



Miniature Pressure Switches and Vacuum Switches

P6 and P7 Series



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Typical Applications



Fire Suppression System



Automotive



Factory Automated Equipment



Medical and Dental Equipment



Refrigeration Recovery



Food Manufacturing Machinery



Solar Energy



HVAC Control

P6/P7 Series Pressure and Vacuum Switches

P6/P7 Series

Material Specifications:

NON-WETTED MATERIALS

Electrical Housing - Plastic (PBT), Epoxy

Crimp Ring - Stainless Steel

Electric Contact - Silver-plated Brass, (Gold optional)

WETTED MATERIALS

Fitting - Brass

Diaphragm Assembly - Stainless Steel



P6
(Automatic Reset)



P7
(Manual Reset)

Technical Specifications

No.	Name	Requirements
1	Activation Point Range	Open/Close at 30 inHg to 2000 PSI*
2	Activation Point Tolerance Positive Pressure	± 3 to ± 100 PSI (See table I on page 7)
3	Activation Point Tolerance Vacuum	± 6 inHg (See table II on page 7)
4	Proof Pressure**	≤ (Max Operating Pressure x 1.5)
5	Burst Pressure***	For Max Operating Pressure ≤ 165 PSI, Burst Pressure = 2500 PSI For Max Operating Pressure ≥ 165 PSI, Burst Pressure = 5000 PSI
6	Temperature Range	Ambient: -5° F to 175° F Medium: -40° F to 260° F
7	Electrical Rating	50/60 Hz DC 36V 6A AC 240V 6A Custom Currents Available
8	Dielectric Strength	AC 700 VRMS Open Switch AC 1500 VRMS Terminals Fitting Leakage Current ≤ 1mA
9	Insulation Resistance	DC 500V ≥ 100 MΩ
10	Contact Resistance	≤ 20 mΩ
11	Expected Lifetime	≥ 100,000 cycles
12	Leak Rate	≤ 1.0 x 10 ⁻³ cc/min Air

*UL Recognition for operating pressures ≤ 800 psig

**Operate at proof pressure for up to 1 minute with no leakage. Calibration may be permanently affected.

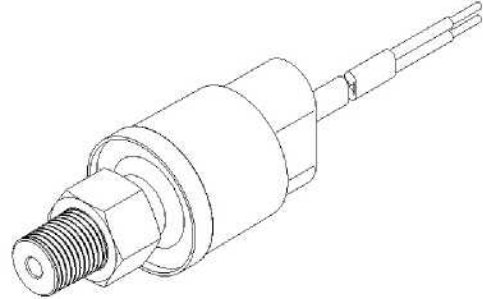
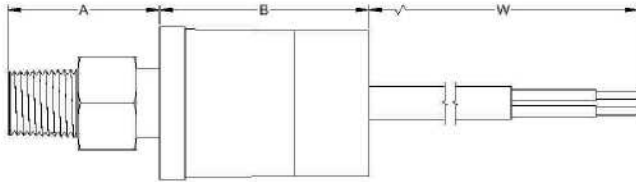
***Operate at burst pressure for up to 1 minute with no burst occurrence

P6 Wire Termination

P6 Automatic Reset Switch

Automatic Reset switches, which are the most common type, will change the state of the electrical poles ("cut-in/cut-out") when the pressure crosses the activation point (set point). The electrical state will return to the previous state when the pressure crosses the deactivation point. These switches do not need human interaction to operate.

P6 Series (SPST) Wire Termination



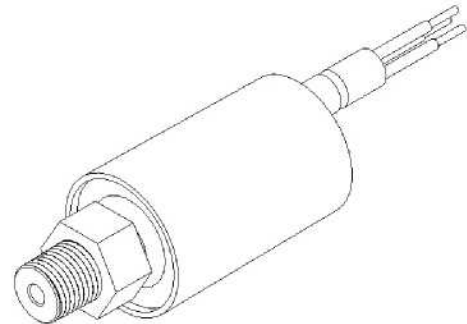
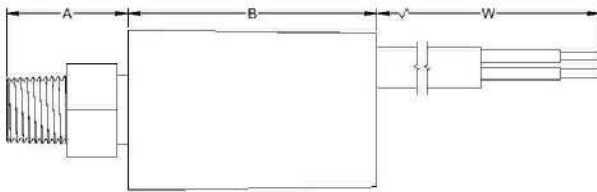
P6 - Wires

