EPSA40 Series and EPSA120 Series Supervisory Pressure Switches

Safe Signal™

Specifications

Contact Ratings:	10 A, $^1/_2$ HP @ 125/250 VAC 2.5A @ 6/12/24 VDC
Overall Dimensions:	See Figure 1
Operating Temperature Range:	–40°F to +160°F
Maximum Service Pressure:	EPSA40-1P, EPSA40-2P: 250 PSI EPSA120-1P, EPSA120-2P: 250 PSI
Adjustment Range:	EPSA40-1P, EPSA40-2P: SW2 (Min.) 10 PSI; SW1 (Max.) 100 PSI EPSA120-1P, EPSA120-2P: SW2 (Min.) 10 PSI; SW1 (Max.) 200 PSI
Enclosure Rating:	UL 4x — Indoor or Outdoor Use NEMA 4 — Indoor or Outdoor Use
Approximate Differential Limits:	EPSA40-1P, EPSA40-2P:3 PSI at 10 PSI - 6 PSI at 100 PSI EPSA120-1P, EPSA120-2P: 3 PSI at 10 PSI - 9 PSI at 200 PSI

The EPSA40 series and EPSA120 series are ULC approved.

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.

All alarm pressure switch installations must comply with local codes and ordinances and the requirements of the authority having jurisdiction. Additional imformation is available in National Fire Protection Association standards NFPA 13, 13D 13R, and 72. The connection of alarm pressure switches to alarm control units is governed by CAN/ULC-S524-M91, Standard for the Installation of Fire Alarm Systems.

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.

⚠CAUTION

Do not use in potentially explosive atmospheres. Do not leave unused wires exposed.

Operation

As pressure changes, a diaphragm actuates 1 or 2 snap action switches. The pressure switch actuation is determined by adjustment settings.

Figure 1. Pressure switch basic dimensions:

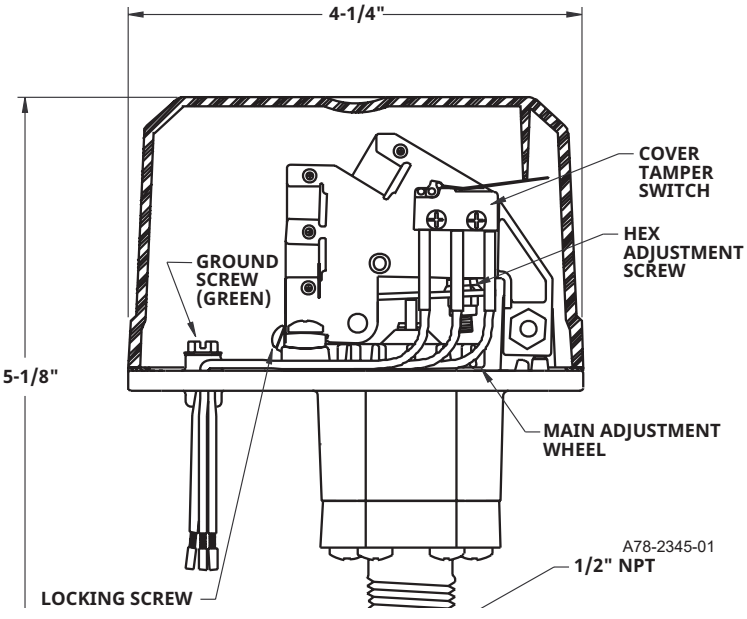

Figure 2. Typical piping diagram for EPSA40-1P, EPSA40-2P

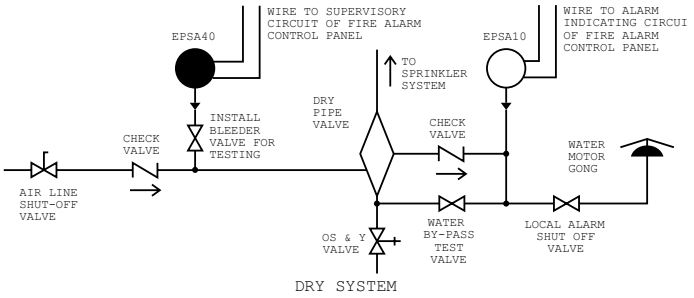

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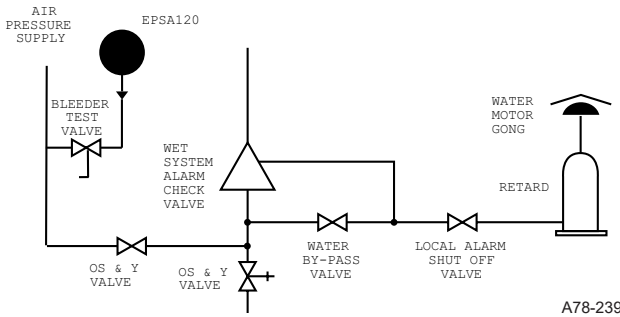
Figure 3. Typical piping diagram for EPSA120-1P, EPSA120-2P



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Installation

1. Remove Cover, Cover is held on by two screws.
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 hex portion of the device.

