INSTALLATION AND MAINTENANCE INSTRUCTIONS

PIBVEXP Explosion Proof Post Indicator and Butterfly Valve Switch

3825 Ohio Avenue, St. Charles, Illinois 60174
1-800-SENSOR2, FAX: 630-377-6495
www.systemsensor.com

Specifications

Contact Ratings:	One SPDT (Form C) Switch 15 A @ 125/250/480 VAC; 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC 1/2 A @ 125 VDC; 1/4 A @ 250 VDC
Dimensions:	3.75″L X 3.25″D X 4.5″H
Operating Temperature Range:	–40°F - 160°F (–40°C – 71°C)
Maximum Stem Extension:	2.1875″
Shipping Weight:	1-3/4 lb.
Enclosure Rating:	UL Listed explosion proof switch enclosure for use in hazardous locations. Class I, Groups C and D; Class II, Groups E. F and G

Important

Please Read Carefully and Save

This instruction manual contains important information on the installation and operation of supervisory switches. Purchasers who install supervisory switches for use by others must leave this manual or a copy of it with the user. These instructions apply to System Sensor switches for post indicator and butterfly type valves. Read all instructions carefully before beginning. Follow only those instructions that apply to the model being installed.

⚠CAUTION

To prevent ignition of hazardous atmospheres, disconnect supply circuit before opening. Keep assembly tightly closed when in operation. Do NOT leave unused wires exposed.

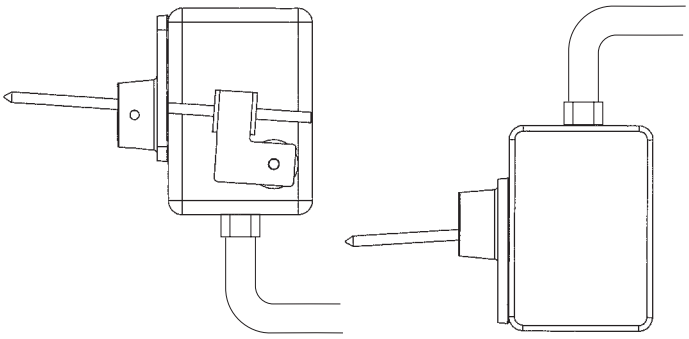
All supervisory switch installations must comply with local codes and ordinances and the requirements of the authority having jurisdiction. Additional information is available in National Fire Protection Association standards NFPA 13, 13D, 13R, 71, and 72.

General Information for Post Indicator Valves and Butterfly Valves

1. Model PIBVEXP is designed for installation in a ½″ NPT tapped hole and located so that the actuating lever of the switch engages the target or flag of the valve . The switch actuating lever is spring loaded against the flag or target of the valve and is released when the valve moves toward the closed position from the fully open position.
2. Model PIBVEXP is equipped with a removable ½″ NPT pipe nipple which is locked in place with two set screws. A hex wrench is provided for this feature. These models also include an adjustable length actuating lever which eliminates any need for alteration of the length of the lever.

Figures 1A and 1B:

Rising Flag **Falling flag**



Section 1

Installation Instructions For Post Indicator Valves

1. There are two types of post indicator valves - rising flag and falling flag. In a rising flag installation, the PIBVEXP mounts below the target assembly, as shown in Figure 1A. Closing the valve raises the target assembly and releases the actuating lever on the PIBV1EXP. In a falling flag installation, the PIBVEXP mounts above the target assembly (Figure 1B). Closing the valve lowers the target assembly and releases the actuating lever on the PIBVEXP.

   The PIBVEXP will work for either application. To prevent binding on the actuating lever the unit must be oriented with the conduit entry pointing downward for a rising flag application and pointing upward for a falling flag application. An improper installation can cause damage to the PIBVEXP device.
2. If the post indicator valve is predrilled with ½″ NPT mounting hole, remove the plug and go to step 6. If the post indicator valve is NOT equipped with a ½″ NPT mounting hole, it will be necessary to drill and tap the hole.
3. Position the valve in the fully open position ("OPEN" should appear in the window) and remove the head and target assembly. In doing so, ensure that the assembly can be reinstalled with its original adjustment.
4. (a) In a falling flag installation (flag lowers as valve is closed), measure the distance from the bottom of the head to the upper surface of the target that will contact the actuating lever of the PIBVEXP. Add 3⁄32″ to this measurement and mark the outside of the housing at that location. Drill with a 23⁄32″ drill bit and tap a ½″ NPT thread.

