

J-SERIES Miniature Pressure Switches

Low-Cost Switches with Non-Adjustable Set Points

Features:

- Tamperproof, factory-set, non-adjustable set points.
- Fixed deadband.
- Environmentally sealed against dust, water, oil and salt spray, e.g., for off-highway equipment.
- Vented construction for stable set points throughout operating range.
- Vibration and shock resistant to 10 G's.
- Precision electrical snap-action switch.

General Description:

J-Series miniature pressure switches have factory-set non-adjustable set points and fixed deadband, with diaphragm/piston sensor. J-Series switches are CSA approved and UL listed under "Industrial Control Equipment". J-Series switches are sealed with specially compounded epoxy that maintains its sealing integrity from -40 to 250°F.

Proof pressure:

250 psig. (Consult factory for higher pressures).

Process connection:

Standard: 1/8" NPT Ext, 1/8" NPT Int, 1/4" NPT Ext.
Optional: 1/4" NPT Int (eighth digit "3").

Standard Electrical Ratings

5 Amp Res., 125 VAC
5 Amp Res., 250 VAC
3 Amp Res., 28 VDC



Standard Temperature Ratings

Ambient: -4°F (-20°C) to 140°F (60°C)
Fluid: -4°F (-20°C) to 180°F (82°C)

Wetted Materials (Process Connection & Diaphragm)

Standard: Brass and Buna "N"
Optional Process Connections:

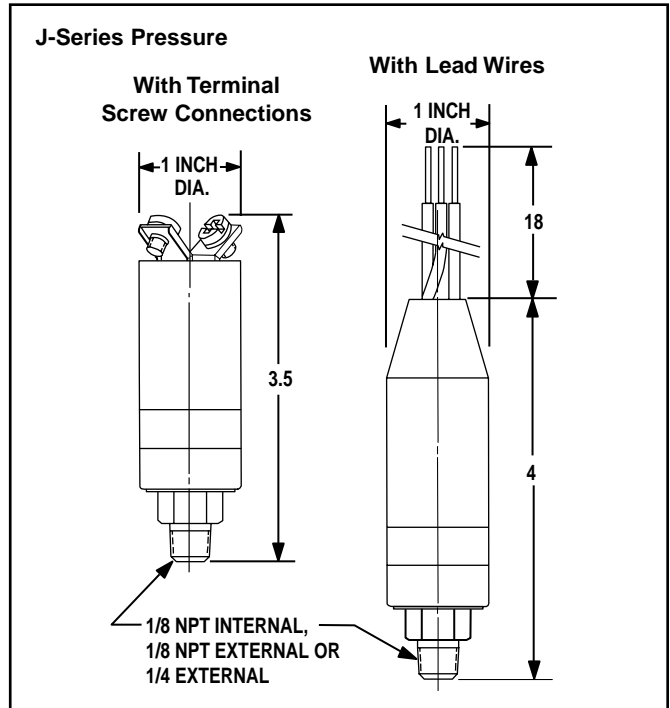
- 316 SS (sixth digit "4")
- Carbon steel (sixth digit "6")

Optional Diaphragms:

- Viton (seventh digit "2")
- Neoprene (seventh digit "3")
- Ethylene propylene (seventh digit "6")
- Fluorosilicone (seventh digit "7")



Dimensions (inches)



Switch Options

Gold contacts for low power circuits: Add Suffix "P"
Tight deadband, 25-50% reduction: Add Suffix "T"
11 Amp Res., 125 VAC contacts: Add Suffix "Y"

How to Select and Order

ASCO J-Series switches are a single switch and transducer assembly.

How to Select

1. Select type of switch (normally open, normally closed or SPDT and screw terminal or wire leads).
2. Select desired set point for either decreasing pressure or increasing pressure.
3. Select desired process connection.

How to Order

Simply order the selected J-Series pressure switch by catalog number, e.g., JB67A218A describes a normally open, screw terminal pressure switch with set point decreasing of 6.5 psig and set point increasing of 8.5 psig, 1/8" NPT external brass process connection and Buna "N" diaphragm.

