

1181 Wireless Post Indicator Valve (PIV)

Description

The Model 1181 PIV is a weather proof and tamper resistant wireless switch for monitoring the open position of fire sprinkler control valves of the post indicator, butterfly and other types. The 1181 is compatible with the XR100 and XR500 Series panels using an 1100X Wireless Receiver. The contact operates the external contacts of the wireless transmitter when the valve position is altered from an open state. The 1181 mounts in a 1/2" tapped hole in the post indicator or butterfly valve housing. Install where the 1181 is accessible for service.

What is Included

- One 1181 Wireless Post Indicator Valve
- One 3V lithium CR123 Battery
- Hardware pack
- Zone name and number label
- Serial number label

Transmitter Serial Number

For your convenience, an additional pre-printed serial number label is included. Prior to installing the device, record the serial number or place the pre-printed serial number label on the panel programming sheet. This number is required during programming. As needed, use the zone name and number label to identify a specific transmitter.

Programming the Transmitter in the Panel

Program the device as a Supervisory type zone in **Zone Information** during panel programming. At the Serial Number: prompt, enter the eight-digit serial number.

Continue to program the zone as directed in the panel programming guide. Refer to the XR500 Series Programming Guide (LT-0679) or the XR100 Series Programming Guide (LT-0896) as needed.

Note: When a receiver is installed, powered up, or the panel is reset, the supervision time for transmitters is reset. If the receiver has been powered down for more than one hour, wireless transmitters may take up to an additional hour to send a supervision message unless tripped, tampered, or powered up. This operation extends battery life for transmitters. A missing message may display on the keypad until the transmitter sends a supervision message.

Selecting the Proper Location (LED Survey Operation)

The 1181 PIV provides a survey capability to allow one person to confirm transmitter communication with the receiver while the cover is removed. The Transmitter PCB Red Survey LED turns on whenever data is sent to the receiver then immediately turns off when the receiver acknowledgement is received. Pressing the tamper switch is a convenient way to send data to the receiver to confirm operation. When the tamper switch is pressed or released, the LED blinks once to indicate proper operation. When the transmitter does not receive an acknowledgement from the receiver the LED remains on for about 8 seconds to let you know communication is not established. Communication is also faulty when the LED flashes multiple times in quick succession. Relocate the receiver until the LED immediately turns off indicating the transmitter and receiver are communicating properly. Proper communication between the transmitter and receiver is verified when for each press or release of the tamper switch, the LED blinks immediately on and immediately off. Repeat this test to confirm five separate consecutive LED blinks. Any indication otherwise means proper communication has not been established.

Typical Installation on Post Indicator Valve Housings

NOTE: Before any work is done on a sprinkler system that is in service, the owner or authorized representative should be notified that the valve controlling the water supply to the system may be closed for periods of time during the installation and testing of this device, resulting in all or portions of the system being inoperative during these periods. If the system is not in service and valve is closed, be sure that opening the valve will not allow any unwanted water flow due to openings in the system, such as heads off, broken or incomplete piping, etc.

1. Position the valve to fully open ("OPEN" should appear in the window of the housing). Partially close the valve while observing the direction that the target assembly moves. Reopen the valve. If the valve housing is predrilled with a 1/2" NPT for installation of a monitoring switch, remove the 1/2" plug and fully open the valve. "OPEN" should appear in the window of the housing. Go to step no. 6.
2. Remove the head and target assembly (consultation with valve manufacturer is recommended).

