TS - 6-32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male DR - Deutsch Receptacle DP - Deutsch Plug	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 7 - Gold Contacts 9 - 5 AMP Rating

PVS Sensors Inc.

BPA/BPF Pressure Switch

High Pressure





Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	10- 300	0.7 - 21	2 - 35	0.14 - 2.5
2	125 - 600	8 - 41	20 - 60	1.38 - 4.1
3	300 - 2500	21 - 172	100 - 320	7 - 22
4	1000 - 6000	69 - 414	250 - 550	17 - 38

Color coded top cap for identification of the switch circuit.
A - RED, SPST / NO B – GREEN, SPST / NC C – BLACK, SPDT

ELECTRICAL:

3 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
5 AMP Optional

PROTECTION:

IP67 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

MAXIMUM OVERPRESSURE:

9000 PSI (600 Bar)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON®: -40° to +230° F (-40° to 110°C)
VITON®: 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N (Standard)
(optional EPDM, KAPTON®, and VITON®)
Housing: Zinc Plated Steel
(optional 316 SS)

WEIGHT:

0.2 LBS
(0.09 kg)

ORDERING INFORMATION

BPA	*- * 2*	*- * R*	*- 4M*	*- C*	*- H*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
BPA - Field Adjustable BPF - Factory Set	See Above Adjustment Ranges **Model BPF Specify Set Point Required*	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling **Omit For Model BPA*	2M - 1/8 NPT 4M - 1/4 NPT 2G - 1/8 BSPP 4G - 1/4 BSPP 4S - 7/16 X 20* SAE MALE 4SW - 7/16 x 20 SAE Swivel 6S - 9/16 X 18 SAE MALE *Metric and other sizes available by special order*	A - SPST / NO B - SPST / NC C - SPDT	SP - 1/4" x 1/32" Spade TS - 6-32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2 Conduit (female) DR - Deutsch Receptacle DP - Deutsch Plug DI - Deutsch Integral *(BPF Model Only)*	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 4 - 316 SS Housing 5 - Spiral Restrictor 6 - Oxygen Cleaned 7 - Gold Contacts 9 - 5 AMP Rating 11A - DIN Light NO/NC 110V 11B - DIN Light NO/NC 12VDC 11C - DIN Light NO/NC 24VDC 11D - Indicating Light

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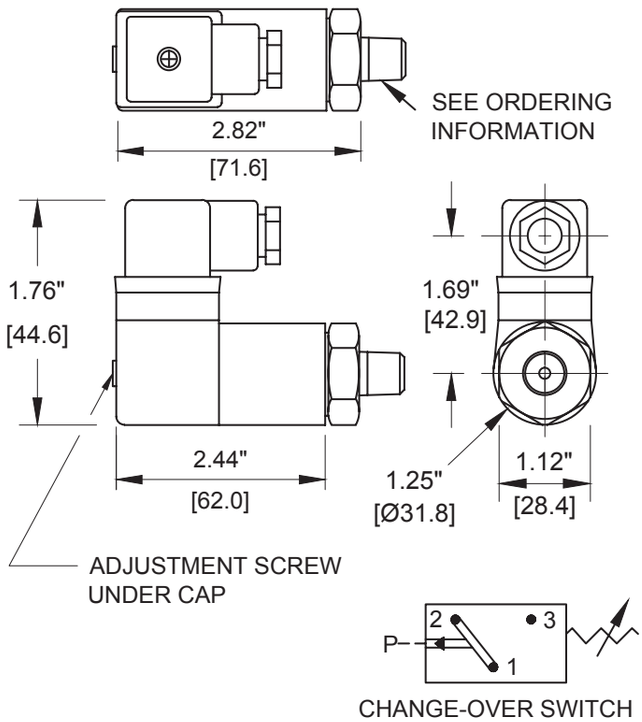
PVS Sensors Inc.

CPA/CPF Pressure Switch

High Pressure



CHANGE-OVER SWITCH

Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	15 - 120	1.03 - 8	6 - 11	0.4 - 0.8
2	40 - 450	3 - 31	20 - 110	1.4 - 8
3	400 - 5500	29 - 380	150 - 500	10 - 35

ELECTRICAL:

5 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp

PROTECTION:

IP67 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

MAXIMUM OVERPRESSURE:

9000 PSI (600 Bar)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
VITON®: 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WEIGHT:

0.7 LBS
(0.32 kg)

WETTED MATERIAL:

Diaphragm: Buna-N (standard)
(optional EPDM and VITON®)
Housing: Zinc Plated Steel
(optional 316 SS)

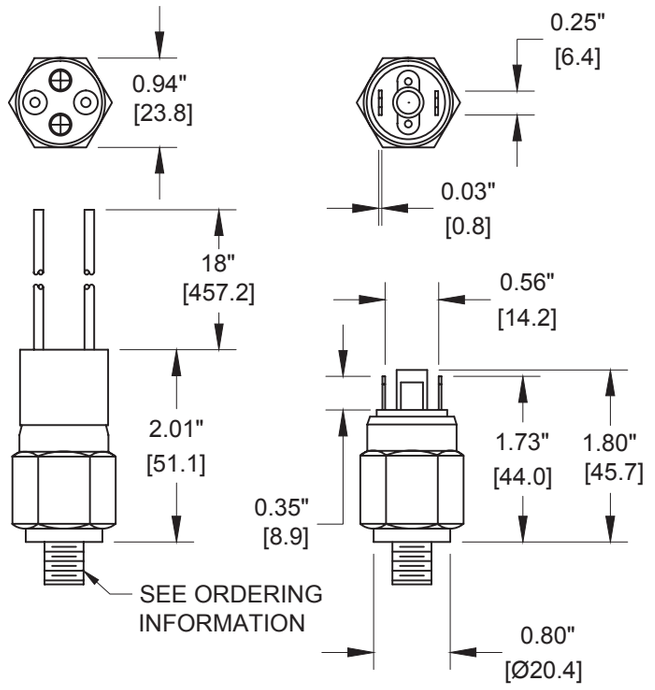
ORDERING INFORMATION

CPA	*- * 2*	*- * R*	*- 4M*	*- C*	*- H*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
CPA - Field Adjustable CPF - Factory Set	See Above Adjustment Ranges **Model CPF Specify Set Point Required*	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling **Omit For Model CPA*	4M - 1/4 NPT 4G - 1/4 BSPP 4S - 7/16 X 20 SAE MALE 6S - 9/16 X 18 SAE MALE	C - SPDT	H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2 Conduit (female)	* - Omit If Standard 1 - VITON Diaphragm 2 - EPDM Diaphragm 4 - 316 SS Housing 5 - Spiral Restrictor 6 - Oxygen Cleaned 7 - Gold Contacts 9 - 10 AMP Rating 11A - DIN Light NO/NC 110V 11B - DIN Light NO/NC 12VDC 11C - DIN Light NO/NC 24VDC 11D - Indicating Light

PVS Sensors Inc.

