9WPS Vacuum, Low and High Pressure Switch Installation and Maintenance Instructions

Description

This is a miniature size hazardous location pressure switch having factory set or field-adjustable set points, fixed deadbands (differentials) and a piston sensor. The switch is designed to provide long life and maintain excellent set-point accuracy despite environmental conditions.

Installation

Caution: This switch should be installed by a hazardous location trained service person. A media filter should be in the system to protect the switch.

Mounting: Switch may be mounted in any position.

Piping: Support adequate piping and mount the pressure switch to avoid excessive shock or vibration. To minimize the effect of vibration on switch, mount perpendicular to vibration. Apply pipe compound sparingly to male pipe threads only. Avoid pipe strain on switch by properly supporting and aligning piping.

Conduit Connection: Leads are Factory Sealed with hazardous location certified epoxy. CSA - Dual Seal compliant to ANSI/ISA-12.27.01-2003. Secondary conduit seal not required for North American installations. Primary seal failure with liquid media results in fluid leakage from relief hole above external ground screw. Installer must provide suitable means of detection for leakage of gaseous media. While tightening conduit connector, DO NOT EXCEED 80 LB-IN
MAXIMUM TORQUE.

Ambient Temperature: Certification limits -40ºF to 104ºF (-40ºC to 40ºC) (140ºF (60ºC) maximum temperature for 9WPSH models)

Agency Approvals:

Class I, Groups A, B, C & D,
Class II, Groups E, F & G.
File No. E37043

Class I, Groups B, C & D,
Class II, Groups E, F & G.
File No. LR22354

Wetted Materials:

Fitting: 316 SS
Piston: 410 SS (Heat Treated to RC. 36-42)
Diaphragm: V suffix = Viton®,
B suffix = Buna N,
N suffix = Neoprene*,
E suffix = Ethylene Propylene*
* = no agency approval
O-Ring: No suffix = Viton®,
B suffix = Buna N
E suffix = Ethylene Propylene,
Back-up Ring: PTFE

Viton® is a registered trademark of DuPont Performance Elastomers

Standard Free Leads Colour Code:

Lead	Pressure		Vacuum	
	Circuit #1	Circuit #2	Circuit #1	Circuit #2
Normally Open	Red	Yellow	Blue	Orange
Common	Purple	Brown	Purple	Brown
Normally Closed	Blue	Orange	Red	Yellow
Ground	Green		Green	

Wiring: Wiring must comply with all local and national electrical codes.

Note: The green grounding wire is to be used for the internal equipment grounding connection, and the external terminal for supplementary bonding connection where local codes or authorities permit or require such a connection.

Standard Switch Rating: 11 amps @ 125/250 VAC, 5 amps @ 30 VDC. Limit switches are SPDT type and may be wired normally open or closed. In dual circuit versions the two switches simulate DPDT operation.

Caution: Electrical rating must be within limits stated on the switch nameplate. Failure to stay within the rating of the switch may result in damage to, or premature failure of, the electrical contacts.

Operating Pressure PSI (Bar):

Switch Type	Adjustable Range psi (bar)		Approximate Deadband (Actuation value) psi (bar)	Proof Pressure
	Min	Max		
Vacuum Pressure (1"-30" Hg)	1" Hg	30" Hg	4-9" Hg	30"Hg
Low Pressure (2-500 psi)	2 (0.1)	15 (1)	1-3 (0.07-0.02)	1,000 (69)
	5 (0.3)	150 (10.3)	2-25 (0.1-1.7)	1,000 (69)
	25 (1.7)	300 (20.6)	7-40 (0.5-2.8)	1,000 (69)
	50 (3.4)	500 (34.4)	15-60 (1-4.1)	1,000 (69)
High Pressure (100-10,000 psi)	100 (6.9)	750 (51.7)	50-150 (3.4-10.3)	15,000 (1,034)
	150 (10.3)	1,000 (69)	70-200 (4.7-13.8)	15,000 (1,034)
	400 (27.6)	3,000 (207)	100-400 (6.7-27.6)	15,000 (1,034)
	700 (48.2)	5,000 (345)	140-600 (9.6-41.4)	15,000 (1,034)
	1,000 (69)	7,500 (517)	140-800 (9.6-55.2)	15,000 (1,034)
	150 (10.3)	3,000 (207)	50-1,000 (3.4-68.9)	15,000 (1,034)
	5,000 (344.8)	10,000 (689.7)	200-2,000 (13.8-137.9)	15,000 (1,034)