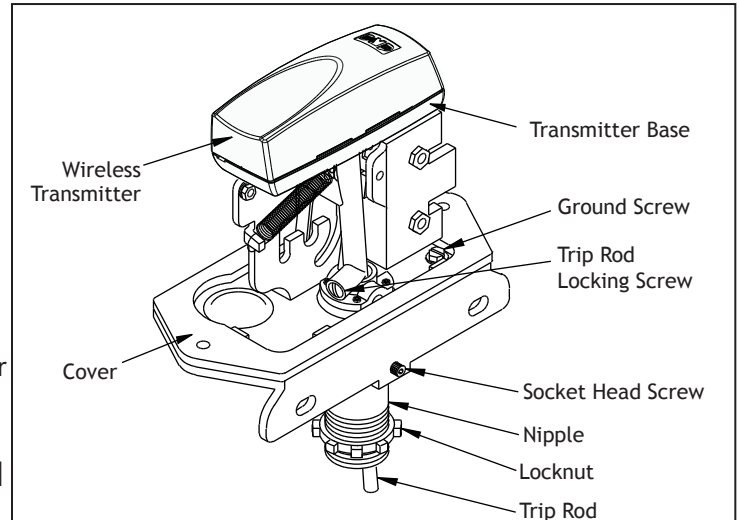


Figure 1: 1181 PIV Parts Location

3. If the target assembly moved up as the valve was closed, measure the distance from the bottom of the head to the lower part of the target assembly that contacts the trip rod of the PCVS (see Fig. 2). This is usually a plate or bar on the target assembly, on a side adjacent to the “OPEN/SHUT” plates. Subtract 1/8” from the measurement. If the target moved down as the valve was closed, measure the distance from the bottom of the head to the upper portion of the target assembly that contacts the trip rod of the PCVS (see Fig. 2). Add 1/8” to this measurement.
4. Mark the housing at the proper location. Using a 23/32” drill bit, drill and then tap a 1/2” NPT in the housing on the side that coincides with the portion of the target assembly that engages the trip rod of the PCVS.

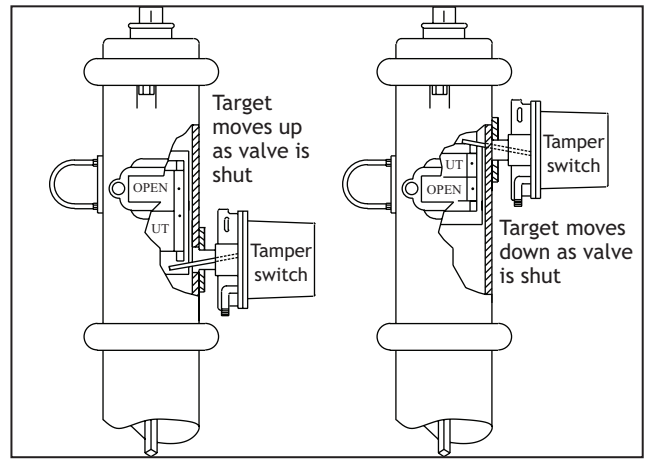


Figure 2: Target Moves As Valve is Shut

5. Replace the head and target assembly.
6. Loosen the socket head screw that holds the nipple in the PCVS and remove the nipple.
7. Place the locknut that is provided onto the nipple. See Figure 1.
8. Screw the nipple into the 1/2” NPT hole in the valve housing - hand tighten. Tighten the locknut against the valve housing to secure the nipple firmly in place.
9. Insert a scale or probe thru the nipple to measure the distance from the open end of the nipple to the target assembly. Subtract 1/2” from this measurement.
NOTE: In some cases, it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.
10. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.
11. Loosen the locking screw that holds the trip rod in place and adjust the rod length, from the end of the collar to the end of the rod, using the dimension determined in Step 9. Tighten the locking screw to hold the rod in place.
NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 3). Reinstall trip rod and repeat Step 11 procedure.

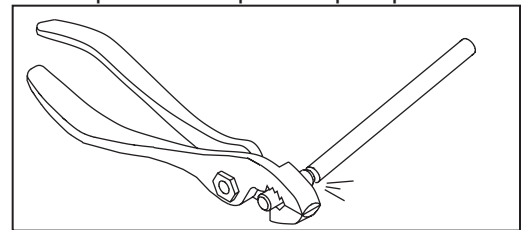


Figure 3: Breaking the Trip Rod

12. Partially close the valve (3 to 4 revolutions of the handle/hand wheel).
13. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate the switches when the valve is open. Tighten the socket head screw in the collar.
14. Carefully open the valve to the fully open position. As the target moves to the open position it should engage the trip rod and actuate the switch(es). There should be a minimum overtravel of 1/2 revolution of the handle/hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).
15. Slowly close the valve. The switch must operate during the first two revolutions of the handle/hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.
NOTE: Small adjustments of the target position may be necessary (consultation with valve manufacturer is recommended).