Fitting	A	B	W
1/8"-27 NPT	0.93	1.28	Customer Specified Length (3-99")
1/4"-18 NPT	0.94	1.28	Customer Specified Length (3-99")
1/4" Female Flare	0.70	1.28	Customer Specified Length (3-99")

SPST Color Code

Wire Color	Terminal
Black	Normally Closed / Normally Open
Black	Common

P6 Series (SPDT) Wire Termination



P6 - Wires

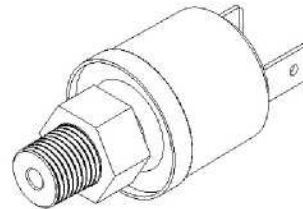
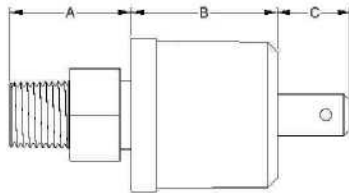
Fitting	A	B	W
1/8"-27 NPT	0.93	1.50	Customer Specified Length (3-99")
1/4"-18 NPT	0.94	1.50	Customer Specified Length (3-99")
1/4" Female Flare	0.70	1.50	Customer Specified Length (3-99")

SPDT Color Code

Wire Color	Pressure Switch	Vacuum Switch
Blue	Normally Closed	Normally Open
Green	Common	Common
Brown	Normally Open	Normally Closed

P6 Blade Termination

P6 Series (SPST) 1/4" Blade Termination



P6 - Blades

Fitting	A	B	C
1/8"-27 NPT	0.93	1.03	0.44
1/4"-18 NPT	0.94	1.03	0.44
1/4" Female Flare	0.70	1.03	0.44

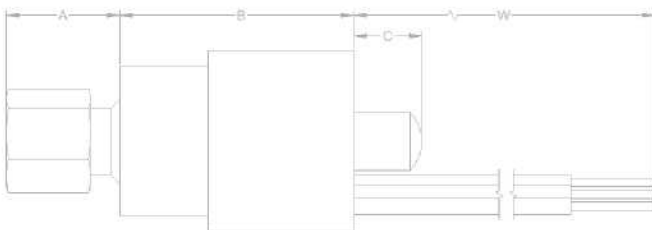
Note: P6 Series with 1/4" blade termination is only available as a SPST configuration

P7 Termination

P7 Manual Reset Switch

Manual Reset switches will change electrical state ("cut-in/cut-out") and lock when the system pressure crosses the increasing activation point. When the system pressure drops to the deactivation point, the switch's electrical state will remain unchanged. An operator must depress the manual reset button in order for the switch to return to its normal (deactivated) state. These switches are best utilized in systems that need to be inspected if a maximum pressure has been exceeded, or as safety devices in systems that **need** human interaction before restarting.

P7 Series (available with wire termination only)



P7 - Wires

Fitting	A	B	C	W
1/8"-27 NPT	0.93	1.62	0.52	Customer Specified Length (3-99")
1/4"-18 NPT	0.94	1.62	0.52	Customer Specified Length (3-99")
1/4" Female Flare	0.70	1.62	0.52	Customer Specified Length (3-99")

SPDT Color Code

Wire Color	Pressure Switch	Vacuum Switch
Blue	Normally Closed	Normally Open
Red	Common	Common
Yellow	Normally Open	Normally Closed

How to Order P6 and P7 Series Switches

P6-V-0200 J-0100 G-NC 12-B-X/3130

Model Number

P6	Auto Reset Switch
P7	Manual Reset Switch

Fitting

J	1/8" NPT (MALE)
K	1/4" NPT (MALE)
S	1/4" Female Flare w/ Deflator (7/16" - 20 UNF)
V	1/4" Solder
X	Additional Fittings Available

Open Pressure

-30 inHg to +2000 PSI

Decreasing/Increasing Pressure

Tolerance (in PSI)