   (b) In a rising flag installation (flag rises as valve is closed), measure the distance from the bottom of the head to the lower surface of the target that will contact the actuating lever. Subtract 3⁄32″ to this measurement and mark the outside of the housing at that location. Drill with a 23⁄32″ drill bit and tap a ½″ NPT thread.
5. Replace the head and target assembly.
6. Screw the locknut onto the threaded nipple which is supplied with the PIBVEXP.
7. Screw the nipple hand tight into the ½″ hole in the valve and tighten the locknut against the housing to secure the nipple in position.
8. Insert a probe into the hole through the nipple to measure the distance from the open end of the nipple to the to the desired position on the target assembly. Subtract 5⁄8″ from the distance and set the length of the actuating lever of the PIBVEXP from the end of the enclosure to this distance. Tighten the set screw which holds the actuating lever.
9. Close the valve 3 to 4 revolutions.
10. Install the PIBVEXP onto the nipple and orient the conduit entry per Section 1. Apply pressure to the PIBVEXP and lock the set screws to secure the nipple to the PIBVEXP.
11. Slowly open the valve to its fully open position. The switch should trip as the valve opens, but not force the actuating lever against the nipple when fully open. To check for this condition, open the valve fully and depress the top of the actuating cam to stretch the actuating spring further. There should be some additional movement available. If no movement is available, damage may occur to the PIBVEXP actuator lever. It will be necessary to adjust the flag location by removing the head and turning the handle while the valve stem is disengaged (refer to the valve manufacturer.)
12. After checking the fully open position to ensure adequate clearance, close the valve slowly until the PIBVEXP contacts trip. The switches must trip within 1⁄5 of the full travel distance of the valve.
13. If the PIBVEXP does not change states within 1⁄5 of the length of travel, it may be necessary to adjust the flag up or down by removing the head and turning the handle (refer to the valve manufacturer.)
14. Wire the switch as shown in Fig. 3.

    NOTE: When removing the cover of the PIBVEXP use provided allen wrench in box.

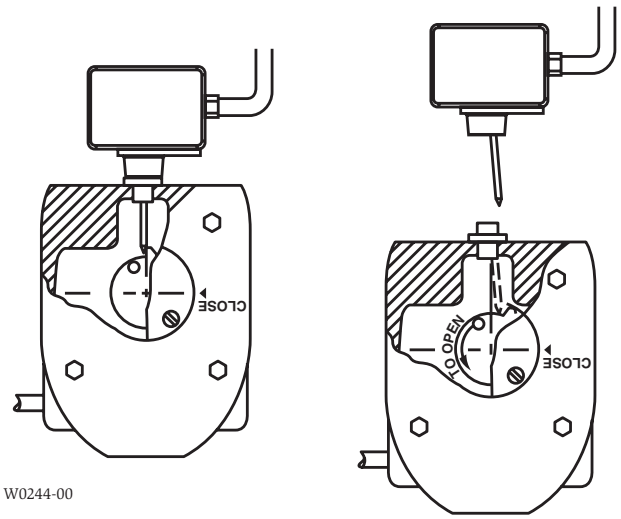
Section 2

Installation Instructions For Butterfly Valves

(See Figure 2)

1. Remove the ½″ NPT plug from the gear housing.
2. Loosen 2 set screws that hold the nipple on the PIBV2EXP and remove the nipple.
3. Screw the locknut onto the nipple.
4. Screw the nipple into the ½″ NPT hole and hand tighten. Tighten the locknut firmly to the housing to secure the nipple.
5. Open the valve fully and close the valve approximately 3 revolutions, noting which direction the target moves.
6. Retract the actuating arm and install PIBVEXP onto the nipple, orienting the PIBVEXP to trip the switch as the valve closes. To prevent binding on the actuating lever, the unit must be oriented so the flag falls away from the actuating lever when the valve is closed. Apply pressure to PIBVEXP and tighten set screws to secure the assembly.

