

Features

- NEMA 4 solid metal enclosure
- Factory installed neoprene gasket
- 0-90 second field replaceable pneumatic retard
- 350 PSI system pressure rated
- Synchronized switch action

CAUTION

Waterflow switches that are monitoring wet pipe sprinkler systems shall not be used as the sole initiating device to discharge AFFF, deluge, or chemical suppression systems. Waterflow switches used for this application may result in unintended discharges caused by surges, trapped air, or short retard times.

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.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.



Important: This document contains important information on the installation and operation of the VSR-M waterflow switches. Please read all instructions carefully before beginning installation. A copy of this document is required by NFPA 72 to be maintained on site.

Description

The Model VSR-M is a vane type waterflow switch for use on wet sprinkler systems. It is UL Recognized for use on the Globe Sprinkler Model UMC Manifolds. See Ordering Information chart.

The VSR-M contains two single pole, double throw, snap action switches and an adjustable, instantly recycling pneumatic retard. The switches are actuated when a flow of 10 GPM (38 LPM) or more occurs downstream of the device. The flow condition must exist for a period of time necessary to overcome the selected retard period.

Enclosure

The VSR-M switches and retard device are enclosed in a general purpose, die-cast housing. The cover is held in place with two tamper resistant screws which require a special key for removal. A field installable cover tamper switch is available as an option which may be used to indicate unauthorized removal of the cover. See bulletin number 5401103 for installation instructions of this switch.

Technical Specifications

Service Pressure	350 PSI (24 BAR) - UL	
Minimum Flow Sensitivity for Signal	10 GPM (38 LPM) - UL	
Maximum Surge	18 FPS (5,5 m/s)	
Contact Ratings	Two sets of SPDT (Form C) 10.0 Amps at 125/250VAC 2.0 Amps at 30VDC Resistive 10 mAmps min. at 24VDC	
Conduit Entrances	Two knockouts provided for 1/2" conduit. Individual switch compartments suitable for dissimilar voltages.	
Environmental Specifications	NEMA-4/IP54 Rated enclosure suitable for indoor or outdoor use with factory installed gasket and die-cast housing when used with appropriate conduit fitting. Temperature range: 40° F to 120° F, (4,5° C to 49° C) UL	
Service Use	Automatic Sprinkler	NFPA-13
	One or two family dwelling	NFPA-13D
	Residential occupancy up to four stories	NFPA-13R
	National Fire Alarm Code	NFPA-72

*Specifications subject to change without notice.

Installation

NOTE: Do not leave cover off for an extended period of time.

NOTICE

The Retard/Switch Assembly is field replaceable without draining the system or removing the waterflow switch from the manifold. Use Retard/Switch Assembly-Potter No.1029030.

CAUTION

Do not trim the paddle. Failure to follow these instructions may prevent the device from operating and will void the warranty. Do not obstruct or otherwise prevent the trip stem of the flow switch from moving when water flows as this could damage the flow switch and prevent an alarm. If an alarm is not desired, a qualified technician should disable the alarm system.

VSR-M Waterflow Switch Replacement (See Fig. 1)

Old Waterflow Switch Removal:

1. Make sure the fire alarm zone or circuit connected to the waterflow switch is bypassed or otherwise taken out of service.
2. Disconnect the power source for local bell (if applicable).
3. To prevent accidental water damage, all control valves should be shut tight and the sprinkler system completely drained.
4. Remove the waterflow switch cover. Do not leave off for extended period of time.
5. Identify and disconnect all wires from the waterflow switch.
6. Remove the (2) waterflow switch mounting adapter flange bolts retaining the waterflow switch to the manifold body. Retain bolts for reinstallation.
7. Remove the waterflow switch by carefully lifting the unit and rolling the paddle with your fingers so the paddle will fit through the manifold flange hole.
8. Clean inside of manifold of all growth or other foreign material for a distance equal to the pipe diameter on either side of manifold flange hole.