No.	Max. Operating Pressure (PSI)	Adjustable Point Range (PSI)	Default Range (PSI)	Adjustable Point Tolerance (PSI)
C	150	0 - 50	1 - 15	2
D	150	0 - 50	1 - 15	2
E	150	0 - 50	1 - 15	2
F	150	0 - 50	1 - 15	2
G	150	0 - 50	1 - 15	2
H	150	0 - 50	1 - 15	2
I	200	0 - 100	10 - 60	5
J	270	100 - 180	20 - 90	10
K	370	180 - 250	25 - 100	15
L	450	250 - 300	30 - 150	15
M	520	300 - 350	40 - 200	15
N	600	350 - 400	50 - 250	15
O	670	400 - 450	50 - 250	15
P	750	450 - 500	50 - 250	15
Q	800	500 - 550	50 - 250	15
R	850	550 - 600	50 - 250	15
S	900	600 - 650	50 - 250	15
T	950	650 - 700	50 - 250	15
U	1000	700 - 800	50 - 250	15
V	1200	800 - 900	50 - 250	15
W	1400	900 - 1000	50 - 250	15
X	1600	1000 - 1100	50 - 250	15
Y	1800	1100 - 1200	50 - 250	15
Z	2000	1200 - 1300	50 - 250	15

Close Pressure

-30 inHg to +2000 (PSI)

Circuitry

NO	Normally OPEN
NC	Normally CLOSE
DT	Double Throw (SPDT)

Termination

00	1/4" Blades
03-99	Wire Length (inches)

Base Material

B	Brass
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X Items

X	Additional / Custom Items (as needed)
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Application Number

Wasco will assign an Application number that will correlate to your unique application, and include any specific options that are not called out in our standard part numbering.

Pressure Switch Example: P6-V-0200J-0100G-NC12-B-X/3130

(P6) series auto reset switch, (V) 1/4" solder fitting, (0200) Open at 200 PSI ± 10 PSI (J), (0100) Close at 100 PSI ± 7 PSI (G), (NC) SPST normally closed, (12) inch wires, (B) Brass fitting, (X) connector assembly, (3130) assigned Application Number.

Operating Pressure Range and Standard Tolerances

Table I- Positive Pressure Activation Points

No.	Max. Operating Pressure (PSI)	Activation Point Range (PSI)	Deadband Range (PSI)	Activation Point Tolerance (±) (PSI)
C	150	0 - 10	5 - 10	3
D	150	11 - 20	6 - 15	4
E	150	21 - 30	6 - 15	5
F	150	31 - 50	7 - 20	6
G	160	51 - 80	8 - 40	7
H	195	81 - 110	10 - 60	8
I	220	111 - 130	15 - 80	9
J	270	131 - 180	20 - 90	10
K	375	181 - 250	25 - 100	11
L	450	251 - 300	30 - 150	12
M	525	301 - 350	40 - 200	14
N	600	351 - 400	50 - 200	15
O	675	401 - 450	50 - 200	16
P	750	451 - 500	50 - 200	17
Q	900	501 - 600	50 - 200	18
R	975	601 - 650	50 - 200	20
S	1050	651 - 700	50 - 200	30
T	1200	701 - 800	50 - 200	40
U*	1200	801 - 1000	50 - 200	50
V*	1440	1001 - 1200	50 - 200	60
W*	1800	1201 - 1500	50 - 200	80
X*	2400	1501 - 2000	50 - 200	100

* Activation Point ranges U, V, W and X are not UL recognized

Operating Vacuum Range and Standard Tolerance

Table II- Vacuum Pressure Activation Points

No.	Operating Vacuum Range (inHg)	Min. Deadband Range (inHg)	Activation Point Tolerance (±) (inHg)
C	-30 to 0	8	6

Vacuum Switch Example: P6-J-V015C-V007C-NC12-B-X/3131

(P6) series auto reset switch, (J) 1/4" NPT fitting, (V015) Open at 15 inHg ± 6 inHg (C), (V007) Close at 7 inHg ± 6 inHg (C), (NC) SPST normally closed, (12) inches wires, (B) Brass fitting, (X) connector assembly, (3131) assigned Application Number.

P6 and P7 Series Glossary of Terms

Activation Point: The point at which a sensor changes mechanical or electrical output state as a result of change to its input. Sometimes referred to as "Cut-in". (i.e. the pressure at which a switch will change from OFF to ON) *See also: Deactivation Point, Set Point.*

Activation Point Tolerance: The range expressing the largest variation of activation of a sensor while operating within the listed operating conditions.

