



**Fire-LITE® Alarms**  
INCORPORATED

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F-950

## **WFD 10/40** **Waterflow Detectors, 1" – 8"**

Section: Conventional Initiating Devices

### **GENERAL**

System Sensor **WFD** vane-type Waterflow Detectors detect the flow of water in wet pipe sprinkler pipes. The detectors provide a signal which can be used by **fire detection systems, fire control systems**, and auxiliary indicators when waterflow occurs. WFD Series detectors are used for wetpipe sprinkler systems that use ferrous (steel or black iron) piping, 1" lines and larger. Models are available to fit both Schedule 10 and Schedule 40 pipe, and for 1" and 1-1/2" copper pipe systems. WFD sprinkler equipment products are specifically designed to meet the stringent performance requirements of sprinkler and fire detection/alarm systems. The design of these devices emphasizes ease of installation and field maintenance.

### **FEATURES**

- Sealed retard.
- Visual switch activation.
- Rugged switch assembly.
- Heavy-duty aluminum pipe saddles.
- Durable metal enclosure.
- Rugged terminal block accommodates wires up to 12 AWG (3.25 mm<sup>2</sup>).
- Three-year limited warranty.
- Two SPDT synchronized switches.
- Tamper-resistant assembly.
- Optional tamper indicator.
- Steel U-bolts provide secure mounting.
- Impact-resistant cover protects mechanism.
- 1" through 8" models available.
- Schedule 10/40 pipe.
- Adjustable delay (0 to 70 seconds).
- SEMS clamping plate.
- Water resistant.
- Vertical or horizontal mounting.
- Adjustable pneumatic delay prevents false alarms due to water surges.
- Serviceable without draining pipe.
- Requires no power to operate sensing mechanism.
- Improved self-guiding security screws and removal tool.
- Useful for waterflow rates up to 15 feet per second (4.57 meters per second).

### **OPERATION**

Water flowing in the pipe deflects the WFD's vane, which operates a linkage to release the pneumatic delay shaft. The stop on the shaft then releases the switch levers at a rate determined by the presetting of the pneumatic delay mechanism. When the shaft and its stops have pulled far enough away, the spring operated switch levers actuate both SPDT switches, which each have NO and NC terminals that can be used to initiate an alarm or auxiliary indication.



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When water stops flowing, the vane is no longer deflected and a spring draws the actuator arm of the linkage back against the stops on the pneumatic delay shaft, closing the switch levers and returning the device to its normal condition. Observe switch activation with cover open.

The pneumatic delay mechanism is adjustable within a range of 0 to 70 seconds. It incorporates an automatic, noncumulative reset to accommodate a sequence of surges without acquiring an accumulated delay greater or less than the preset value. As shipped, the adjustment dial is set for a delay of 20-30 seconds; but any value within the 0- to 70-second range can be selected in the field.

### **APPLICATIONS**

WFDs are used in wetpipe sprinkler systems to signal waterflow of 4 to 10 GPM. The flow could be due to the opening of one or more sprinkler heads or test valves, or it could be due to leakage or rupture of the piping.

By the appropriate choice of installation sites, the WFDs can be used to signal general flow (installed in mains) or flow by zones (installed in branch lines). Either horizontal or vertical pipes can be utilized.

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact **Fire-Lite**. Phone: (203) 484-7161 FAX: (203) 484-7118



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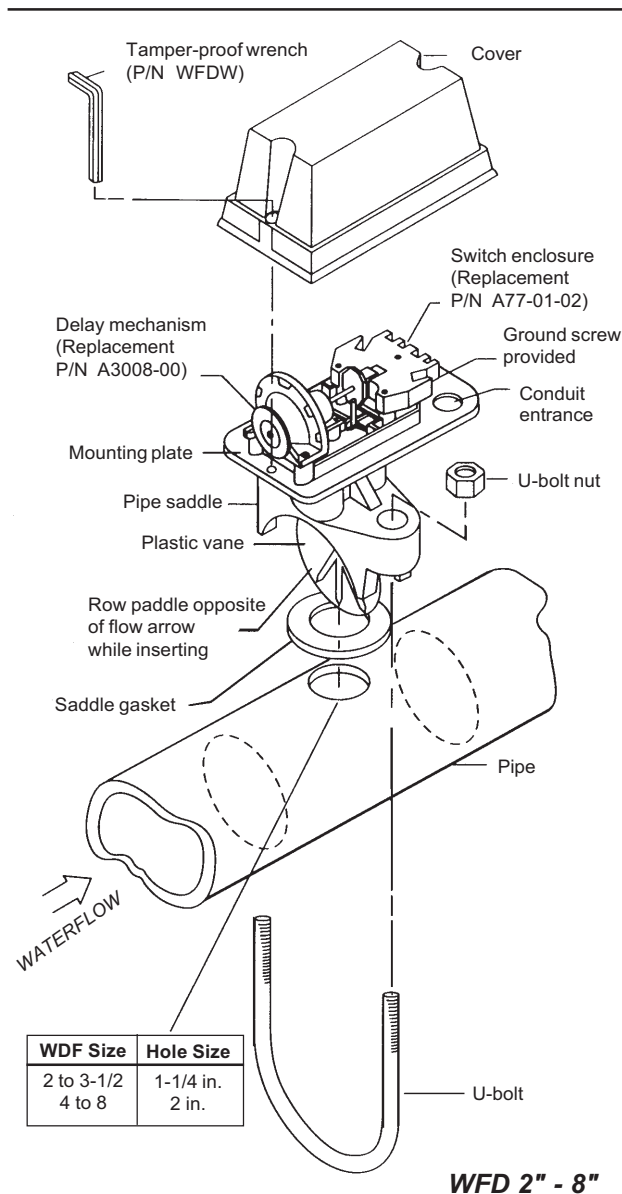
Common usages of WFDs include operating a bell or horn at the riser and signaling a control panel or master box.

