

**INSTALLATION AND MAINTENANCE INSTRUCTIONS**

**EPS40EXP and EPS120EXP Explosion Proof Supervisory Pressure Switches**



**Specifications**

Contact Ratings:	10 A, 1/2 HP @ 125/250 VAC 2.5A @ 6/12/24 VDC	
Operating Temperature Range:	-40°F to +160°F	
Maximum Service Pressure (in PSI):	EPS40EXP	EPS120EXP
Adjustment Range:	10-100	10-200
Approximate Differential:	3 PSI @ 10 PSI 8 PSI @ 100 PSI	3 PSI @ 10 PSI 9 PSI @ 200 PSI
Enclosure Rating:	NEMA Type 4 — Indoor/Outdoor use	
Hazardous Atmospheres Classification:	Class I, Groups B, C, D, Div. 1 Class II, Groups E, F, G, Div. 1 Class III, Div. 1	

**Important**

Please Read Carefully and Save  
This instruction manual contains important information about the installation and operation of supervisory pressure switches. Purchasers who install switches for use by others must leave this manual or a copy of it with the user.

Read all instructions carefully before installation, following only those instructions that apply to the model you are installing.

Before installing any alarm device, be thoroughly familiar with:

- NFPA 72: National Fire Alarm Code
- NFPA 13: Installation of Sprinkler Systems
- NFPA 25: Inspection, Testing, and Maintenance of Water-based Fire Protection Systems

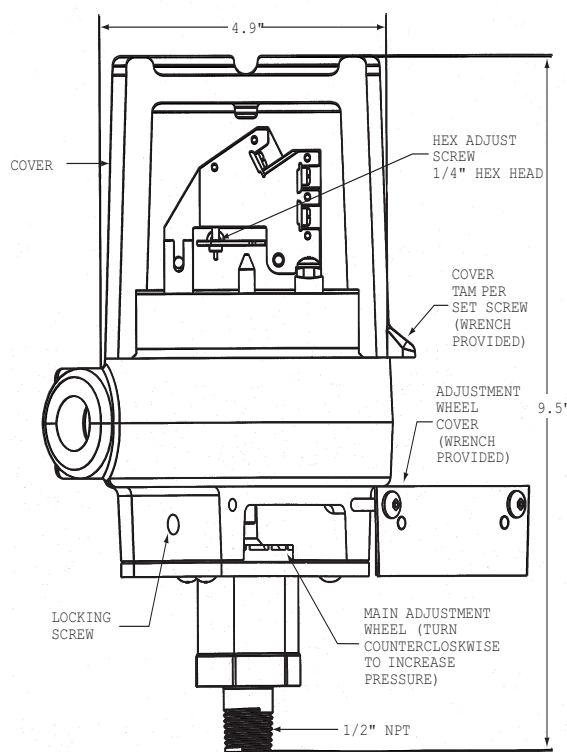
Other applicable NFPA standards, local codes, and the requirements of the authority having jurisdiction.

Failure to follow these directions may result in failure of the device to report an alarm condition. Safe Signal is not responsible for devices that have been improperly installed, tested, or maintained.

**Operation**

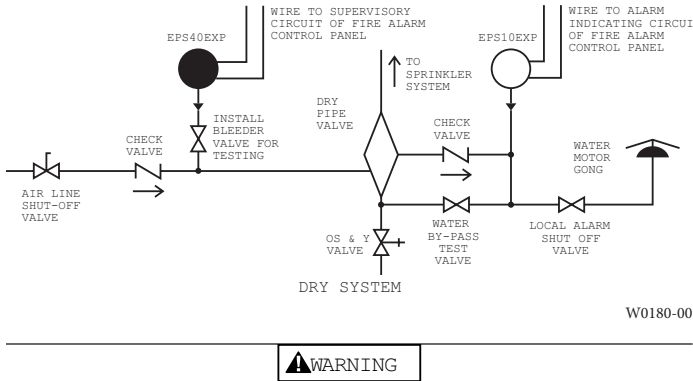
As pressure changes, a diaphragm actuates 2 snap action switches. The pressure switch actuation is determined by adjustment settings.

