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Potter Electric Signal VSR-S

Potter Electric Signal VSR-S Vane-Type Waterflow Switch Instruction Manual

Model: VSR-S

1. Introduction

The Potter VSR-S is a vane-type waterflow switch designed for use in wet sprinkler systems. It is compatible with 1" (25mm), 1-1/4" (32mm), 1-1/2" (38mm), and 2" (50mm) pipe sizes. This device can also function as a sectional waterflow detector in larger systems. It features two single-pole, double-throw (SPDT) snap-action switches and an adjustable, instantly recycling pneumatic retard. The switches activate when a water flow of 10 gallons per minute (38 LPM) or more is detected downstream of the device. The flow condition must persist for a duration sufficient to overcome the selected retard period.
This manual provides essential information for the safe and effective installation, operation, and maintenance of your Potter VSR-S waterflow switch.

2. Safety Information

Read all instructions carefully before installation and operation. Failure to follow these instructions may result in property damage, serious injury, or death.

- Installation must be performed by qualified personnel in accordance with all national and local codes and standards.
- Ensure power is disconnected before performing any wiring or maintenance to prevent electrical shock.
- Do not exceed the specified electrical ratings of the switch.
- Protect the device from physical damage during installation and operation.
- Verify proper operation after installation and periodically thereafter.

3. Setup and Installation

The VSR-S switch is designed for horizontal or vertical pipe installation. Ensure the arrow on the switch housing points in the direction of water flow.

3.1 Mounting Location

- Install the switch in an accessible location for maintenance and inspection.

- Avoid locations where water turbulence is excessive, such as immediately after a pump or elbow.
- Ensure sufficient clearance around the device for wiring and cover removal.

3.2 Mechanical Installation

1. Drain the pipe system completely before beginning installation.
2. Drill a hole in the pipe at the desired location, ensuring it is clean and free of burrs. Refer to the template provided with the product for precise hole size.
3. Insert the vane into the pipe, ensuring the arrow on the saddle points in the direction of water flow.
4. Secure the switch saddle to the pipe using the provided U-bolt and nuts. Tighten nuts evenly to ensure a watertight seal.
5. Verify that the vane moves freely within the pipe and does not obstruct water flow.



Figure 1: Potter VSR-S Vane-Type Waterflow Switch. This image shows the red housing of the switch connected to a brass pipe fitting, with the white vane extending downwards, ready for insertion into a pipe. The overall design indicates a robust and functional component for water flow detection.

3.3 Electrical Wiring

- Ensure all power to the circuit is OFF before wiring.
- Open the switch cover.
- Connect wiring to the appropriate terminals as per the system's electrical diagram. The VSR-S features two SPDT contacts.
- Use proper conduit and wiring methods as required by local codes.
- Close the switch cover securely after wiring is complete.

3.4 Retard Adjustment

The VSR-S includes an adjustable pneumatic retard to prevent false alarms due to pressure surges. The retard time can be adjusted from 0 to 90 seconds.

- To adjust, locate the retard adjustment screw inside the switch housing.
- Turn the screw clockwise to increase the retard time and counter-clockwise to decrease it.
- Test the switch after adjustment to ensure the desired delay is achieved.

4. Operating Instructions

Once installed and wired, the VSR-S operates automatically. When water flow exceeding 10 GPM (38 LPM) is detected and sustained for the set retard period, the internal switches will activate.

- The switch contacts will change state, typically signaling an alarm panel or control system.
- The switch will reset automatically when the water flow drops below the activation threshold and the retard period expires.

5. Maintenance

Regular maintenance ensures the reliable operation of your VSR-S waterflow switch.

5.1 Routine Inspection

- Inspect the switch annually for any signs of physical damage, corrosion, or loose connections.
- Ensure the housing cover is securely fastened.

5.2 Functional Testing

- Test the waterflow switch periodically as required by local codes and NFPA standards (e.g., quarterly or semi-annually).
- Initiate a water flow condition (e.g., by opening an inspector's test valve) to activate the sprinkler system.
- Verify that the VSR-S activates within the specified retard time and sends a signal to the alarm panel.
- Confirm that the alarm panel receives and processes the signal correctly.
- After testing, ensure the system is returned to its normal operating state.

6. Troubleshooting

This section addresses common issues you might encounter with the VSR-S waterflow switch.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Switch does not activate with water flow.	• Insufficient water flow. • Incorrect retard setting (too long). • Vane obstructed or damaged. • Wiring error or faulty switch.	• Verify flow rate is above 10 GPM (38 LPM). • Adjust retard time (Section 3.4). • Inspect vane for obstructions; replace if damaged. • Check wiring connections; test switch continuity.
False alarms or intermittent activation.	• Retard setting too short. • Excessive water turbulence. • Loose mounting.	• Increase retard time (Section 3.4). • Relocate switch to a less turbulent section of pipe. • Tighten mounting hardware.
No signal to alarm panel.	• Wiring issue between switch and panel. • Faulty alarm panel input.	• Check all wiring connections and continuity. • Consult alarm panel manual or technician.

7. Specifications

Feature	Detail
Model	VSR-S
Brand	Potter Electric Signal
Operation Mode	Automatic
Contact Type	Normally Open, Normally Closed (SPDT)
Connector Type	Screw Terminal
Actuator Type	Vane
Contact Material	Copper
Number of Positions	4
Control Method	Touch (likely referring to manual test/reset, or general system control)
Unit Count	1.0 Count
Item Weight	2 pounds
Package Dimensions	11 x 6 x 3 inches
UPC	785192014324

8. Warranty and Support

For warranty information and technical support, please contact Potter Electric Signal directly or refer to their official website. Keep your purchase receipt for warranty claims.

- **Manufacturer:** POTTER ELECTRIC SIGNAL COMPANY
- **Website:** www.pottersignal.com

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