16. Complete the required wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and the signaling system. Check that all mechanical connections are secure.
17. When the installation and testing are complete, return valve to its proper position.
18. Alternative installation for other post indicator valve housing shown in Fig. 4 and 5.

- Option A: Refer to Figure 4. Subject to the approval of the “authority having jurisdiction” the alternate method of installation shown in Fig. 4 may be used. In this method, one of the glass windows of the housing is replaced with a 1/4” thick metal plate that is cut to fit in place of the glass and drilled and tapped to receive the 1/2” NPT pipe nipple. In some cases it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.

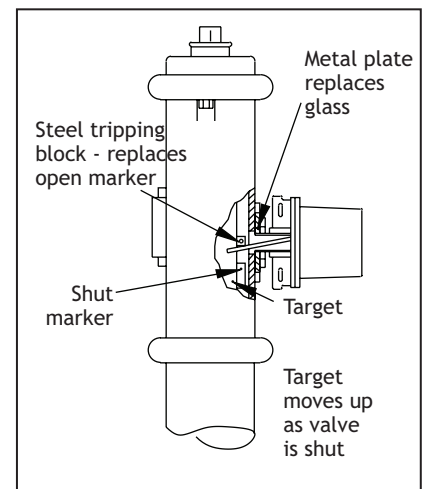


Figure 4: Window Installation

- Option B: Refer to Figure 5. If the target is stationary and a hood arrangement is used, such as is shown in Fig. 5, the hood must be drilled with a 23/32" drill and tapped with a 1/2" NPT. The center line of this hole should be 1/8" below the portion of target assembly that strikes the PCVS trip rod. The 11 3/8" dimension shown is for a Clow Valve. Flexible conduit must be used for this type of installation.

Typical Installation on a Butterfly Valve

1. Remove the 1/2" NPT plug from the gear operator case.
2. Loosen the set screw that holds the nipple in the PCVS and remove the nipple.
3. Screw the locknut that is provided onto the nipple.
4. Screw the nipple into the 1/2" NPT hole in the gear operator - hand tighten. Tighten the locknut against the case, to secure the nipple firmly in place.
5. Partially close the valve (3 or 4 revolutions of the hand wheel or crank).
6. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.
7. Loosen the locking screw that holds the trip rod in place. Estimate trip rod length required and extend slightly past that point. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate switches when valve is open.
NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 3). Reinstall trip rod and repeat Step 7.
8. Remove device from nipple and withdraw trip rod 1/32" (this dimension is important). Tighten the locking screw to hold the rod in place. Reinstall the device on the nipple. Tighten the screw in the collar against the nipple.
NOTE: In some cases it may be necessary to remove the gear box cover to ensure correct operation (consultation with the valve manufacturer is recommended).
9. Carefully open the valve to its full open position, as the boss on the gear hub moves to the open position it must engage the PCVS trip rod and actuate the switch(es). There should be a minimum overtravel or revolution of the crank or hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).
NOTE: Slight adjustment of gear stops may be necessary to prevent overtravel of the trip rod (consultation with valve manufacture is recommended).
10. Carefully close the valve. The switch(es) must operate during the first two revolutions of the crank or hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.
11. Complete the required wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and signaling system. Check that all mechanical connections are secure.
12. When the installation and testing are complete, return valve to its proper position.

Wiring 1102 Transmitter to the PIV

1. Program the external contacts of the wireless transmitter as Normally Closed.
2. Connect the included wires to the terminal block on the 1102 Transmitter and feed the wires through the opening in the transmitter.
2. Complete required wiring to the actuator switch for a normally closed circuit.