Options

Add appropriate suffix or change appropriate digit in catalog number for desired option, e.g., JB67A228A^P describes a normally open, screw terminal pressure switch with optional viton diaphragm (seventh digit "2") and gold contact snap switch (suffix "P").

Select J-Series pressure switch below

Set Point ① ②		Mfg. Set Point Tolerance (psig)	1/8" NPT External Process Connection	1/4" NPT External Process Connection	1/8" NPT Internal Process Connection ③
Decreasing Pressure (psig)	Increasing Pressure (psig)		Catalog No.	Catalog No.	Catalog No.
Normally open, screw terminals, Brass and Buna "N"					
6.5	8.5	1.2	JB67A218A	JB67A214A	JB67A215A
10.5	12.5	1.5	JB57A218A	JB57A214A	JB57A215A
18.5	22	2	JB47A218A	JB47A214A	JB47A215A
30	35	3	JB37A218A	JB37A214A	JB37A215A
40	45	4	JB27A218A	JB27A214A	JB27A215A
56	65	6	JB17A218A	JB17A214A	JB17A215A
71	85	7	JC37A218A	JC37A214A	JC37A215A
93	108	8	JC27A218A	JC27A214A	JC27A215A
138	162	12	JC17A218A	JC17A214A	JC17A215A
Normally open, 18" lead wires, Brass and Buna "N"					
6.5	8.5	1.2	JB68A218A	JB68A214A	JB68A215A
10.5	12.5	1.5	JB58A218A	JB58A214A	JB58A215A
18.5	22	2	JB48A218A	JB48A214A	JB48A215A
30	35	3	JB38A218A	JB38A214A	JB38A215A
40	45	4	JB28A218A	JB28A214A	JB28A215A
56	65	6	JB18A218A	JB18A214A	JB18A215A
71	85	7	JC38A218A	JC38A214A	JC38A215A
93	108	8	JC28A218A	JC28A214A	JC28A215A
138	162	12	JC18A218A	JC18A214A	JC18A215A
Normally closed, screw terminals, Brass and Buna "N"					
6.5	8.5	1.2	JB67A218B	JB67A214B	JB67A215B
10.5	12.5	1.5	JB57A218B	JB57A214B	JB57A215B
18.5	22	2	JB47A218B	JB47A214B	JB47A215B
30	35	3	JB37A218B	JB37A214B	JB37A215B
40	45	4	JB27A218B	JB27A214B	JB27A215B
56	65	6	JB17A218B	JB17A214B	JB17A215B
71	85	7	JC37A218B	JC37A214B	JC37A215B
93	108	8	JC27A218B	JC27A214B	JC27A215B
138	162	12	JC17A218B	JC17A214B	JC17A215B
Normally closed, 18" lead wires, Brass and Buna "N"					
6.5	8.5	1.2	JB68A218B	JB68A214B	JB68A215B
10.5	12.5	1.5	JB58A218B	JB58A214B	JB58A215B
18.5	22	2	JB48A218B	JB48A214B	JB48A215B
30	35	3	JB38A218B	JB38A214B	JB38A215B
40	45	4	JB28A218B	JB28A214B	JB28A215B
56	65	6	JB18A218B	JB18A214B	JB18A215B
71	85	7	JC38A218B	JC38A214B	JC38A215B
93	108	8	JC28A218B	JC28A214B	JC28A215B
138	162	12	JC18A218B	JC18A214B	JC18A215B
SPDT (Form "C" contact), 18" lead wires, Brass and Buna "N"					
6.5	8.5	1.2	JB68A218C	JB68A214C	JB68A215C
10.5	12.5	1.5	JB58A218C	JB58A214C	JB58A215C
18.5	22	2	JB48A218C	JB48A214C	JB48A215C
30	35	3	JB38A218C	JB38A214C	JB38A215C
40	45	4	JB28A218C	JB28A214C	JB28A215C
56	65	6	JB18A218C	JB18A214C	JB18A215C
71	85	7	JC38A218C	JC38A214C	JC38A215C
93	108	8	JC28A218C	JC28A214C	JC28A215C
138	162	12	JC18A218C	JC18A214C	JC18A215C

① Values shown are nominal.