Set-Point Adjustment:

1. Loosen (2) screws that secure adjustment cover. Rotate adjustment cover to expose adjustment wheel.
2. Loosen exposed set screws (#6 size) on adjusting wheel. **(CAUTION! failure to loosen set screw will cause damage to adjusting mechanism.)** Rotate adjusting wheel per directional arrows to increase or decrease the set point.
3. Re-position adjustment cover and securely tighten (2) screws, for leaktight seal.

Testing of the Switch: Testing of the switch may be done before or after final installation. If bench tested, the switch should be re-tested when installed in final application. Be sure switch can be tested without affecting other equipment. Check nameplates for electrical rating and circuitry (normally closed or normally open) of switch. Cycle switch a few times to check operation.

9WPS Vacuum, Low and High Pressure Switch Installation and Maintenance Instructions

Troubleshooting

Warning: Disconnect electrical power supply to switch before removal or inspection.

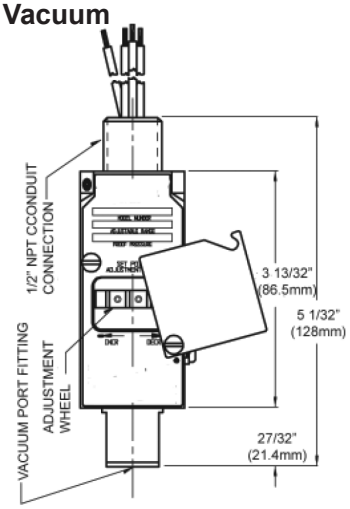
Important: The switch **is not field-repairable**. In case of damage replace entire switch.

Cause of Improper Operation:

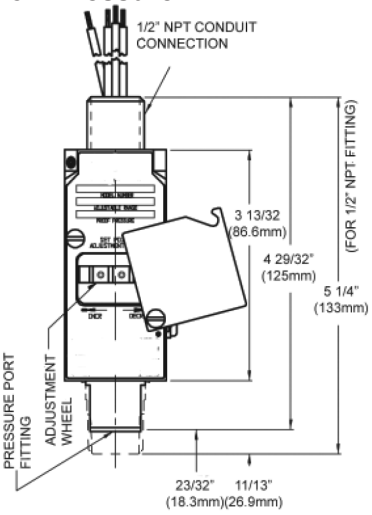
1. Incorrect electrical connection. Check leads to switch. Be sure they are properly connected. See “Wiring” section for circuitry colour code.
2. Faulty control circuit. Check electrical power to switch. Check for loose or blown fuses, open-circuited or grounded wires, loose connection at switch.
3. Incorrect pressure. Check pressure in the system. Pressure must be within range specified on nameplate.
4. External leakage. Replace pressure switch.
5. Excessive vibration or surges. Check for pressure fluctuation in system. Check switch mounting and be sure there is no excessive vibration.

If the operation of the pressure switch cannot be corrected by the above means, consult factory or authorized factory representative.

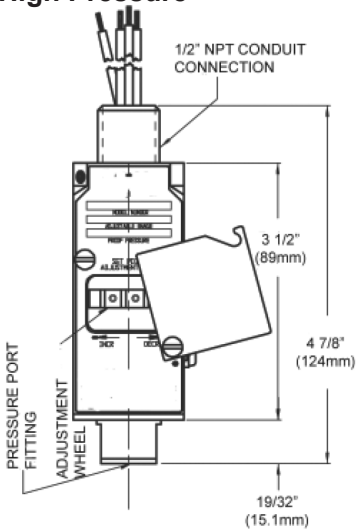
Vacuum



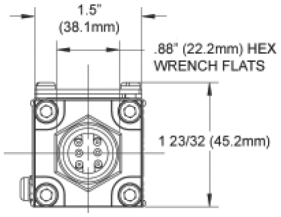
Low Pressure



High Pressure



Top View



Bottom View