⚠CAUTION

High voltage. Electrocution 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 Canadian Electrical Code. Two $^{7}/_{8}$" diameter conduit connection holes have been provided in the mounting plate to accept standard $^{1}/_{2}$" conduit fittings (one is removable knock-out type). If a NEMA 4/UL 4x (waterproof unit) is required, waterproof flexible metallic conduit and appropriate conduit fittings must be used. Recommended connectors are Thomas and Betts PN 5332 (180° coupling), PN 5352 (90° coupling), and PN 5262 seal ring.
4. Connect wiring to terminals (see Figure 4 and Table 1).

Figure 4. Switch location:

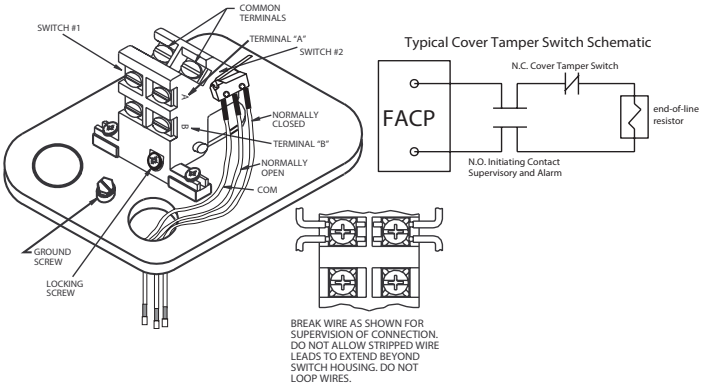

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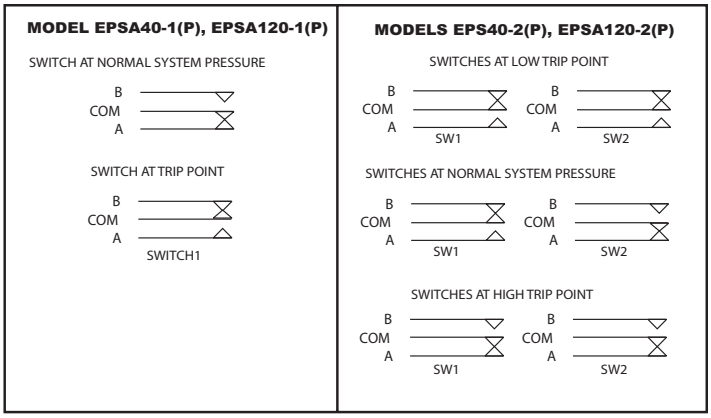
Table 1. Electrical connections (referenced at factory settings):



Adjustments To Factory Settings

Table 2.

MODEL	FACTORY SETTINGS (PSI)		
	Fall SW2 (low Switch)	Nominal	Rise SW1 (Hi Switch)
EPSA40-1(P)	30± 1.5	40	-
EPSA40-2(P)	30± 1.5	40	50± 2.5
EPSA120-1(P)	101.5 - 112.5	115	-
EPSA120-2(P)	101.5 - 112.5	115	117.5 - 128.5

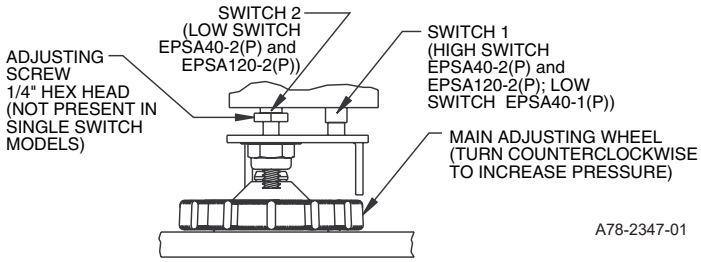
Single-switch Model — EPSA40-1P and EPSA120-1P

1. Install pressure switch as stated in “INSTALLATION” portion of instruction manual. Attach pressure test source to system.
2. Back off locking screw (see Figure 1) to allow main adjustment wheel to rotate freely.
3. Test the switch for the set point by introducing 40 PSI pressure from the pressure test source for the EPSA40-1P (115 PSI for the EPSA120-1P). Decrease pressure slowly until the switch trips. Rotate main adjustment wheel, Figure 5, (counterclockwise to increase pressure) and retest by first introducing a higher pressure than desired and slowly reducing pressure until the switch trips. Repeat process until switch trip point is at desired pressure setting. Each number represents an approximate trip point change of 1.8 PSI for the EPS40-1P and 6.6 PSI for the EPS 120-1P. For each $^1/_2$ rotation of the adjustment wheel, the trip point setting changes by approximately 11 PSI for the EPS 40-1P and 40 PSI for the EPS 120-1P.
4. Retest the set point several times to ensure accuracy of setting.
5. Re-seat locking screw.

Dual-switch Model — EPSA40-2P and EPSA120-2P

1. Install pressure switch as stated in “INSTALLATION” portion of instruction manual. Attach pressure test source to system.
2. 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 5, to the desired setting using the pressure source to verify each switch setting. Each number represents an approximate window shift of 1.8 PSI for the EPS40-2P and 6.6 PSI for the EPS 120-2P. For each $^1/_2$ rotation of the adjustment wheel, the window changes by approximately 11 PSI for the EPS 40-2P and 40 PSI for the EPS 120-2P.

Figure 5. Adjustments (Dual-switch model shown):



Option 2: To adjust the pressure window size and the nominal setting of the pressure window, adjust the main adjustment wheel, Figure 5, 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 5, 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.

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 CAN/ULC-S524 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.