EPA/EPF Pressure Switch

High Pressure



Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	5 - 85	.35 - 6	2 - 10	.15 - .7
2	75 - 500	5 - 35	7 - 50	.5 - 3.5
3	300 - 725	20 - 50	30 - 70	2 - 5
4	500 - 1250	35 - 85	50 - 120	4 - 10
5	1000 - 3000	70 - 210	120 - 210	8 - 20

ELECTRICAL:

100 VA Max Voltage 42 VDC
Gold contacts may be required for less than 12 VDC and 20 milliamp

PROTECTION:

IP67 except exposed terminals - IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Creep Action

REPEATABILITY:

± 3% of full set point range at 70° F (20° C) Ambient Temperature

MAXIMUM OVERPRESSURE:

9000 PSI (600 Bar)

WETTED MATERIAL:

Diaphragm: Buna - N (Standard)
(optional EPDM, KAPTON®, and VITON®)
Housing: Electroless Nickel Plated Steel
(optional 316 SS)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON® : -40° to +230° F (-40° to 110°C)
VITON® : 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WEIGHT:

0.15 LBS
(0.07 kg)

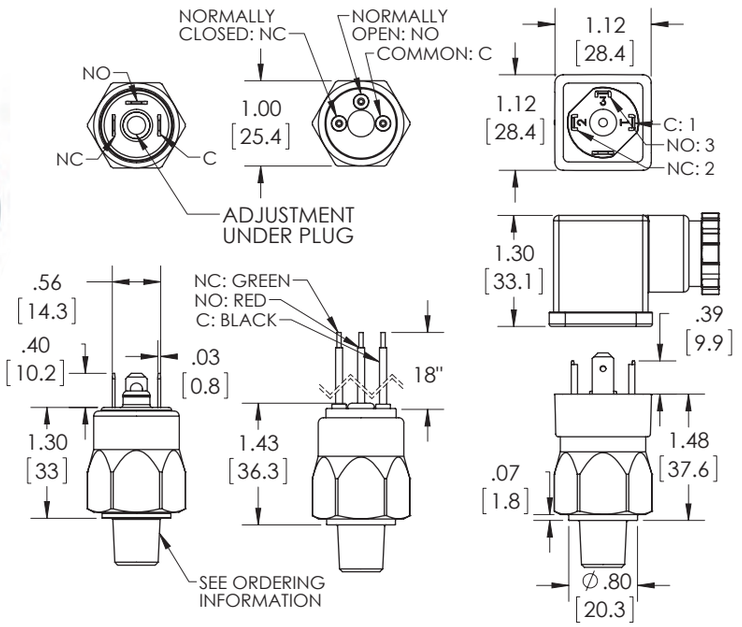
ORDERING INFORMATION

EPA	*- * 2*	*- * R*	*- 4M*	*- A*	*- FL*	*- *1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
EPA - Field Adjustable EPF - Factory Set	See Above Adjustment Ranges 1, 2, 3, 4 or 5 **Model EPF Specify Set Point Required*	R - PSI Rising F - PSI Falling BR - Bar Rising BF - Bar Falling **Omit for Model EPA*	2M - 1/8 NPT 4M - 1/4 NPT 4G - 1/4 BSPP 4S - 7/16 X 20 SAE MALE 6S - 9/16 X 18 SAE MALE *Metric available by special order.*	A - SPST / NO B - SPST / NC	SP - 1/4 x 1/32 Spade TS - 6 -32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male DR - Deutsch Receptacle DP - Deutsch Plug DI - Deutsch Integral *(EPF Model Only)*	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 4 - 316 SS Housing 5 - Spiral Restrictor 6 - Oxygen Cleaned 7 - Gold Contacts 12 - IP68 Cover (FL Series)

PVS Sensors Inc.

AVA/AVF Vacuum Switch

Vacuum



Model	Adjustment Range		Average Differential	
	IN Hg	MilliBar	IN Hg	MilliBar
1	5 - 28	160 - 948	4 - 6	135 - 203

Color coded top cap for identification of the switch circuit.
A - RED, SPST / NO B – GREEN, SPST / NC C – BLACK, SPDT

ELECTRICAL:

3 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
5 AMP Optional

PROTECTION:

IP68 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

MAXIMUM OVERPRESSURE:

1000 PSI (70 Bar)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON® : -40° to +230° F (-40° to 110°C)
VITON® : 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N (standard)
(optional EPDM, KAPTON®, and VITON®)
Housing: Electroless Nickel Plated Steel
(optional 316 SS)

WEIGHT:

0.15 LBS
(0.07 kg)

ORDERING INFORMATION

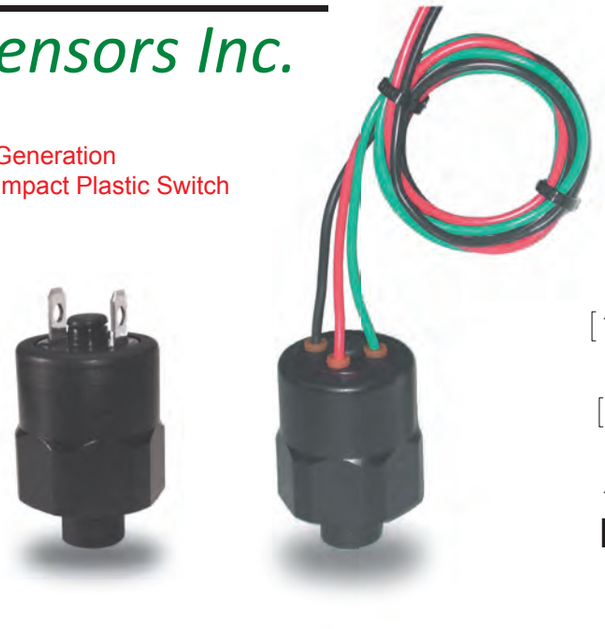
AVA	*- * 1*	*- * R*	*- 4M*	*- A*	*- FL*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
AVA - Field Adjustable AVF - Factory Set	See Above Adjustment Ranges **Model AVF Specify Set Point Required*	R - Rising F - Falling MBR - Millibar Rising MBF - Millibar Falling **Omit For Model AVA*	2M - 1/8 NPT* 4M - 1/4 NPT* 2G - 1/8 BSPP 4G - 1/4 BSPP 4S - 7/16 X 20* SAE MALE 6S - 9/16 X 18 SAE MALE ** Standard Metric and other sizes available by special order*	A - SPST / NO B - SPST / NC C - SPDT	SP - 1/4" x 1/32" Spade TS - 6-32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2 Conduit (female) DR - Deutsch Receptacle DP - Deutsch Plug DI - Deutsch Integral *(AVF Model Only)*	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 4 - 316 SS Housing 5 - Spiral Restrictor 6 - Oxygen Cleaned 7 - Gold Contacts 9 - 5 AMP Rating 11A - DIN Light NO/NC 110V 11B - DIN Light NO/NC 12VDC 11C - DIN Light NO/NC 24VDC 11D - Indicating Light

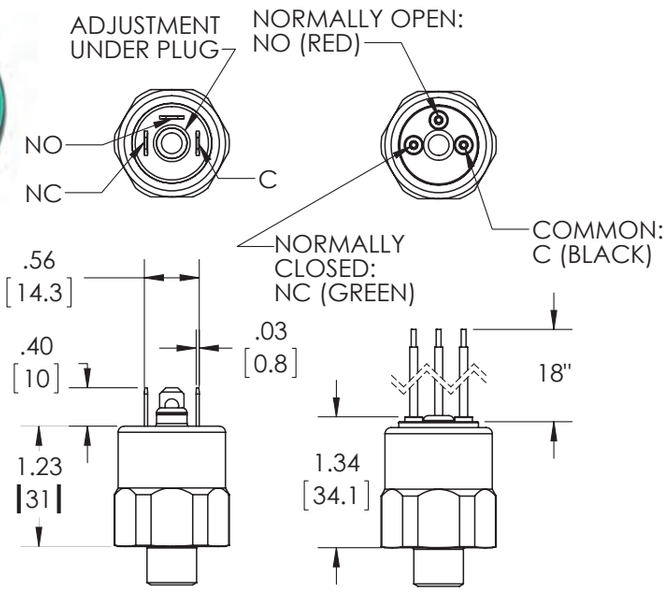
HVA/HVF Vacuum Switch

Vacuum

PVS Sensors Inc.

New Generation
High Impact Plastic Switch





Model	Adjustment Range		Average Differential	
	IN Hg	Millibar	IN Hg	Millibar
1	5 - 28	160 - 948	2 - 4	67 - 135

Color coded top cap for identification of the switch circuit.
A - RED, SPST / NO B – GREEN, SPST / NC C – BLACK, SPDT

ELECTRICAL:

3 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
5 AMP Optional

PROTECTION:

IP67 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

WEIGHT:

0.15 LBS

MAXIMUM OVERPRESSURE:

350 PSI (25 Bar)

TEMPERATURE RANGE:

Buna – N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
KAPTON® : -40° to +230° F (-40° to 110°C)
VITON® : 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N Standard
(optional EPDM, KAPTON®, and VITON®)
Housing: Glass Filled Nylon

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

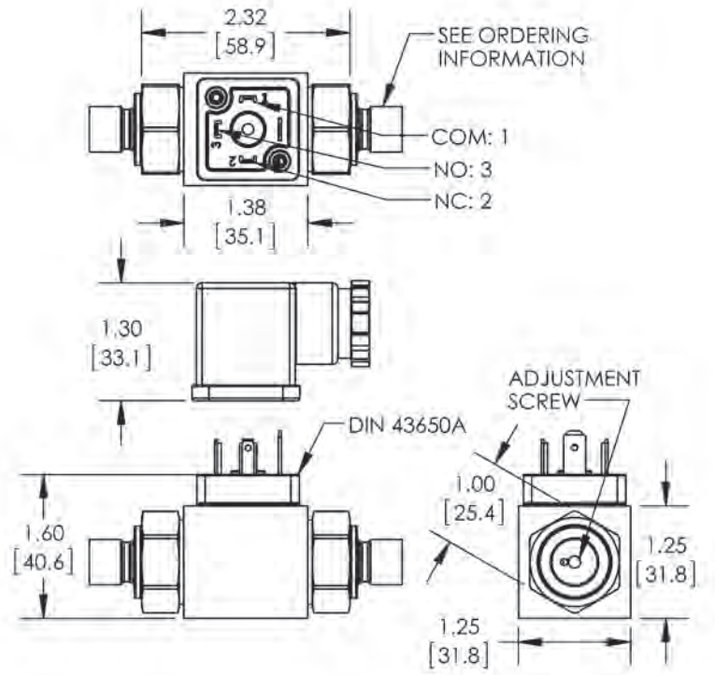
ORDERING INFORMATION

HVA	*- * 1*	*- * R*	*- 4M*	*- A*	*- FL*	*- * 1*
Model	**Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Options**
HVA - Field Adjustable HVF - Factory Set	See Above Adjustment Ranges ** Specify Set Point Required for model HVF*	R - Rising F - Falling MBR - Millibar Rising MBF - Millibar Falling **Omit For Model HVA*	2M - 1/8 NPT 4M - 1/4 NPT 2G - 1/8 BSPP 4G - 1/4 BSPP	A - SPST / NO B - SPST / NC C - SPDT	SP - 1/4" x 1/32" Spade TS - 6-32 Terminal Screws FL - 18" Flying Leads WTF - Weatherpack Tower Female WTM - Weatherpack Tower Male WSF - Weatherpack Shroud Female WSM - Weatherpack Shroud Male DR - Deutsch Receptacle DP - Deutsch Plug	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 3 - KAPTON® Diaphragm 7 - Gold Contacts 9 - 5 AMP Rating

PVS Sensors Inc.