**Figure 1. Pressure switch basic dimensions:**

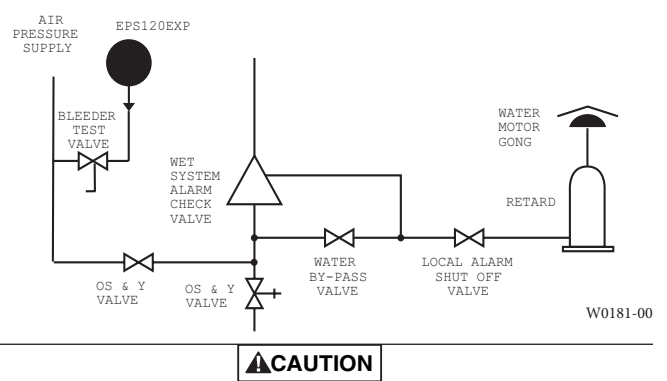


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**Figure 2. Typical piping diagram for EPS40EXP**



**Figure 3. Typical piping diagram for EPS120EXP**



To prevent ignition of hazardous atmospheres, disconnect circuits before removing cover. Keep cover closed while circuits are live. Conduit runs must have sealing fittings connected within 18" of the enclosure.

**Installation**

1. Back out cover tamper set screw and remove cover (Fig. 1).
2. Mounting the Switch
 

The device is designed to be mounted in the upright position; side mounting is also acceptable. Locate it where vibration, shock, and mechanical loading are minimal. Refer to piping diagram above (Figures 2 and 3).

  - a. Mount the device directly to the line via the 1/2" NPT pressure connection. The use of teflon pipe sealant tape is recommended. Be sure the fitting is tight enough to prevent leaks.
  - b. Apply tightening torque to the brass hex portion of the device.

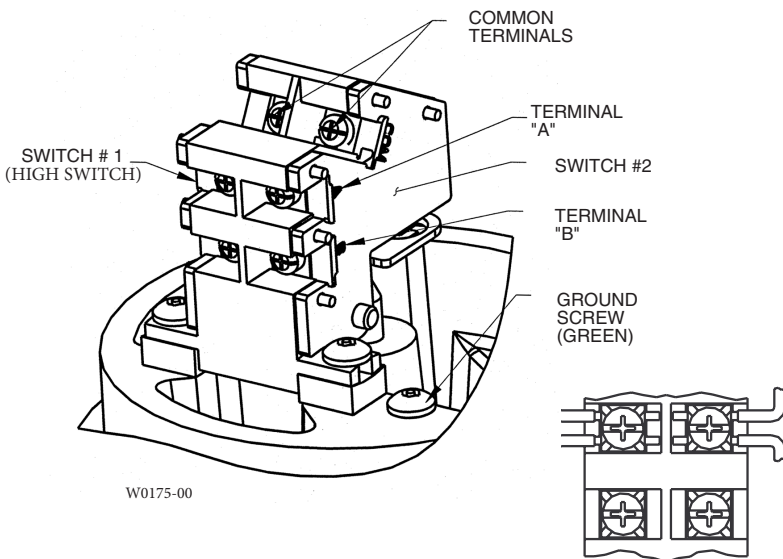
High voltage. Electrocutation hazard. Do not handle live AC wiring or work on a device to which AC power is applied. Doing so may result in severe injury or death.

3. Wire the device in accordance with the National Electrical Code. Two 1/2" NPT conduit entry holes have been provided in the mounting base to accept explosion proof conduit fittings. If necessary, remove conduit entry plug with 3/8" square wrench.
4. Connect wiring to terminals (see Figure 4 and Table 1).

**Adjustments To Factory Settings**

**Table 1. Electrical connections (referenced at factory settings):**

**Figure 4. Switch location:**



MODELS EPS40EXP, EPS120EXP			
SWITCHES AT LOW TRIP POINT			
B	COM	B	COM
—	—	—	—
A	A	A	A
SW1		SW2	
SWITCHES AT NORMAL SYSTEM PRESSURE			
B	COM	B	COM
—	—	—	—
A	A	A	A
SW1		SW2	
SWITCHES AT HIGH TRIP POINT			
B	COM	B	COM
—	—	—	—
A	A	A	A
SW1		SW2	

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BREAK WIRE AS SHOWN FOR SUPERVISION OF CONNECTION. DO NOT ALLOW STRIPPED WIRE LEADS TO EXTEND BEYOND SWITCH HOUSING. DO NOT LOOP WIRES.