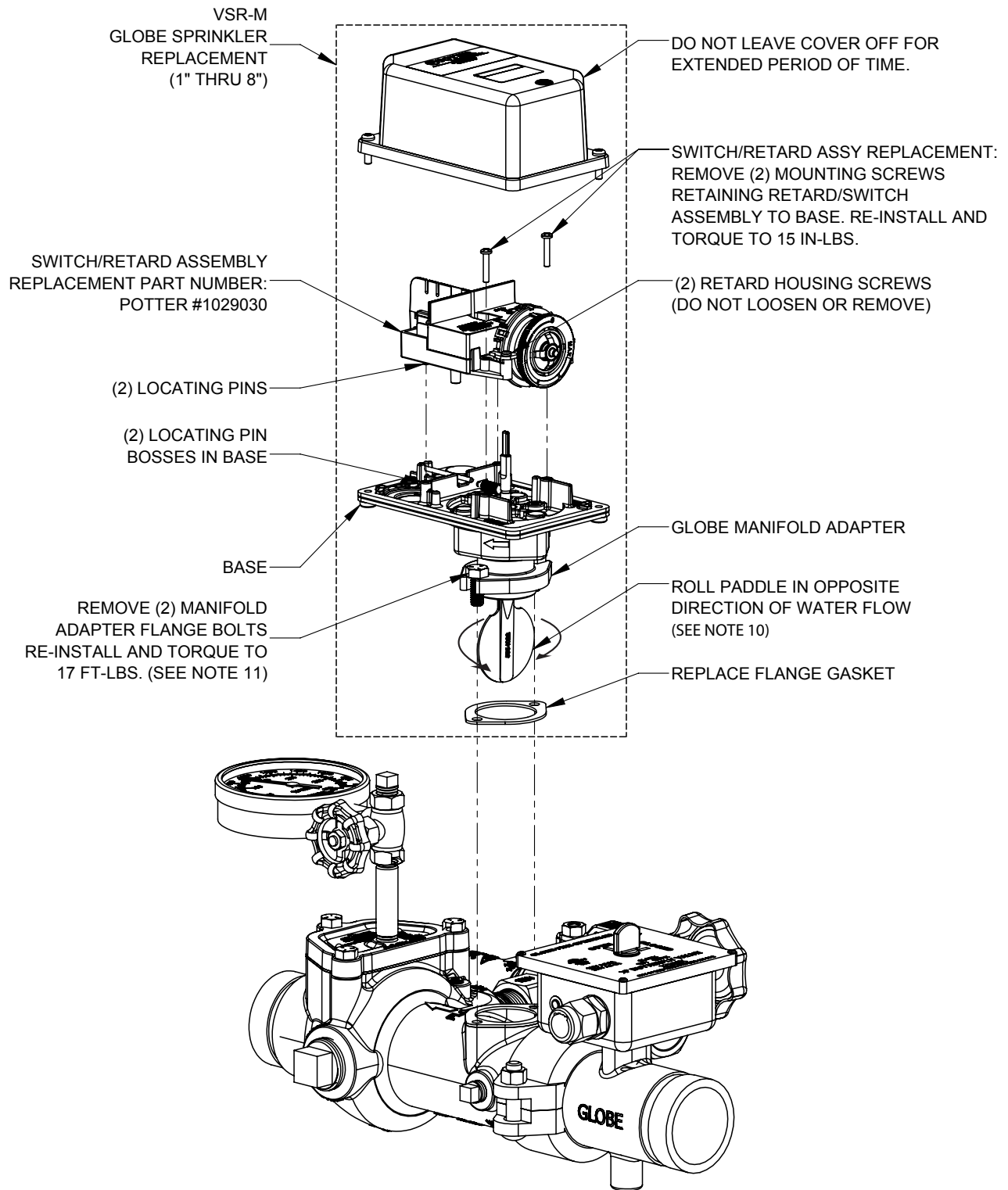
New Waterflow Switch Installation:

9. Remove the cover on the new waterflow switch. Do not leave off for extended period of time.
10. Align the arrow on waterflow switch base or adapter in the same direction as the arrow on the manifold body as you roll the paddle (in opposite direction of flow) and insert the new waterflow switch assembly into the manifold flange hole making sure that the new gasket remains fully installed and aligned on the manifold adapter flange. Do not crease the paddle.
11. Re-install the (2) manifold adapter flange bolts previously removed and retained from the old unit. Alternately tighten the (2) flange bolts evenly until seated and then final torque the bolts to 17 ft. lbs.
12. Confirm that the waterflow switch tripstem moves freely and the paddle must not rub inside the manifold or bind in any way.
13. Reconnect all wires (see fig.4) and replace switch cover.
14. Restore power, conduct flow test and place the system back in service.