FDA/FDF Differential Switch

Differential



Model	Adjustment Range		Average Differential	
	PSI	Bar	PSI	Bar
1	10 - 25	0.7 - 1.7	3 - 8	0.2 - 0.4
2	20 - 45	1.3 - 3	5 - 15	0.35 - 1
3	35 - 75	2.4 - 5	10 - 20	0.7 - 1.4

ELECTRICAL:

5 AMP - 12/24 VDC - 125/250 VAC
Gold contacts may be required for less than 12 VDC and 20 milliamp
SPDT - Standard Circuit

PROTECTION:

IP65 except exposed terminals – IP00

MECHANICAL LIFE:

1,000,000 cycles

SWITCH TYPE:

Snap Action

REPEATABILITY:

± 2% of full set point range at 70° F (20° C) Ambient Temperature

MAXIMUM OVERPRESSURE:

500 PSI (35 Bar)

TEMPERATURE RANGE:

Buna –N : 15° to +230°F (-10° to 110°C)
EPDM : -10° to +250° F (-23° to 121°C)
VITON®: 0° to +250° F (-18° to 121° C)
(® Registered Trademark of DuPont)

WETTED MATERIAL:

Diaphragm: Buna-N (standard)
(optional EPDM and VITON®)
Housing: Aluminum AL2024 Anodized

WEIGHT:

0.40 LBS
(0.18 kg)

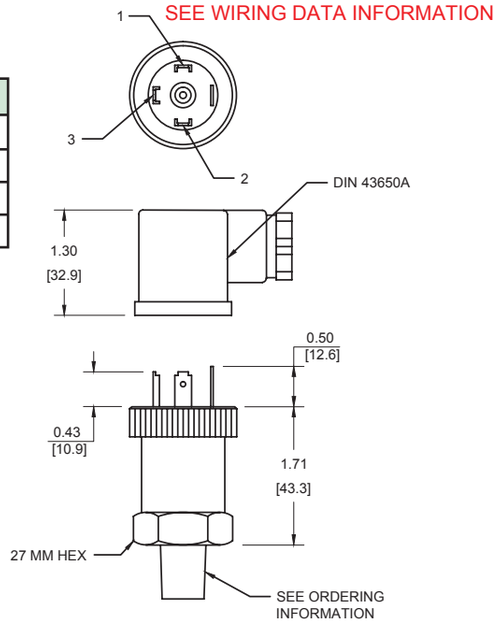
ORDERING INFORMATION

FDA	*- * 1*	*- 4M / 4M*		*- HC*	*- *1*
Model	**Set Point**	**Port Size**		**Terminal**	**Options**
FDA - Field Adjustable FDF - Factory Set	See Above Adjustment Ranges 1, 2 & 3 **Model FDF Specify Set Point Required*	**Hi Port** 4M - 1/4 NPT MALE* 4G - 1/4 BSPP MALE 4S - 7/16 X 20 SAE MALE **Standard*	**Low Port** 4M - 1/4 NPT MALE* 4G - 1/4 BSP MALE **Standard*	H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2 Conduit (female)	* - Omit If Standard 1 - VITON® Diaphragm 2 - EPDM Diaphragm 7 - Gold Contacts 9 - 10 amp Micro Switch 11A - DIN Light NO/NC 110 VAC 11B - DIN Light NO/NC 12 VDC 11C - DIN Light NO/NC 24 VDC 11D - Indicating Light

PVS Sensors Inc.

UTS Pressure Transducer

Wiring Data Information				
DIN Electrical Connections PIN Function				
Signal Output	Pin 1	Pin 2	Pin 3	Pin 4
mA	Supply V+	N/A	Output	N/A
V	Supply V+	Common	Output	N/A



Sensing Element: Piezoresistive

The UTS pressure transducer is a compact, heavy duty constructed design suitable for many applications in the machine construction, process control, hydraulic, mobile hydraulic, pneumatic systems, pumps and compressors, gas tank pressure monitoring, industrial test and control.

ELECTRICAL:

(See Ordering Information)
Output: 4 - 20 mA (2 wire)
0 - 5V, 0 - 10V, 0.5 - 4.5V, 1 - 5V (3 Wire)
Supply: 12 - 36 VDC

PROTECTION:

IP65 with Standard DIN

OPERATE TEMPERATURE:

-40° F to 195° F (-40°C to 85°C)

STORAGE TEMPERATURE:

-40° F to 212° F (-40°C to 100° C)

COMPENSATION TEMPERATURE:

32° F to 158° F (0°C to 70°C)

ACCURACY:

± 0.5% (Full Scan)

RESPONSE TIME:

<10 milliseconds

OVERLOAD PRESSURE:

150% Full Scan

INSULATION:

>100m Ω@ 50V

MATERIAL:

Stainless Steel Body

PRESSURE RANGE:

0 to 6,000 PSI
(0 to 414 Bar)

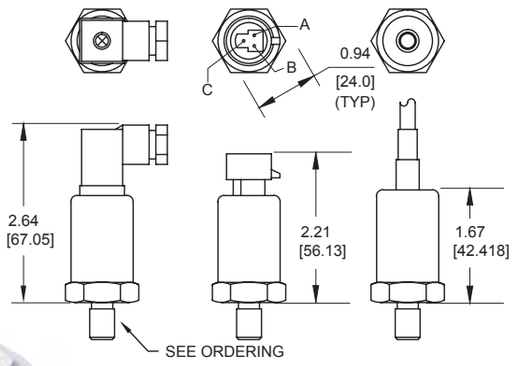
ORDERING INFORMATION

UTS	***- A***	***- 0/3000***	***- 4M***	***- HC***
Model	**Type**	**Pressure Range**	**Connection**	**Options**
UTS	A: 4 - 20 mA (2 wire) B: 0 - 5V (3 wire) C: 0 - 10V (3 wire) D: 0.5 - 4.5 (3 wire) E: 1 - 5V (3 wire)	Specify Pressure Range Required *Note: Standard Ranges 0/300 PSI, 0/600 PSI 0/1500 PSI, 0/3000 PSI 0/5000 PSI, 0/6000 PSI*	4M - 1/4" NPT 4S - 7/16 X 20 SAE Male 4G - 1/4" BSPP* ** Non-standard*	H - DIN 43650A Male Half Only HC - DIN 43650A Cable Clamp HN - DIN 43650A 1/2" Conduit (female) HCC - DIN 43650A with 108" Cable

XTC Pressure Transducer

PVS Sensors Inc.

