BLAZE

Supervisory Switch

Model : BT-PIV-01

Description:

The BT-PIV-01 supervisory switch is designed to monitor the open position of wall and yard Post Indicator Valves (PIVs) / Butterfly Valves used in fire protection systems.

The switch must be installed ensuring it does not interfere with the normal operation of the valve. It must be adjusted to operate within two complete turns of the valve operating mechanism, or before the valve stem has travelled more than one-fifth of its total operating distance from the fully-open position.

The BT-PIV-01 is supplied with a 1/2" NPT threaded nipple for direct mounting to the Indicator Post Or Valve Body, and it includes a 1/2" conduit entry provision for electrical wiring.

Specifications :

Enclosure Rating	NEMA 4- Suitable for Indoor/Outdoor Installation
Conduit Opening	1 x 1/2" Size
Contact Rating	BT-PIV-01: One set SPDT (Form C) 10.1Amps at 125/250 VAC 2.0Amps at 24 VDC loads may have power factor 0.6
Standards	UL 346 Listed & FM 3135 Approved
Operating Temperature Range	-40° F to 140°F (-40°C to 60°C)
Screws	Tamper Resistant Cover Screws
Cover Material	Aluminum Die-Casting.

Installation:

The BT-PIV-01 Supervisory Switch is designed for installation in a ½-inch NPT tapped hole, positioned so that the actuating lever engages with the valve target or indicator flag. The switch is spring-loaded and remains in its normal position while the trip rod is held against the spring force. This normal condition occurs when the supervisory switch is installed on a sprinkler valve that is fully open.

As the valve begins to close, the valve actuator moves away from the trip rod, allowing the internal spring to move the rod and actuate the switch, thereby sending a supervisory signal to the fire alarm or monitoring system.

The cover is secured with two tamper-resistant screws, which can only be removed using the special key supplied with each supervisory switch, providing protection against unauthorised access.

Warning

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Before opening any closed valve, ensure that opening the valve will not cause any damage from water flow due to open or missing sprinklers, piping, etc.

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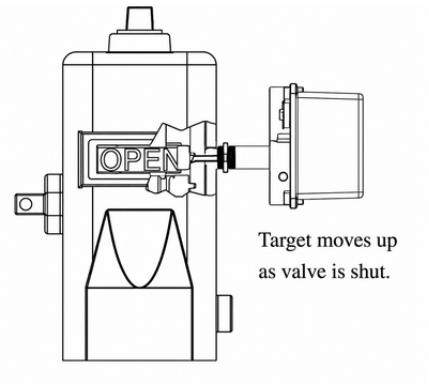
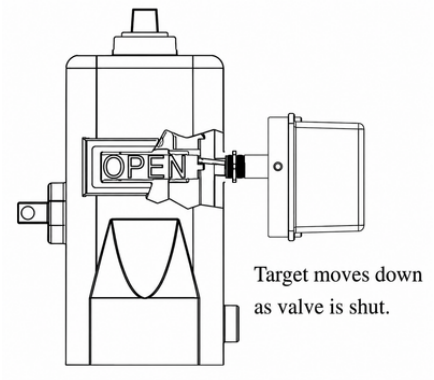
Typical Installations On Post Indicator Valve Housings :





NOTE: Before any work is done on the fire sprinkler or fire alarm system, the building owner or their authorized representative shall be notified. Before opening any closed valve, ensure that opening the valve will not cause any damage from water flow due to open or missing sprinklers, piping, etc.

1. Determine the type of post indicator valve installed. For target-up valves, mount the BT-PIV-01 below the target assembly. For target-down valves, mount the switch above the target assembly.
2. If the valve is fitted with a ½-inch NPT tapped mounting hole, remove the plug and proceed with installation. If not, drill and tap a ½-inch NPT hole in the valve housing.
3. Fully open the valve until "OPEN" is visible in the indicator window. Remove the head and target assembly, ensuring it can be reinstalled in its original position.
4. Measure the position of the target assembly where it will contact the BT-PIV-01 trip rod.
   - For target-up valves, subtract ⅛ inch (3.2 mm) from the measurement.
   - For target-down valves, add ⅛ inch (3.2 mm) to the measurement.
5. Mark the mounting position and drill a 23/32-inch (18.2 mm) hole. Tap the hole to ½-inch NPT on the side where the target assembly will engage the trip rod.
6. Refit the head and target assembly.
7. Loosen the retaining screw and remove the threaded nipple from the BT-PIV-01.
8. Fit the supplied locknut onto the nipple, screw the nipple into the ½-inch NPT opening by hand, then tighten the locknut to secure it in place.
9. Insert a suitable measuring probe through the nipple and measure the distance to the target assembly. Subtract ½ inch (12.5 mm) from this measurement to determine the correct switch position.

Note: In some installations, an angle bracket may be required on the target assembly to ensure proper engagement with the BT-PIV-01 trip rod.

10. Using the supplied tamper-resistant key, loosen the two cover screws and remove the switch cover before completing the electrical wiring and final adjustment.
11. Partially close the valve by 3–4 turns of the handwheel to move the target assembly away from the trip rod.
12. Position the BT-PIV-01 so that the internal spring allows the trip rod to follow the target as the valve closes. Slide the switch onto the threaded nipple and tighten the socket head screw to secure it.
13. Slowly reopen the valve to the fully open position. As the target moves into position, it should engage the trip rod and actuate the switch. Ensure there is a minimum ½ turn of handwheel over-travel after switch actuation to confirm correct adjustment.
14. Gradually close the valve. The switch should operate within the first two turns of the handwheel, or within the first 20% of the valve travel, to provide the required supervisory signal.
15. Complete all electrical wiring, connections and functional tests. Operate the valve through a full open-to-closed cycle to verify correct switch operation and ensure all electrical and mechanical connections are secure.
16. Refit the cover and tighten the tamper-resistant screws to a minimum torque of 15 in-lb (1.7 N·m) to maintain the enclosure seal.
17. Once installation and testing are complete, return the valve to its fully open position and verify that the supervisory system indicates the normal operating condition.