Retard Adjustment:

The delay can be adjusted by rotating the retard adjustment knob from 0 to the max setting (60-90 seconds). The time delay should be set at the minimum required to prevent false alarms.

Fig. 1



Retard/Switch Assembly Replacement (See Fig. 1)

NOTICE

The Retard/Switch Assembly is field-replaceable without draining the system or removing the waterflow switch from the manifold. Use Retard/Switch Assembly-Potter #1029030.

1. Make sure the fire alarm zone or circuit connected to the waterflow switch is bypassed or otherwise taken out of service.
2. Disconnect the power source for local bell (if applicable).
3. Drain the sprinkler system.
4. Remove the switch cover. Do not leave off for extended period of time.
5. Identify and remove all wires from the waterflow switch.
6. Remove the (2) mounting screws retaining the Retard/Switch Assembly. Retain screws for reinstallation. Note: Do not loosen or remove the (2) retard housing screws.
7. Remove the Retard/Switch Assembly by lifting it straight up over the tripstem.
8. Remove the (2) mounting screws holding the Retard/Switch Assembly. Retain screws for reinstallation. Note: Do not loosen or remove the (2) retard housing screws.
9. Remove the Retard/Switch Assembly by lifting it straight up over the tripstem.
10. Install the new replacement Retard/Switch Assembly by dropping it over the tripstem and aligning the locating pins with the locating pin bosses in the base.
11. Reinstall the (2) previously removed mounting screws that retains the Retard/Switch Assembly. Torque to 15 in.lbs.
12. Reconnect all wires (see fig.4) and replace switch cover.
13. Restore power, conduct flow test and place the system back in service.

Knockout Removal

To remove knockouts: Place screwdriver at inside edge of knockouts, not in the center.

Fig 2

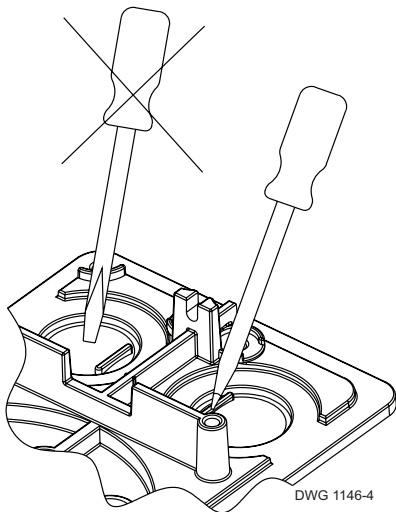
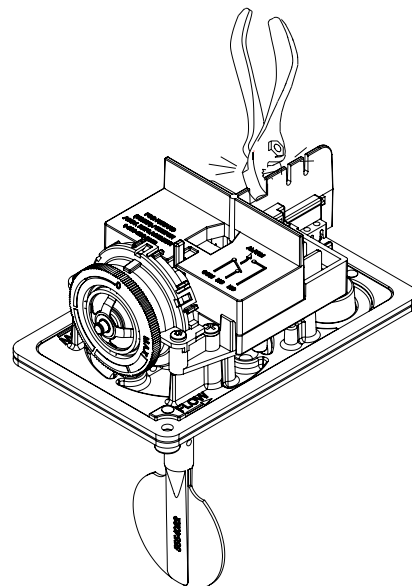


Fig 3

Break out thin section of cover when wiring both switches from one conduit entrance.