SEE WIRING DATA INFORMATION



Sensing Element: Ceramic

Wiring Data Information				
DIN Connector PIN Function				
Signal Output	Pin 1	Pin 2	Pin 3	Pin 4
mA	Supply V+	Output	N/A	N/A
V	Supply V+	Common	Output	N/A
Cable Connector WIRE Funtion				
Signal Output	RED	BLUE	YELLOW	BLACK
mA	Supply V+	Output	N/A	N/A
V	Supply V+	Output	Common	N/A
Packard Plug PIN/WIRE Funtion				
Signal Output	A/BLACK	B/RED	C/GREEN	
mA	N/A	Supply V+	Output	
V	Common	Supply V+	Output	

The XTC pressure transducers offer high quality, high stability, stainless steel compact design, ideal for the industrial environment. The transducers are widely used in air compressors, air conditioning and refrigeration equipment, automotive and hydraulic control.

ELECTRICAL:

Output: 4 - 20mA (2 wire)
0 - 5V, 0 - 10V, 0.5 - 4.5V,
1 - 5V (3 wire)
Supply: 12 - 30 VDC (2 wire), 5 VDC,
10 - 30 VDC (3 wire)

PROTECTION:

IP68 (cable or packard)
IP67 with DIN

PRESSURE RANGE:

0 - 8700 PSI
(0 - 600 Bar)

OPERATE TEMPERATURE:

-40° F to 212° F (-40°C to 100°C)

STORAGE TEMPERATURE:

-58° F to 257° F (-50°C to 125° C)

COMPENSATION TEMPERATURE:

14° F to 176° F (-10°C to 80°C)

ACCURACY:

± 0.5% (Full Scan)

RESPONSE TIME:

<10 milliseconds

OVERLOAD PRESSURE:

150% Full Scan

INSULATION:

>100m Ω@50V

MATERIAL:

Stainless Steel Body

MEDIUM COMPATIBILITY:

Corrosive medium compatible with Cr18Ni9Ti, and ceramic

ORDERING INFORMATION

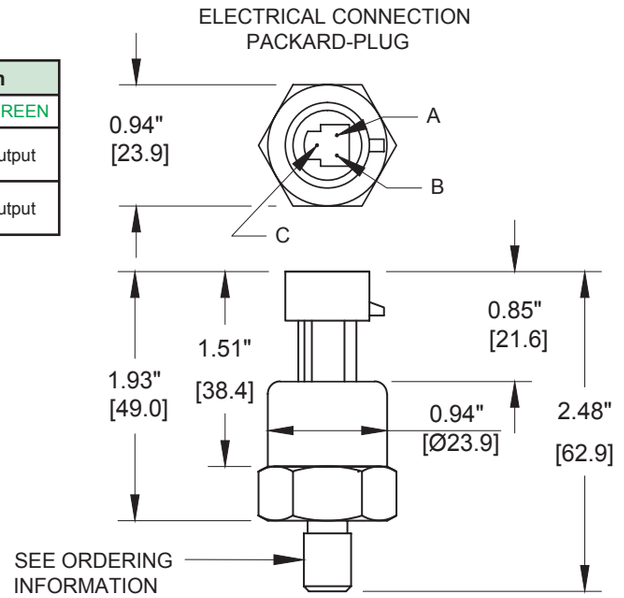
XTC	***- A***	***- 0/3000***	***- 4M***	***- HC***
Model	**Type**	**Pressure Range**	**Connection**	**Terminals**
XTC	A: 4 - 20mA (2 wire) B: 0 - 5V (3 wire) C: 0 - 10V (3 wire) D: 0.5 - 4.5V (3 wire) E: 1 - 5V (3 wire)	Specify Pressure Range Required Manufactured to Order	4M - 1/4" NPT 4S - 7/16 X 20 SAE Male 4G - 1/4 BSPP* Non Standard	HC - DIN43650C PP - Packard Plug C - Cable *(Specify Cable Length, Minimum 3 ft.)*

PVS Sensors Inc.

YTC Pressure Transducer

Sensing Element: Ceramic

Packard Plug PIN/WIRE Funtion			
Signal Output	A/BLACK	B/RED	C/GREEN
mA	N/A	Supply V+	Output
V	Common	Supply V+	Output



The YTC pressure transducers offer high quality, high stability, stainless steel compact design for use in air compressors, air conditioning and refrigeration equipment, automotive, hydraulic control.

ELECTRICAL:
Output: 4 - 20 mA (2 wire)
0.5 - 4.5V (3 wire)
Supply: 12 - 30 VDC

PROTECTION:
IP67

PRESSURE RANGE:
0 - 8700 PSI
(0 - 600 Bar)

OPERATE TEMPERATURE:
-40° F to 248° F (-40°C to 120°C)

STORAGE TEMPERATURE:
-58° F to 257° F (-50°C to 125° C)

COMPENSATION TEMPERATURE:
14° F to 176° F (-10°C to 80°C)

ACCURACY:
± 1% (Full Scan)

RESPONSE TIME:
<10 milliseconds

OVERLOAD PRESSURE:
150% FS

INSULATION:
>100m Ω @ 50V

MATERIAL:
Stainless Steel Body

MEDIUM COMPATIBILITY:
Corrosive medium compatible with Cr18Ni9Ti, and ceramic

ORDERING INFORMATION

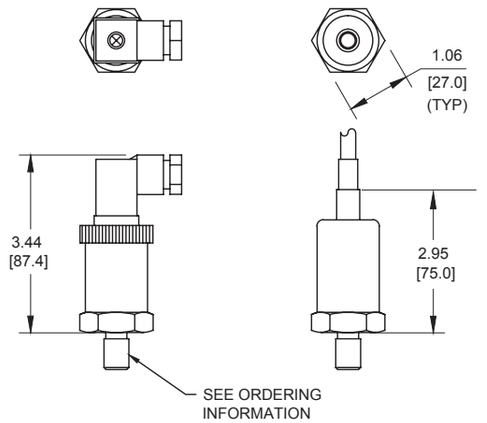
Minimum Order Required - Consult Factory

YTC	*- A*	*- 0/3000*	*- 4M*	*- PP*
Model	**Type**	**Pressure Range**	**Connection**	**Terminal**
YTC	A: 4 - 20 mA (2 wire) D: 0.5 - 4.5V (3 wire)	Specify Pressure Range Required Manufactured to Order	2M - 1/8" NPT 4M - 1/4" NPT 4S - 7/16 X 20 SAE Male	PP - Packard Plug (22" long Mating Connector Cable Included)

PVS Sensors Inc.