② Deadband value is difference between the increasing and decreasing set points.

③ May be used for panel or bracket mounting.

Definitions and Fluid Compatibility Guide

Definitions

Accuracy – The maximum deviation from the set point under specified operating condition (ambient temperature, barometric pressure, etc.).

Adjustable Deadband – Refers to the capability of a pressure or temperature switch to allow the deadband to be adjusted over a given range. Certain ASCO TRI-POINT switches have an adjustable deadband which can be adjusted over the total operating range of the switch.

Adjustable Operating Range – The pressure or temperature range of the switch within which the set point may be adjusted.

Differential Pressure – The difference between two pressures. A differential pressure switch senses two pressure sources and can be adjusted to actuate on a desired difference between them.

Gauge Pressure – The actual reading of a typical pressure gauge and is the difference between the pressure within a vessel and the atmospheric pressure surrounding it. It is normally measured in pounds per square inch (psig).

Manual Reset – The switch is a semi-automatic device which operates automatically with a signal change in one direction but must be manually reset once the signal returns to its original position.

Proof Pressure – A pressure which a device can be subjected to for extended periods of time without changes in its operating characteristics.

Rated Overrange Temperature – A temperature which a device can be subjected to for extended periods of time without changes in its operating characteristics.

Repeatability – The closeness of agreement among a number of consecutive measurements of the output for the same value of input under the same operating conditions approaching from the same direction. Repeatability is normally specified as a percentage of the upper limit of the operating range.

Example: Operating range 5-100 psig with $\pm 1\%$ repeatability; equals $\pm 1\%$ of 100 psig or ± 1 psig.

Reset Point – After a pressure or temperature switch has reached its set point and operated the electrical switch, it must return to a point called the reset point before the electrical switch can return to its original position.

Set Point – The pressure reading at which the electrical switch element changes contact position (it can be specified either increasing or decreasing).

Switch Unit – ASCO uses the term “switch unit” to describe the electromechanical portion of a pressure or temperature switch. This is used in conjunction with a transducer unit to form a complete pressure or temperature switch.

Transducer Unit – ASCO uses the term “transducer unit” to describe that portion of a pressure or temperature switch to which a pressure or temperature is applied which converts the input signal to another form of energy to operate the switch unit.

Two-Stage (Dual) – ASCO uses the term “two stage” to describe a pressure or temperature switch which is equivalent to two pressure or temperature switches which are independently adjustable. This switch is equivalent to two fixed deadband switches.

Deadbands – The deadband is the difference between the set point and reset point readings. Deadbands are listed in the specification tables at nominal values. They are representative of the deadbands of the units at the middle of the range.

The deadband values for the full range adjustable deadband switches and limited adjustable deadband switches indicate the values through which the deadband may be adjusted.

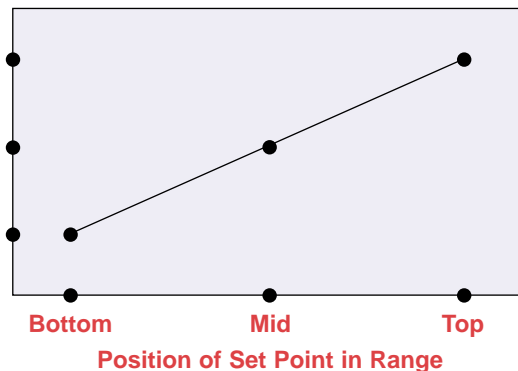
Generally, as the set point is adjusted through the operating range, the deadband will vary. Normally, it will become narrower as the set point is towards the bottom of the range, and will become wider when the set point is towards the top of the range. The graph shown below indicates representative trends of this type of deadband variation.

Deadbands

1.5 x Catalog Value

Catalog Value

Half Catalog Value



Temperature switch deadbands are a result of the characteristics of the vapor pressure curve as well as other factors. Normally, this results in a deadband which is narrower in the top third of the range than in the bottom third of the range. The values published are nominal and representative of mid-range set points.