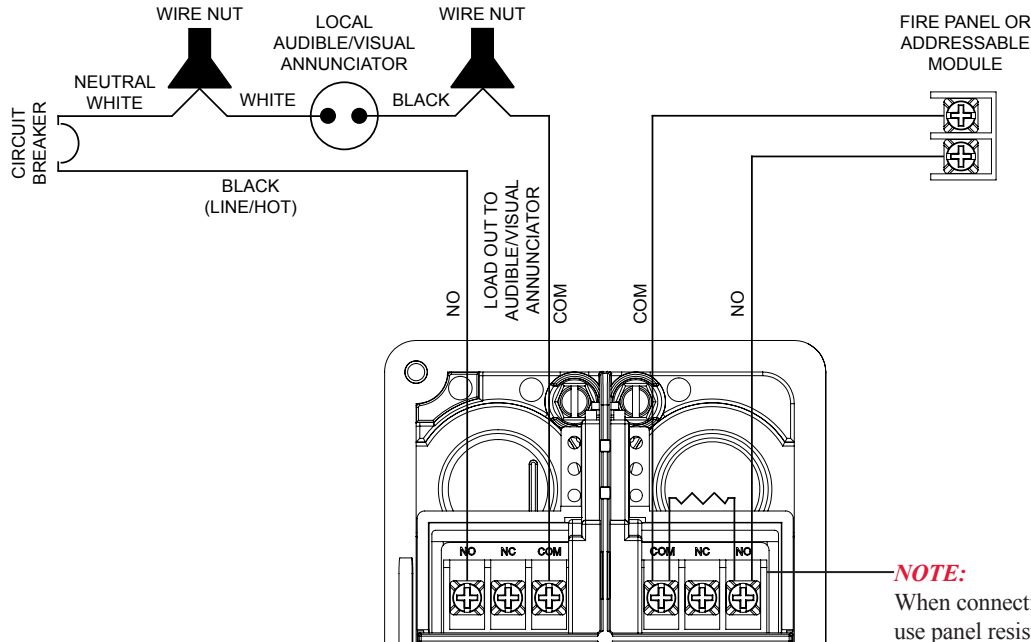


NOTICE

Do not drill into the base as this creates metal shavings which can create electrical hazards and damage the device. Drilling voids the warranty.

Typical Electrical Connections

Fig 4

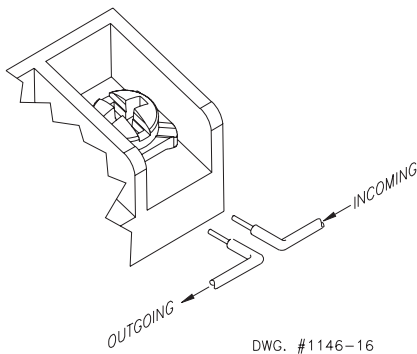


NOTE:

1. The Model VSR-M has two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local audible or visual annunciator.
2. For supervised circuits, see "Switch Terminal Connections" drawing and warning note on Fig. 5.

Switch Terminal Connections Clamping Plate Terminal

Fig 5



⚠ WARNING

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire become dislodged from under the terminal. Failure to sever the wire may render the device inoperable risking severe property damage and loss of life.

Do not strip wire beyond 3/8" of length or expose an uninsulated conductor beyond the edge of the terminal block. When using stranded wire, capture all strands under the clamping plate.

Testing

The frequency of inspection and testing for the Model VSR-M and its associated protective monitoring system shall be in accordance with applicable NFPA Codes and Standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

If provided, the inspector's test valve shall always be used for test purposes. If there are no provisions for testing the operation of the flow detection device on the system, application of the VSR-M is not recommended or advisable.

A minimum flow of 10 GPM (38 LPM) is required to activate this device.

NOTICE

Advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the testing instructions.

Maintenance

Inspect detectors monthly. If leaks are found, replace the detector. The VSR-M waterflow switch should provide years of trouble-free service. The retard and switch assembly are easily field replaceable. In the unlikely event that either component does not perform properly, please order Replacement Retard Switch Assembly, Potter #1029030. There is no maintenance required, only periodic testing and inspection.

Ordering Information

Ordering Information	
Waterflow Switch Model (Size)	Globe Replacement #
VSR-M (1")	91144801-A
VSR-M (1 1/2")	91144815-A
VSR-M (2")	91144802-A
VSR-M (2 1/2")	91144825-A
VSR-M (3")	91144803-A
VSR-M (4")	91144804-A
VSR-M (6")	91144806-A
VSR-M (8")	91144808-A

Optional: Cover Tamper Switch Kit, Potter no. 0090148

Replaceable Components: Retard/Switch Assembly, Potter #1029030