ZTC Pressure Transducer

DIN or Cable PIN /WIRE Funtion				
Signal Output	Pin 1	Pin 2	Pin 3	Pin 4
mA	Supply V+	Output	N/A	N/A
V	Supply V+	Common	Output	N/A
Cable PIN /WIRE Funtion				
Signal Output	Red	blue	Yellow	Black
mA	Supply V+	Output	N/A	N/A
V	Supply V+	Output	Common	N/A



Sensing Element: Diffused Silicon

The ZTC pressure transducer is widely used to detect the pressure of natural gas and water.
The transducer is also suitable for other applications such as refrigerator, hydraulic control and automatic detection systems.

ELECTRICAL: *(See Ordering Information)*

Output: 4 - 20mA (2 wire)
0 - 5V, 0.5 - 4.5V,
1 - 5V, 0 - 10V (3 wire)
Supply: 12 - 30 VDC

PROTECTION:

IP65 with standard DIN
IP68 with cable

PRESSURE RANGE:

0 - 10,000 PSI
(0 - 700 Bar)

OPERATE TEMPERATURE:

-40° F to 185° F (-40°C to 85°C)

STORAGE TEMPERATURE:

-40° F to 212° F (-40°C to 100° C)

COMPENSATION TEMPERATURE:

14° F to 158° F (-10°C to 70°C)

ACCURACY:

± 0.5% (Full Scan)

RESPONSE TIME:

<10 milliseconds

OVERLOAD PRESSURE:

2.5 Times Full Scale

INSULATION:

>100m Ω@50V

MATERIAL:

Stainless Steel Body

MEDIUM COMPATIBILITY:

Corrosive medium compatible with Cr18Ni9Ti, and ceramic

ORDERING INFORMATION

ZTC	*- A*	*- 0/3000*	*- 4M*	*- HC*	*- *E*
Model	**Type**	**Pressure Range**	**Connection**	**Terminals**	**Options**
ZTC	A: 4 - 20mA (2 wire) B: 0 - 5V (3 wire) C: 0 - 10V (3 wire) D: 0.5 - 4.5V (3 wire) E: 1 - 5V (3 wire)	Specify Pressure Range Required Manufactured to Order	4M - 1/4" NPT 4S - 7/16 X 20 SAE	H - DIN43650C Male Half Only HC - DIN43650C Cable Clamp C - 39" (1 m) Cable (standard) (additional charge for longer than 39")	E - Intrinsically Safe **Omit for standard model*

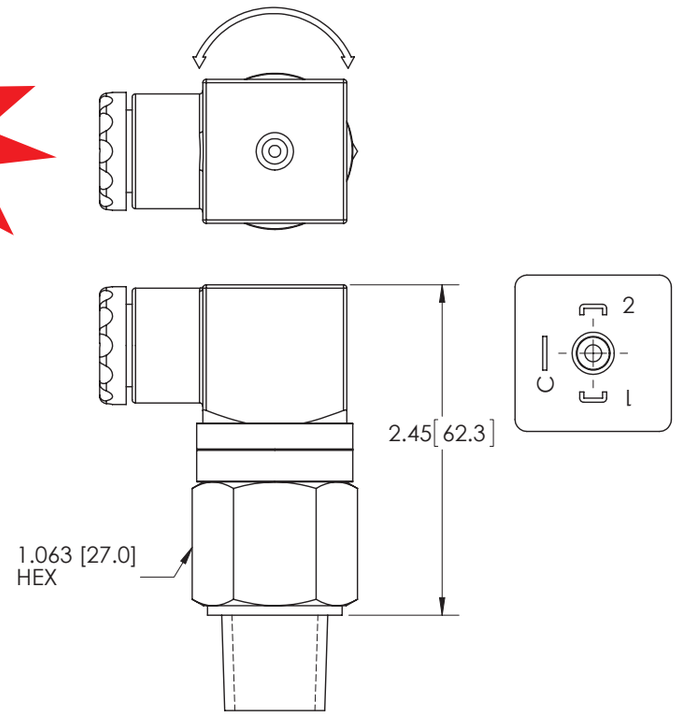
PVS Sensors Inc.

TAF Temperature Switch

Bi-Metal

NEW

360° ROTATING CONNECTOR



The TAF is a factory set temperature alarm switch for protection of all types of internal combustion engines, pumps, compressors, gear boxes, hydraulic reservoirs.

ELECTRICAL:
4A - 24 VDC Resistive
6A - 240 VAC Resistive

PROTECTION:
DIN 43650A - IP65

TEMPERATURE EXPOSURE LIMIT:
300°F (149°C)

CIRCUIT:
SPST - Normally Open
SPST - Normally Closed

TEMPERATURE DIFFERENTIAL:
25°F (12°C) AVERAGE

TIGHTENING TORQUE:
22 ft-lbs (30 Nm)

HOUSING MATERIAL:
Brass

MAXIMUM WORKING PRESSURE:
350 PSI (25 Bar)

WEIGHT:
0.3 lb
(0.14 kg)