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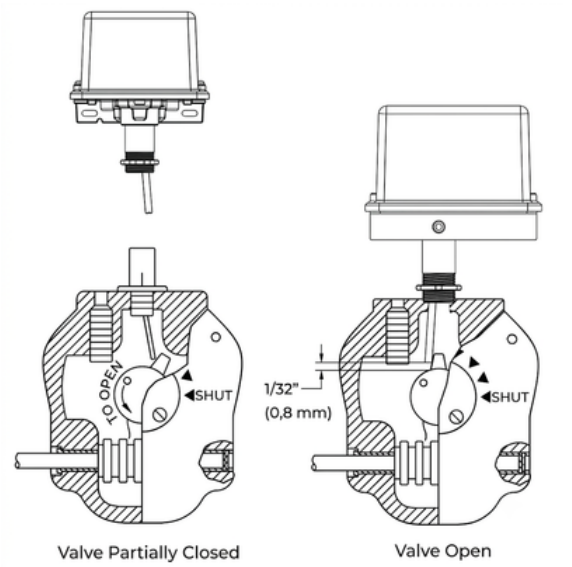
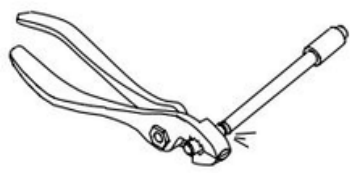
Installation on a Butterfly Valve :



1. Remove the ½-inch NPT plug from the valve housing.
2. Loosen the retaining screw securing the threaded nipple to the BT-PIV-01 and remove the nipple.
3. Fit the supplied locknut onto the threaded nipple.
4. Screw the nipple into the ½-inch NPT opening in the gear operator by hand, then tighten the locknut firmly against the housing to secure it.
5. Fully open the valve, then close it by approximately three turns of the handwheel or crank, observing the direction in which the actuator moves.
6. Using the supplied tamper-resistant key, loosen the two cover screws and remove the switch cover.
7. Position the BT-PIV-01 so that the internal spring pulls the trip rod to follow the actuator inside the valve.

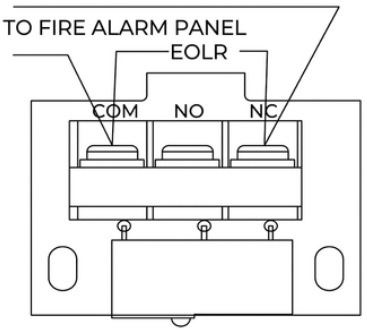
Note: If the trip rod is too long, loosen the retaining screw and remove the rod from the trip lever. Using pliers, break off one 1-inch (25.4 mm) notched section of the rod. Reinstall the trip rod, tighten the retaining screw to a minimum of 5 in-lb (0.6 N·m), and repeat this step.

Breaking Excessive Rod Length :

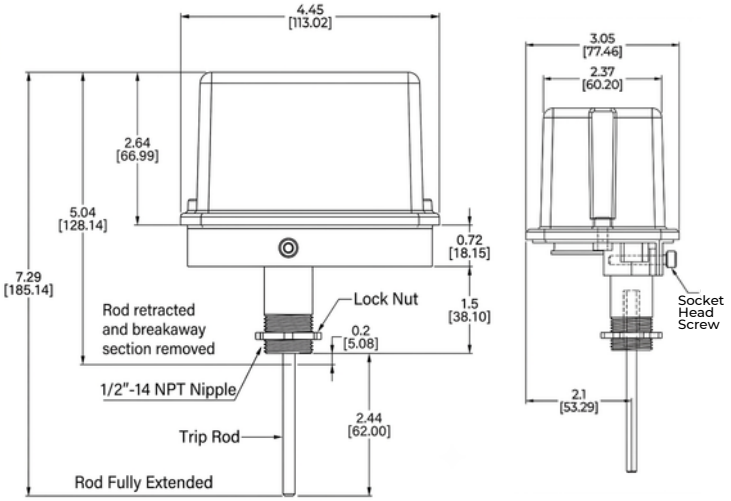


8. Remove the switch from the nipple and shorten the trip rod by 1/32 inch (0.8 mm) to prevent it from dragging against the gear hub inside the valve. Tighten the retaining screw, refit the switch onto the nipple and secure it by tightening the collar screw.
9. Slowly open the valve to the fully open position. As the actuator reaches the open position, it should engage the BT-PIV-01 trip rod and actuate the switch. Ensure there is a minimum of ½ turn of over-travel after switch actuation to confirm correct adjustment.
10. Gradually close the valve. The switch should operate within the first two turns of the handwheel or crank, or within the first 20% of the valve travel, to provide the required supervisory signal.
11. Complete all electrical wiring, connections and functional tests. Operate the valve through a full open-to-closed cycle to verify correct switch operation and ensure the integrity of both the BT-PIV-01 installation and the supervisory signalling system.
12. Refit the cover and tighten the tamper-resistant screws to ensure the enclosure is properly sealed.
13. Once installation and testing are complete, return the valve to its normal operating position and verify that the supervisory system indicates the correct valve status.

Field Typical Electrical Connections:



Dimesions :



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