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**Table 2.**

MODEL	FACTORY SETTINGS ( PSI)		
	Fall Sw2 (Low Switch)	Nominal	Rise Sw1 (Hi Switch)
EPS40EXP	30 ± 1.5	40	50 ± 2.5
EPS120EXP	101.5 - 112.5	115	117.5 - 128.5

Dual-switch Model — EPS40EXP and EPS120EXP

1. Install pressure switch as stated in “INSTALLATION” portion of instruction manual. Attach pressure test source to system.
2. Remove adjustment wheel cover and back off locking screw (see Figure 1) to allow main adjustment wheel to rotate freely.
3. Option 1: To adjust the nominal setting of the pressure window (low switch setting to high switch setting) without affecting the size of the window, adjust the main adjustment wheel, Figure 1, to the desired setting using the pressure source to verify each switch setting. Each tine on the wheel represents an approximate window shift of 1.8 PSI for the EPS40EXP and 6.6 PSI for the EPS 120EXP. For each 1/2 rotation of the adjustment wheel, the window changes by approximately 11 PSI for the EPS 40EXP and 40 PSI for the EPS 120EXP.

Option 2: To adjust the pressure window size and the nominal setting of the pressure window, adjust the main adjustment wheel, Figure 1, until the high switch (SW1) trips at the desired pressure using the pressure test source. Decrease the pressure until the low switch (SW2) trips. Note pressure and determine how much change is desired on the low switch. Adjust the 1/4" hex screw, Figure 1, to either increase (counterclockwise) or decrease (clockwise) the window size. (The low switch will be affected.) The approximate sensitivity of the hex screw adjustment: 1/2 turn = 5 PSI. An approximate maximum window size of 30 PSI is obtainable. Retest the high switch after adjusting the low switch.

4. Retest the set points several times to ensure the accuracy of the settings.
5. Re-seat locking screw.
6. Re-install adjustment wheel cover.

NOTE: The sensor assembly is not field replaceable. Do not attempt to disassemble these parts. If you have any questions, consult Safe Signal. Safe Signal recommends careful consideration of the following factors when specifying and installing Alarm and Supervisory Pressure Switches. Always refer to the Installation and Maintenance Instruction for specific recommendations on individual devices before installing the unit.

- Electrical ratings stated in literature and on nameplates should not be exceeded.
- Overload on switch can cause failure on the first cycle. Always wire devices according to national and local electrical codes.
- Install units away from shock and vibration. Proper electrical fittings should be used to prevent moisture from entering the enclosure via the conduit.
- Test all devices for proper operation after initial installation. Perform preventive maintenance and periodic testing as required by the applicable NFPA standards but not less than bi-monthly.
- Install a back-up control for all critical applications where control failure could endanger life or property. A backup control to serve as a high or low limit control is especially recommended for applications where a runaway condition could result.
- Do not mount unit where ambient temperatures will exceed published limits.
- Avoid impact or mechanical loading.

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#### THREE-YEAR LIMITED WARRANTY

SAFE SIGNAL warrants that the equipment herein shall conform to said descriptions as to all affirmation of fact and shall be free from defects of manufacture, labeling, and packaging for a period of three (3) years from the invoice date to the original purchaser, provided that representative samples are returned to SAFE SIGNAL for inspection. Upon a determination by SAFE SIGNAL that a product is not as warranted, SAFE SIGNAL shall, at its exclusive option, replace or repair said defective product or parts thereof at its own expense except that Purchaser shall pay all

shipping, insurance, and similar charges incurred in connection with the replacement of the defective product or parts thereof. This Warranty is void in the case of abuse, misuse, abnormal usage, faulty installation, or repair by unauthorized persons, or if for any other reason SAFE SIGNAL determines that said product is not operating properly as a result of causes other than defective manufacture, labeling, or packaging.