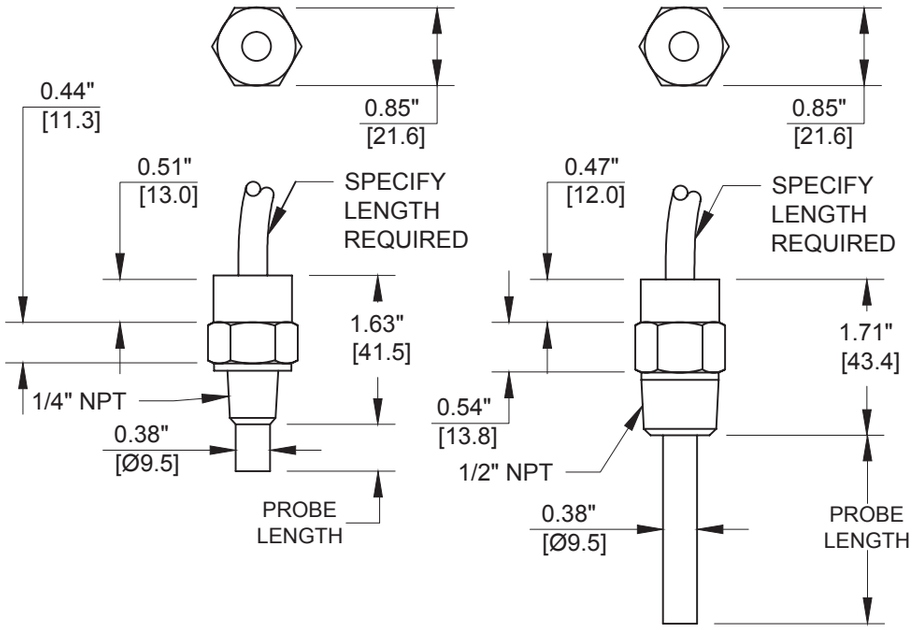
ORDERING INFORMATION

TAF	*- 100F*	*- TR*	*- 4M*	*- A*	*- H*
Model	**Temperature Set Point**	**Direction**	**Port Size**	**Circuit**	**Electrical**
TAF Factory Set	Specify Set Point Required F or C 77° to 293°F (25° to 145°C)	TR - Temperature Rising TF - Temperature Falling	4M - 1/4 NPT 8M - 1/2" NPT	A - SPST / NO B - SPST / NC	H - DIN43650A Male Half Only HC - DIN43650A HN - DIN43650A 1/2" Conduit Female 11A - DIN Light NO/NC 110V 11B - DIN Light NO/NC 12VDC 11C - DIN Light NO/NC 24VDC 11D - Indicating Light

PVS Sensors Inc.

TBM Temperature Switch

Bi-Metal



The TBM series is a Bi-Metal temperature alarm switch with a factory set point. The switch is used for protection of all types of internal combustion engines, pumps, compressors, gear boxer, hydraulic reservoirs, marine and industrial power plants.

ELECTRICAL:
7A - 120 VAC (Restrictive)
4A - 24 VDC (Restrictive)

PROTECTION:
IP67

SETTING TOLERANCE:
± 7° F

CIRCUIT:
SPST - NO
SPST - NC

MAXIMUM WORKING TEMPERATURE:
400°F (200°C)

MAXIMUM PROBE PRESSURE:
1000 PSI (70 Bar)

HOUSING MATERIAL:
Brass

TEMPERATURE DIFFERENTIAL:
10°F (5°C) AVERAGE

TIGHTENING TORQUE:
18 ft-lbs (25Nm)

PROBE LENGTHS:
See Ordering Information

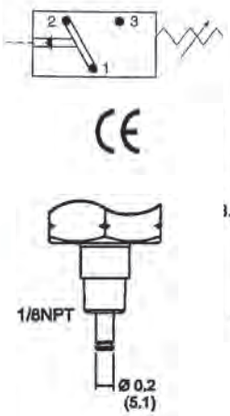
WEIGHT:
0.70 lbs
(0.32 kg)

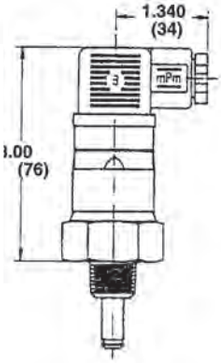
ORDERING INFORMATION

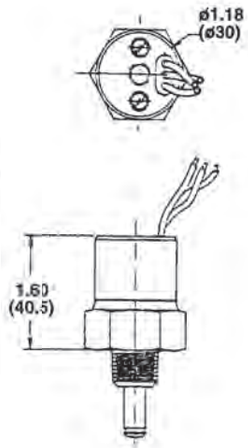
TBM	*- 100F*	*- TR*	*- 8M*	*- B*	*- 108*	*- A*
Model	**Temperature Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**	**Probe Length**
TBM	Specify Set Point Required F or C 77°F to 293°F (25° to 145°C)	TR - Temperature Rising TF - Temperature Falling	4M - 1/4 NPT 8M - 1/2" NPT	A - SPST / NO B - SPST / NC	Specify Cable Length Required in Inches Minimum 36"	A - 1/2" B - 1" C - 2"

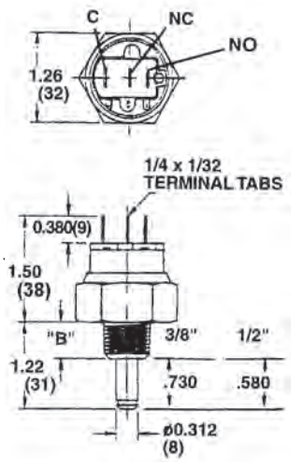
TFF Temperature Switch
Fluid Expansion

PVS Sensors Inc.









Standard port is 1/2 NTP.

1/8 NTP port as shown
Special order only

SPADES

FLYING LEAD

SPADES

The PVS model TFF is a factory set temperature alarm switch for protection of all types of engines, pumps, compressors, gear boxes, hydraulic reservoirs, marine and industrial power plants. The TFF provides fast accurate temperature response through a brass probe that protrudes into the application.

ELECTRICAL:
5A - 24 VDC (Resistive)
2A - 24 VDC (Inductive)

PROTECTION:
DIN 43650A-IP65
Terminals-IP00
Flying Leads-IP65

MAX TIGHTENING TORQUE:
40 ft-lbs (54 Nm)

CIRCUIT:
SPDT (standard)

ACCELERATION:
Up to 8G

DIFFERENTIAL:
19°F (9°C Nominal)

TOLERANCE:
± 6° F (3°C)

MAXIMUM WORKING PRESSURE:
175PSI (12BAR)

MAXIMUM BODY TEMPERATURE:
248°F (120°C)

OPERATING RANGE:
68°F - 248°F (20°C - 140°C)

MAXIMUM OVERLOAD:
77°F (25°C) Above set point

HOUSING:
Steel, Zinc Plated Passivated

ORDERING INFORMATION

TFF	*- 100F*	*- R*	*- 8M*	*- C*	*- SP*
Model	**Temperature Set Point**	**Direction**	**Port Size**	**Circuit**	**Terminal**
TFF	Specify Set Point Required F or C 68°F - 284°F (20°C - 140°C)	R - Rising F - Falling	2M - 1/8 NPT* 4M - 1/4 NPT* 6M - 3/8 NPT* 8M - 1/2 NPT ** Special Order* *Minimum quantity required*	C - SPDT (standard) *A - SPST - NO *B - SPST - NC *FL Only	SP - Spade H - DIN43650A male half only HC - DIN43650A cable HN - DIN43650A 1/2" conduit FL - Flying Leads 18" Note: H/HC/HN design Consult Factory