If the WFDs are used at the upper limits of their temperature ranges, especially at a 100% duty cycle, their working life may be significantly shortened.

**CAUTION:** The vane and linkage of the WFD can be damaged by the sudden rush of water when the control valve opens. DO NOT use vane-type waterflow detectors in drypipe sprinkler systems, deluge systems, or pre-action systems. Use a pressure actuated detector on such systems instead.

## INSTALLATION

The details of proper location and the method of installing the detector on the pipe are contained in the installation sheet packed with each detector. Briefly, a properly centered hole is made in the drained pipe. The edges of the vane are squeezed together sufficiently to allow it to be inserted through the hole as the detector is set in place on the pipe. A U-bolt clamps the saddle of the detector against the pipe, sealing the O-ring around the hole to prevent leakage and securing the detector in place. Loop wiring is connected to the switches as appropriate. Tamper-resistant screws hold the cover in place over the mechanism to protect the device.



## PRODUCT LINE INFORMATION

MODEL	DESCRIPTION
WFD20	WFD Waterflow Detector, Schedule 10/40, 2"
WFD25	WFD Waterflow Detector, Schedule 10/40, 2-1/2"
WFD30	WFD Waterflow Detector, Schedule 10/40, 3"
WFD35	WFD Waterflow Detector, Schedule 10/40, 3-1/2"
WFD40	WFD Waterflow Detector, Schedule 10/40, 4"
WFD50	WFD Waterflow Detector, Schedule 10/40, 5"
WFD60	WFD Waterflow Detector, Schedule 10/40, 6"
WFD80	WFD Waterflow Detector, Schedule 10/40, 8"
WFDT	WFD Waterflow Detector, FITS: 1", 1-1/4", 1-1/2" ferrous and brass threaded tees; 1", 1-1/4", 1-1/2", 2" copper sweat tees; 1" CPVC tees; and 1-1/2" polybutylene tees.

546-7000	Tamper Switch Kit for WFD Detectors.
A3008-00	Timer Assembly for Waterflow Detectors, 2" to 8" sizes. Black.
WFDW*	Tamper-Proof Wrench for metal cover (WFD Detectors and WFDT).
WFDN4	NEMA-4 gasket kit for WFD Series.

\*Note: Master-packed, 6 waterflow detectors per box.

## CONSTRUCTION & OPERATION

### ELECTRICAL:

**Contact Ratings:** 10 A @ 125 VAC, 2.5 A @ 24 VDC.

### MECHANICAL:

**Triggering Threshold Bandwidth (Flow Rate):** 4 – 10 GPM, minimum.

### Mechanical Delay Adjustment:

Dial Setting	0	1	2	3	4	5
Seconds (±50%)	0	15	30	45	55	70

### Operating Temperature Ranges:

**Ambient Air:** 32°F to 120°F (0°C to 49°C).

**System Water:** 32°F to 100°F (0°C to 43°C).

**Major Component Materials:** aluminum saddle, steel u-bolt, cast aluminum mounting plate, epoxy painted metal cover, polyethylene vane.

### Overall Dimensions, Installed (HWD):

(P.D. +3.5" H) x (P.D. +3.0" W) x (6.7" D).

**Ambient Air Compatible Pipe:** Steel water pipe, Schedule 10/40 (copper models available).

**Static Pressure Rating:** 250 PSI maximum (2" – 8").

**Shipping Weight:** Varies from 4 lbs. to 7 lbs. (1.81 to 3.17 kg.) according to size.

## ENGINEERING SPECIFICATIONS

Vane-Type Waterflow Detectors shall be installed on system piping as designated on the drawings and/or as specified herein. Detectors shall mount on any clear pipe span of the appropriate nominal size, either a vertical or horizontal run, at least 6" (15.24 cm) from any fittings or valves which may change water direction, flow rate, or pipe diameter, or no closer than 24" (60.96 cm) to a valve or drain. The detector shall respond to waterflow in the specified direction after a preset time delay which is field adjustable. The actuation mechanism shall include a polyethylene vane inserted through a hole in the pipe and connected by a mechanical linkage to the delay mechanism. Outputs shall consist of 10 A (Dual SPDT Switches/Form-C Contacts). A conduit entrance for standard fittings of commonly used electrical conduit shall be provided on the detectors. All detectors shall be listed by Underwriters Laboratories, Inc., for indoor or outdoor use.