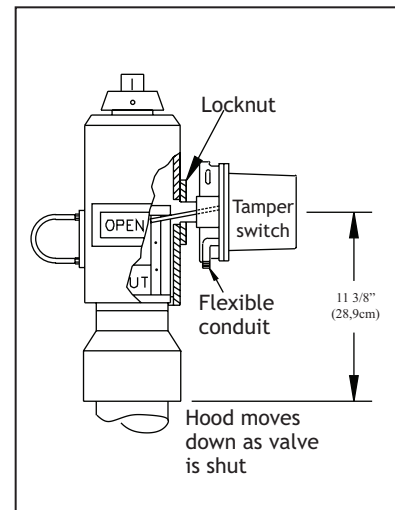


Figure 5: Clow Valve Installation

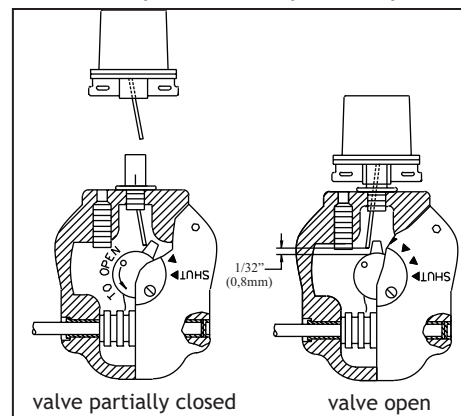


Figure 6: ITT Grinnell/Kennedy Indicating Butterfly Valve

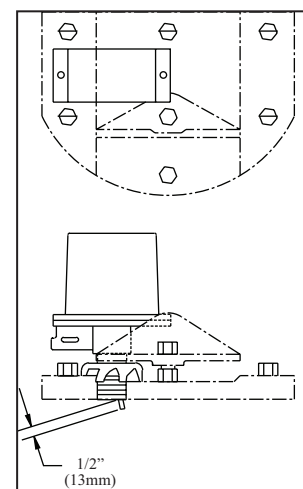


Figure 7: Dresser Indicating Butterfly Valve

Installing or Replacing the Battery

Observe polarity when installing the battery. Use only 3.0V lithium batteries, DMP Model CR123, or the equivalent battery from a local retail outlet. For UL installations, only use #123 batteries manufactured by Energizer or CR123A batteries manufactured by Panasonic.

Note: When setting up a wireless system, it is recommended to program zones and connect the receiver before installing batteries in the transmitters.

1. If installed, remove the transmitter housing cover.
2. If replacing the battery, remove the old battery and dispose of it properly.
3. Place the 3.0V lithium battery in the holder and press into place.
4. Line the transmitter cover so the DMP logo is over the battery and snap the cover back into place.



Caution: Risk of fire, explosion, and burns. Do not recharge, disassemble, heat above 212°F (100°C), or incinerate. Properly dispose of unused batteries.

Battery Life Expectancy

Typical battery life expectancy for DMP Model 1181 wireless transmitters is 5 years. DMP wireless equipment uses two-way communication to extend battery life.

The following situations can reduce battery life expectancy:

- If a receiver is unplugged or not installed.
Note: Transmitters continue to send supervision messages until a receiver returns an acknowledgement. After an hour the transmitter only attempts a supervision message every 60 minutes.
- When installed in extreme hot or cold environments.

The following situation can extend battery life expectancy:

- Extend transmitter supervision time in panel programming.

FCC Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons. It must not be co-located or operated in conjunction with any other antenna or transmitter.

Changes or modifications made by the user and not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Specifications

Battery
Life Expectancy 5 years (normal operation)
Type 3.0V lithium CR123
See Battery Life Expectancy for full details.
Frequency Range: 903-927 MHz
Operating Range: -10°F to 120°F
Dimensions
4.75" L x 2.25" W x 5.08" H

Compatibility

1100X Wireless Receiver

Listings and Approvals

California State Fire Marshal (CSFM)
FCC Part 15 Registration ID CCK1101
IC Registration ID 5251A-PC0081
Underwriters Laboratories (UL) Listed
ANSI/UL 346 Waterflow Indicators for Fire
Protective Signaling Systems



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