Electrical Configuration

			
FL Flying Leads	**SP** “C” Ciruit 1/4” Spades	**SP** “A” or “B” Ciruit 1/4” Spades	**TS** 6-32 Terminal Screws
			
H DIN 43650A Male Half Only	**HC** DIN 43650A Cable Clamp	**HN** DIN 43650A 1/2” Conduit	**HC** DIN 43650A Lighted DIN
			
WTF Weather Pack 2 Tower Female	**WTM** Weather Pack 2 Tower Male	**WTF** Weather Pack 3 Tower Female	**WTM** Weather Pack 3 Tower Male
			
DR Deutsch DT04-2P 2 Tower Receptacle	**DP** Deutsch DT06-2S 2 Tower Plug	**DR** Deutsch DT04-3P 3 Tower Receptacle	**DP** Deutsch DT06-3S 3 Tower Plug

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Degrees of Protection

The IP Specification

FIRST NUMBER
Protection against solid objects

IP	TESTS
0	no protection
1	protected against solid objects up to 50mm (e.g. accidental touch by hands)
2	protected against solid objects up to 12mm (e.g. fingers)
3	protected against solid objects over 2.5mm (tools & wires)
4	protected against solid objects over 1mm (tools, wires & small wires)
5	protected against dust-limited ingress (no harmful deposit)
6	totally protected against dust

SECOND NUMBER
Protection against liquids

IP	TESTS
0	no protection
1	protected against vertically falling drops of water (e.g. condensation)
2	protected against direct sprays of water up to 15° from the vertical
3	protected against sprays to 60° from the vertical
4	protected against water sprayed from all directions limited ingress permitted
5	protected against low pressure jets of water from all directions limited ingress permitted
6	protected against strong jets of water (e.g. for use on ship decks limited ingress protection)
7	protected against the affects of immersions between 15cm and 1m
8	protected against long periods of immersion under pressure
9	protected against highly pressurized water and steam jet cleaning

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SWITCH APPLICATION

COMPANY NAME:			
CONTACT NAME:		E-MAIL:	
ADDRESS:			
PHONE:		FAX:	
SYSTEM PRESSURE: (NORMAL):		(MAXIMUM):	
PORT CONNECTION:			
SET POINT:	RISING (°F OR °C):	FALLING (°F OR °C):	
ADJUSTABLE RANGE:			
CIRCUIT FORM:	SPST -NO (A)	SPST - NC (B)	SPDT (C)
ELECTRICAL:	VAC:	VDC:	
AMPERAGE:	RESISTIVE:	INDUCTIVE:	
ELECTRICAL CONNECTION:			
TEMPERATURE:	(F°)	MEDIUM:	AMBIENT:
CYCLE RATE:			
OTHER SPECIAL REQUIREMENTS:			
APPLICATION:			
YOUR CURRENT SUPPLIER:			
SAMPLE PROTOTYPE(S) REQUIRED BY:			
ESTIMATED ANNUAL USAGE:		TARGET NET PRICE:	

NOTES

PVS Sensors Inc.

WARRANTY

PVS Sensors, Inc. (the "manufacturer") warrants this product only (the "product") to the original purchaser only (the "purchaser") against defective workmanship and materials under normal use of the product for a period of twelve (12) months from the date of shipment by PVS Sensors, Inc. This warranty is absolutely conditional upon the product having been properly installed, maintained and operated under conditions of normal use in accordance with the manufacturers recommended installation and operation instructions. Products which have become defective for any other reason, according to the manufactures discretion, such as improper installation, failure to follow recommended installation and operational instructions, neglect, willful damage, misuse, accidental damage, alteration or tampering, or repair by anyone other than the manufacturer, are not covered under this warranty.

THIS WARRANTY IS EXCLUSIVE AND EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES. OBLIGATIONS OR LIABILITIES, WHETHER WRITTEN, ORAL, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. IN NO CASE SHALL THE MANUFACTURER BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS WARRANTY OR ANY OTHER WARRANTIES WHATSOEVER, AS AFORESAID. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES OR FOR LOSS, DAMAGE, OR EXPENSE, INCLUDING LOSS OF USE, PROFITS, REVENUE, OR GOODWILL, DIRECTLY OR INDIRECTLY ARISING FROM PURCHASER'S USE OR INABILITY TO USE THE PRODUCT, OR FOR LOSS OR DESTRUCTION OF OTHER PROPERTY OR FROM ANY OTHER CAUSE, EVEN IF MANUFACTURER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. THE MANUFACTURER SHALL HAVE NO LIABILITY FOR ANY DEATH, PERSONAL AND/OR BODILY INJURY AND/OR DAMAGE TO PROPERTY OR OTHER LOSS WHETHER DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, BASED ON A CLAIM THAT THE PRODUCT FAILED TO FUNCTION.

However, if the manufacturer is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty, the manufacturer's maximum liability (if any) shall not exceed the purchase price of the product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against the manufacturer.

When accepting the delivery of the product, the purchaser agrees to the said conditions of sale and warranty and he recognizes having been informed of.

Some jurisdictions do not allow the exclusion of limitation of incidental or consequential damages, so these limitations may not apply under certain circumstances.

The manufacturers obligations under this warranty are limited solely to repair and/or replace at the manufacture's discretion any product or part thereof that may prove defective. Any repair and/or replacement shall not extend the warranty period. The manufacturer shall not be responsible for dismantling and/or reinstallation costs. To exercise this warranty the product must be returned to the manufacturer freight pre-paid and insured. All freight and insurance costs are the responsibility of the purchaser and are not included in this warranty.

This warranty shall not be modified, varied or extended, and the manufacturer does not authorize any person to act on its behalf in the modification, variation or extension of this warranty. This warranty shall apply to the product only. This warranty is exclusive to the original purchaser and is not assignable. This warranty is in addition to and does not affect your legal rights. Any provision in this warranty which is contrary to the law in the state or country where the product is supplied shall not apply.