VSR-FE-2

Vane Type Waterflow Switch W/ Electronic Retard

Features

- 0-90 second field replaceable electronic time delay retard
- Easy to adjust electronic time delay
- Two DPDT (form C) contacts
- Weatherproof
- Easy to read wire terminal designations
- 5 year warranty



⚠ CAUTION

This device is not intended for applications in explosive environments.

Description

The Model VSR-FE-2 is a vane type waterflow switch for use on wet sprinkler systems. It is UL Listed and FM Approved for use on steel pipe; schedules 10 thru 40, sizes 2" thru 8" (50mm - 200mm).
The unit may also be used as a sectional waterflow detector on large systems.

The unit contains an output relay and an adjustable electronic retard. The relay is actuated when a flow of 10 gallons per minute (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 unit is enclosed in a weather/UV/flame resistant high impact composite plastic. 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 no. 5400775 for installation instructions of this switch.

Technical Specifications

Conduit Entrances	Two knockouts provided for 1/2" conduit
Contact Ratings	DPDT (Form C) 2 Amps at 30VDC or 125VAC resistive
Enclosure	Cover - Weather/UV/Flame Resistant High Impact Composite Base - Die-cast aluminum
Environmental Specifications	NEMA 4/IP54 Rated Enclosure suitable for indoor or outdoor use with factory installed gasket when used with appropriate conduit fitting. Temperature range: 40°F / 120°F, 4,5°C/49°C Non-corrosive sleeve factory installed in saddle.
Maximum Surge	18 FPS (5,5 m/s)
Minimum Flow for Alarm	10 GPM (38 LPM)
Power Requirements	STANDBY: 10 mA at 120VAC or 1.5 mA at 24VAC/DC ALARM: 40 mA at 120VAC or 35 mA at 24VAC/DC
Service Pressure	Up to 450 PSI (31 BAR)
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
Sizes Available	Schedules 10 thru 40, sizes 2" thru 8" (50mm thru 200mm

Installation

See Fig. 1. These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they should be installed on the top side of the pipe where they will be accessible. The units should not be installed within 6" (15cm) of a fitting which changes the direction of the waterflow or within 24" (60cm) of a valve or drain.

Drain the system and drill a hole in the pipe using a circular saw in a slow speed drill. The 2" and 2 1/2" (50mm and 65mm) devices require a hole with a diameter of 1 1/4" +1/8" -1/16" (33mm ± 2mm). All other sizes require a hole with a diameter of 2" ± 1/8" (50mm ± 2mm).

Clean the inside of the pipe of all growth or other material for a distance equal to the pipe diameter on either side of the hole.

Roll the vane so that it may be inserted into the hole; do not bend or crease it. Insert the vane so that the arrow on the saddle points in the direction of the waterflow. Install the saddle strap, washers, and nuts by alternately tightening nuts to sufficient levels to prevent leaking not to exceed 70ft-lb (95n-m). Note: Ensure saddle strap does not deform back of pipe. The vane must not rub the inside of the pipe or bind in any way.

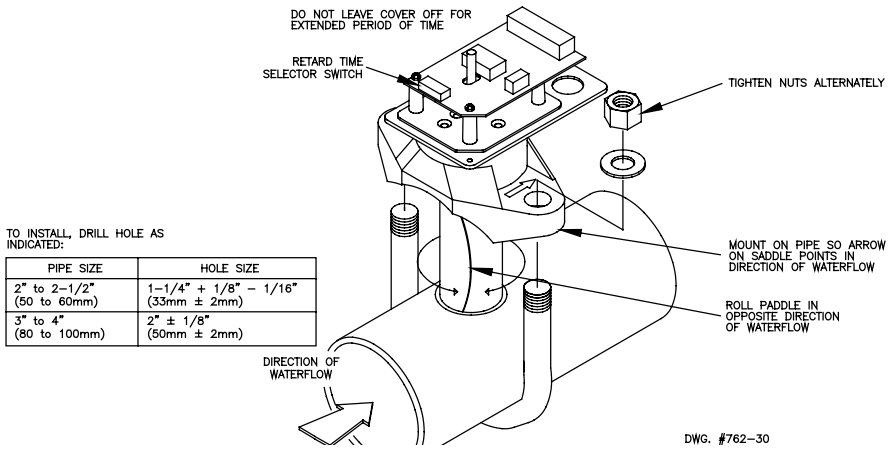
Retard Adjustment

The retard time is selected by turning the appropriate switches to the off position. Example: For 45 seconds turn switches 1, 2 and 3 to the off position.

