



U.S. Pat. No. 3921989, Canadian Pat. No. 1009680  
Other Patents Pending,  
Potter Electric, Rd., 1990

**UL, ULC, and CSFM Listed**

**Service Pressure:** Up to 450 PSI (31 BAR)

**Flow Required for Alarm:** 3.0 GPM (11,4 LPM)

**Maximum Surge:** 18 FPS (5,5 m/s)

**Power Requirements:**

STANDBY: 10ma at 120V AC or 1.5ma at 24V AC/DC

ALARM: 40ma at 120V AC or 35ma at 24V AC/DC

**Contact Ratings:** DPDT (Form C)

2 Amps at 0-30VDC or 0-125VAC resistive

**Conduit Entrances:** 2 knockouts provided for 1/2" conduit

**Environmental Specifications:**

- Suitable for indoor or outdoor use with factory installed gasket and die-cast housing.
- NEMA 4 Rated Enclosure - use with appropriate conduit fitting.
- Temperature Range: 40°F/120°F, 4,5°C/49°C
- Non-corrosive sleeve factory installed in saddle.

**Caution:** This device is not intended for applications in explosive environments.

**Nominal OD and Wall Thickness:**

2" (60,3mm OD), 3,9mm to 4,5mm wall

2 1/2" (73,0mm OD), 4,8mm to 5,2mm wall

2 1/2" (76,1mm OD), 4,3mm to 4,7mm wall

3" (88,9mm OD), 5,0mm to 5,6mm wall

4" (114,3mm OD), 5,4mm to 6,4mm wall

**Service use:** Water mist systems where low flow for alarm is required.

**Optional:** Cover Tamper Switch Kit, Stock No. 0090018

**General Information**

The Model VSG is a flexible vane type of waterflow switch for use in wet pipe water mist systems where a low flow for alarm is required. It is designed for installation in sections of 2 to 4 inch (50mm to 100mm) stainless steel or brass pipe with wall thickness in accordance with the above specifications (see "Nominal OD and Wall Thickness").

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 3 gallons per minute (11,4 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 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 no. 5400775 for installation instructions of this switch.

**Installation** See Fig. 1

These devices may be mounted on a 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" (50mm) and 2 1/2" (65mm) devices require a hole with a diameter of 1 1/4" +1/8" -1/16" (32mm ± 2mm). The 3" (80mm) and 4" (100mm) devices 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 and tighten nuts alternately to an eventual 20 ft-lbs. (27 n-m) of torque. See Fig. 1. 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

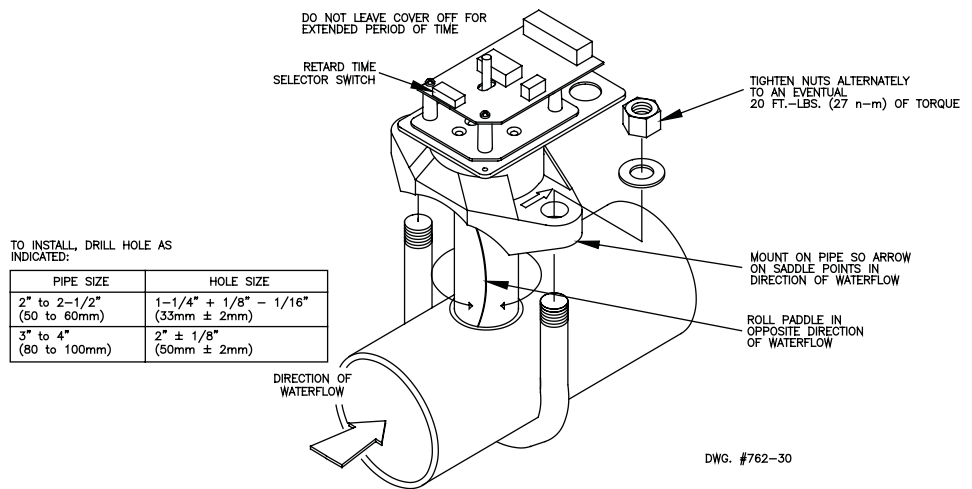


Fig. 2 Typical Electrical Connections

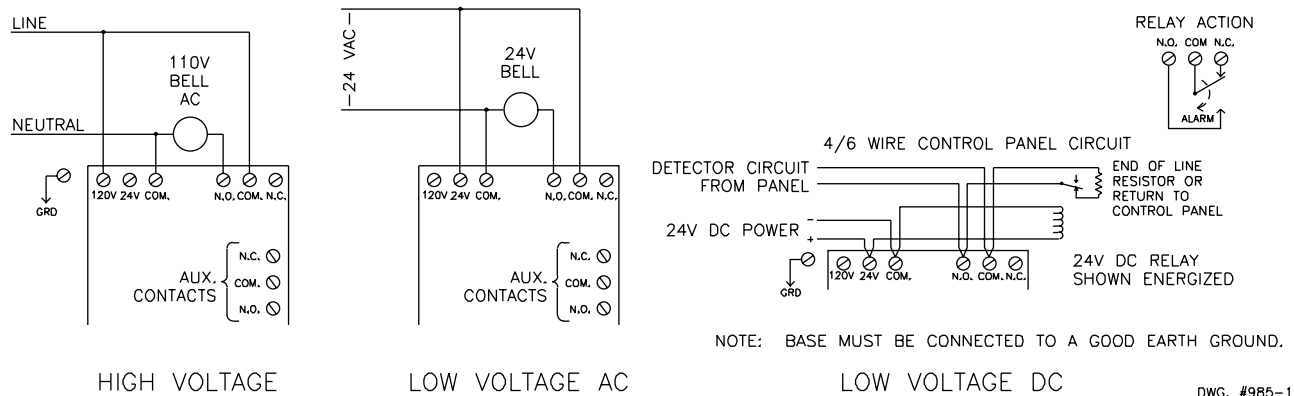
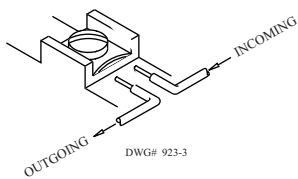


Fig. 3 Switch Terminal Connections Clamping Plate Terminal



### 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.

### Application Warning!

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 should not be used as the sole initiating device to discharge AFFF, deluge, or chemical suppression systems.

**Testing:** The operation of the waterflow switch and the associated alarms is to be tested upon completion of the installation and periodically thereafter in accordance with the applicable NFPA standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

A minimum flow of 3 GPM (11.4 LPM) is required to activate this device.