Figure 2:



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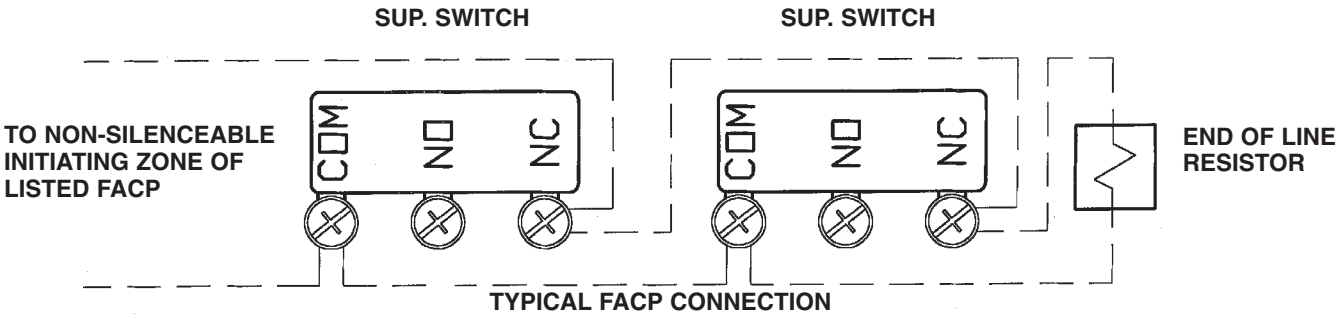
7. Slide the actuating arm into the valve until it bottoms on the flag, but do not tighten the lever screw.
8. Open the valve to the full open position and tighten the lever screw to hold actuating arm in position. (Actuating arm length will adjust slightly as valve is opened.) Check to ensure that in the full open position the actuating arm is not resting on the nipple.
9. Carefully close valve and note the number of handle revolutions until the switch trips. The switch must trip within $^{1}/_{5}$ of the total travel range of the valve.
10. Wire the switch as shown in Fig. 3.
    NOTE: When removing the cover of the PIBVEXP use provided allen wrench in box.

Figure 3:



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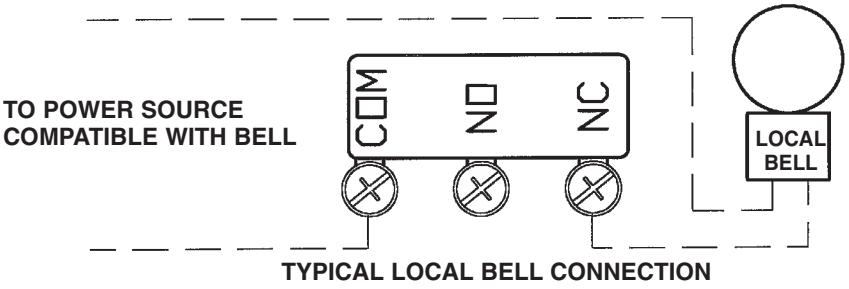

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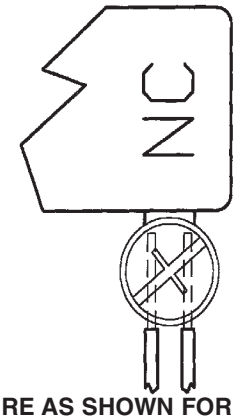

BREAK WIRE AS SHOWN FOR SUPERVISION OF CONNECTION. DO NOT ALLOW STRIPPED WIRE LEADS TO EXTEND BEYOND SWITCH HOUSING. DO NOT LOOP WIRES.

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⚠WARNING

The Limitations of Supervisory Switch Alarm Devices

1. Alarms generated by the actuation of the activating lever may not be received by a central station if telephone or other communication lines to the alarm device are out of service, disabled, or open.
2. Supervisory switch alarm devices have a normal service life of 10-15 years.
3. Supervisory switches are not a substitute for insurance. Building owners should always insure property and lives being protected.

Please refer to insert for the Limitations of Fire Alarm Systems

Three-Year Limited Warranty

System Sensor warrants its enclosed supervisory switch to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this supervisory switch. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the supervisory switch which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Returns Department, RA #_____, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.