Approximate time is as follows:

Switch Off	Time in Sec.
1 thru 8 On	0
1	15
1 & 2	30
1, 2, & 3	45
1, 2, 3, & 4	60
1, 2, 3, 4, & 5	75
1, 2, 3, 4, 5, & 6	90
7	not used
8	not used

Fig. 1

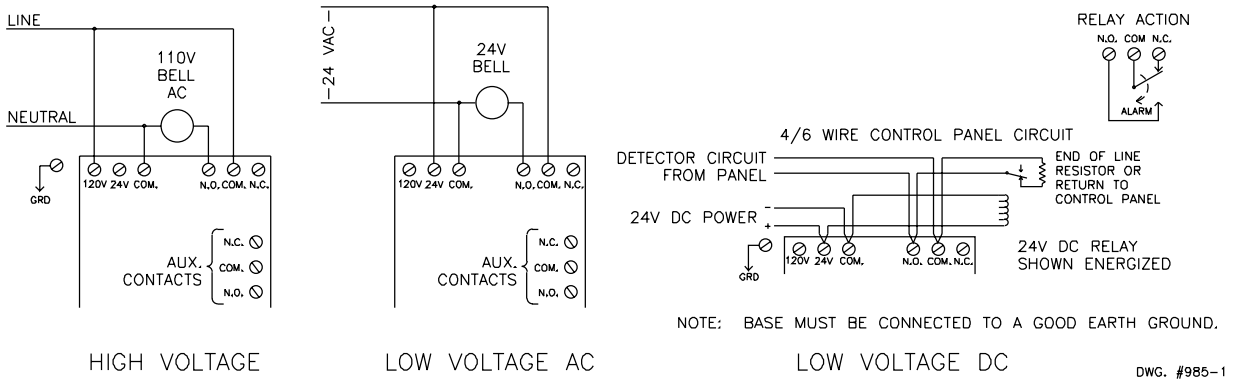


TO INSTALL, DRILL HOLE AS INDICATED:

PIPE SIZE	HOLE SIZE
2" to 2-1/2" (50 to 60mm)	1-1/4" + 1/8" - 1/16" (33mm ± 2mm)
3" to 4" (80 to 100mm)	2" ± 1/8" (50mm ± 2mm)

Typical Electrical Connections

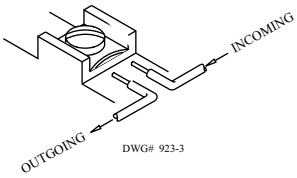
Fig. 2



NOTE: BASE MUST BE CONNECTED TO A GOOD EARTH GROUND.

Switch Terminal Connections Clamping Plate Terminal

Fig. 3



⚠ CAUTION

When supervised circuits are used the following must be observed: 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 becomes dislodged from under the terminal.

⚠ CAUTION

Due to the possibility of unintended discharges caused by pressure surges, trapped air, or short retard times, 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.

Testing

The operation of the waterflow switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently). If provided, the inspector's test valve, that is usually located at the end of the most remote branch line, should 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-FE-2 is not recommended or advisable.

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

Important Notice

Please advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the preceding section.

Ordering Information

Model	Description	Stock No.
VSR-FE2 2"	2" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116002
VSR-FE2 3"	3" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116003
VSR-FE2 4"	4" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116004
VSR-FE2 5"	5" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116005
VSR-FE2 6"	6" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116006
VSR-FE2 8"	8" WATER FLOW INDICATOR W/ ELECTRONIC RETARD	1116008
VSR-FE2 2.5"	2.5" WATER FLOW INDICATOR W/ELECTRONIC RETARD	1116025
VSR-FE2 3.5"	3.5" WATER FLOW INDICATOR W/ELECTRONIC RETARD	1116035

Optional: Cover Tamper Switch Kit, Stock No. 0090018