Auto Reset: Automatic Reset switches, which are the most common type, will change the state of the electrical poles ("cut-in/cut-out") when the pressure crosses the activation point (Set Point). The electrical state will return to the previous state when the pressure crosses the deactivation point. These switches do not need human interaction to operate.

Burst Pressure: Pressure which causes failure of pressure sensing element. Exceeding the burst pressure results in permanent damage and mechanical breach of process media.

Deadband: The difference in pressure between the activation point (Set Point) and deactivation point (Reset Point). *See also: Hysteresis.*

Deactivation Point: The point at which a sensor changes mechanical or electrical output state as a result of change to its input. Sometimes referred to as "Cut-out". (i.e. the pressure at which a switch will change from ON to OFF) *See also: Activation Point, Set Point.*

Dielectric Strength: The maximum electric field strength that an insulator can withstand intrinsically without breaking down, i.e., without experiencing failure of its insulating properties.

Hysteresis: The difference in readings of an instrument when the value of the measured quantity is approached from two different directions.

Manual Reset: Manual Reset switches will change electrical state ("cut-in/cut-out") and lock when the system pressure crosses the increasing activation point. When the system pressure drops to the deactivation point, the switch's electrical state will remain unchanged. An operator must depress the manual reset button in order for the switch to return to its normal (deactivated) state. These switches are best utilized in systems that need to be inspected if a maximum pressure has been exceeded, or as safety devices in systems that need human interaction before restarting.

Maximum Operating Pressure: The designed safe pressure limit of a sensing element at which regular use will cause no damage.

Maximum Operating Temperature: The designed safe temperature below which a sensor may be operated without loss of accuracy or integrity.

Operating Pressure Range: The pressure range (minimum and maximum pressure) in which a sensor can be safely operated and maintain activation point and mechanical integrity.

Proof Pressure: Pressure exceeding the Maximum Operating Pressure to which a sensor may be occasionally subjected to and cause no mechanical loss of integrity.

Repeatability: The exactness with which a sensor duplicates its Activation Point after successive cycles within the same operating conditions.

Reset Band: The difference in pressure between the activation point (Set Point) and deactivation point (Reset Point). *See also: Hysteresis.*

Reset Point: Point at which a switch will return to its original or normal operating position.

Sensor: A primary measuring device (bellows, diaphragm, piston) for detecting either the absolute or variable pressure.

Set Point: The calibrated point at which a sensor will activate. Set Point can be specified including the intended direction of pressure change (increasing or decreasing) to account for hysteresis. *See also: Activation Point*

SPDT: An acronym meaning Single Pole Double Throw, referring to an electrical switch contain common, normally open and normally closed terminals. *See also: SPST.*

SPST: An acronym meaning Single Pole Single Throw, referring to an electrical switch containing a common terminal and either a normally open or a normally closed terminal. *See also: SPDT*

Vacuum Pressure: The range of pressure identified as below atmospheric pressure.

Wetted Parts: Sensor components that come into direct contact with the process media.

Return Policy

Should one of our products be suspected of malfunction, return it as soon as possible, with shipping charges prepaid. An RMA (Return Material Authorization) number must be issued for your return. Please do not attempt to disassemble or repair as this action may destroy evidence of malfunction. Your cooperation in this regard will save both time and money.

Warranty Policy

WASCO warrants the P6 and P7 series to be free from defects in material and workmanship in normal use and service for a period of 1 year or 100,000 cycles from date of shipment, whichever ever occurs first. This warranty is limited to the repair or replacement of the product or part thereof which the Seller's inspection finds to be defective. This warranty shall not apply if the product has been subjected to misuse, negligence, accident, modification or repair by unauthorized persons. Repairs NOT covered under this Warranty will be subjected to a standard service charge. No other warranty or guarantee is expressed or implied.

Note: Please consider all the possible failure modes in your system that could occur with the use of our product. The switch you are considering could fail mechanically or electrically and the user must bear full responsibility for its' misapplication and misuse, including but not limited to any losses or damages caused by your use of that switch in your products, and by your customer's use of your products. Wasco, Inc. accepts no responsibility or liability for failures resulting from any misapplication of its product.

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