Fluid Compatibility Guide

These recommendations are to be used as a guide only, as service life of material is dependent on temperature, concentrations, or catalysts that may be added and other conditions which are beyond our control.

Consult ASCO for specific service applications.

Note: Items in black circles are standard catalog units.
All others available on factory order.

P - Indicates preferred construction. **S** - Indicates satisfactory construction.

Transducer Material Code of Two Digits represents process connection material and diaphragm material, respectively; these are the sixth and seventh positions of the pressure transducer catalog number.

Process Connection: 6th Position Diaphragm: 7th Position

- | | | | |
|------------|---------------|------------|----------------------|
| 1 Aluminum | 4 316 S.S. | 1 Buna "N" | 4 316 S.S. |
| 2 Brass | 7 Nylon/Brass | 2 Viton | 6 Ethylene Propylene |
| 3 303 S.S. | | 3 Neoprene | 7 Fluorosilicone |

Material Code	11	12	13	16	17	21	22	23	26	27	31	32	33	36	37	42	44	71	
Ranges Available	Vacuum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Inches of Water	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	P.S.I.G. ⑤ to	400	400	400	400	400	3500	3500	3500	3500	3500	8000	8000	8000	8000	8000	8000	400	200
Acetic Acid													S	S					P
Acetylene	P	S		S							S	S		S		S	S		
Air	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P
Ammonia																			P
Argon-Welding ①	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P
Benzene-Benzol		P					S					S				S	S		
Butane	P	S				S	S				S	S				S	S		
Carbon Tetrachloride												P				P	S		
Cellulube		P		S			S		S			S		S		S	S		
Coke Oven Gas												P				P	S		
Ethyl Alcohol (denatured)	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Ethylene Glycol	P	S	S	S		S	S	S	S		S	S	S	S		S	S		
Freon Refrigerants																			P
Freon Solvents ("MF", "TF", "BF")						P	S				S	S				S	S		
Fuel Oils and Diesel ④	P	S				S	S				S	S				S	S		
Gasoline																			P
Gas, Inert	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P
Gas (natural and manufactured) ④	P	S	S		S	S	S			S	S	S	S		S	S	S		
Helium	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P
Hydrogen	P	S	S	S		S	S	S	S		S	S	S	S		S	S		
Jet Fuel (JP1 to JP6)		P			S		S			S		S			S	S	S		
Kerosene	P	S				S	S				S	S							
Methyl Alcohol (Methanol)	P		S	S	S	S		S	S	S	S	S	S	S	S	S	S		
Naphtha	P	S				S	S				S	S				S	S		
Nitrogen	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P
Oils (coolant, hydraulic, lubricating and motor)	P	S				S	S				S	S				S	S		P
Oxygen, Gaseous ②		S	P		S		S	S		S		S	S	S	S	S	S		
Potassium Sulfate	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Propane Gas and Liquid	P	S	S			S	S	S			S	S	S			S	S		
"Pydraul" ("Monsanto")		P			S		S			S		S			S	S	S		
Steam ③						P	S		S	S	S	S		S	S	S	S		
Steam Condensate						P	S		S	S	S	S		S	S	S	S		P
Stoddard Solvent	P	S				S	S				S	S				S	S		
Toluene (Tolulo)		P					S					S				S	S		
Vacuum	P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Vegetable Oil	P	S	S		S						S	S	S		S	S	S		
Vinegar												S		S	S	S	P		
Water, Fresh, Boiler Feed						P	S		S	S	S	S		S	S	S	S		P
Water (Distilled, Deionized, Demineralized)											P	S	S	S	S	S	S		
Water, Sea																			S

Notes: ① For high purity applications use stainless steel transducers. ② Oxygen service requires special cleaning, specify suffix "H". ③ For steam service a condensate loop (pigtail) is required. ④ For pressure transducers for combustion service see pages 20-23. ⑤ Material availability refers to standard gauge pressure constructions only.