Data Sheet 2.41
Issue A

Explosion Proof Water Flow Detector
Fig. RDWFDEXP

General Description

The Rapidrop RDWFDEXP series is designed to handle extreme conditions, specifically crafted for environments with potentially explosive atmospheres. This specialized flow switch ensures safety by monitoring the flow of water. With its robust construction and sealed enclosure, it minimizes the risk of ignition, making it a reliable choice for high-risk environments.

Engineering Specifications

Vane-type, explosion-proof waterflow detectors shall be installed on system piping as specified herein. Detectors shall be mounted in hazardous locations classified as:
- Class I, Div. 1 and 2, Groups B, C, D; or
- Class II, Div. 1 and 2, Groups E, F, G; or
- Class III, Div. 1 and 2.

Detectors shall mount on any clear pipe span of the appropriate nominal size, either a vertical upflow or horizontal run, at least 6″ from any fittings which may change water direction, flow rate, or pipe diameter or no closer than 24″ from a valve or drain.
Detectors shall have a sensitivity in the range of 4 to 10 gallons per minute and a static pressure rating of 31 bar (450 psi) for 2″- 8″ pipes.
The detector shall respond to waterflow in the specified direction after a preset time delay that is field adjustable. The delay mechanism shall be a sealed mechanical pneumatic unit with visual indication of actuation. 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 dual SPDT switches (Form C contacts). Two conduit entrances (one of which is a knockout type) for standard fittings of commonly used electrical conduit shall be provided on the detectors. A grounding provision is provided.
Enclosures shall be NEMA 4 listed by Underwriters Laboratories Inc.
All detectors shall be listed by Underwriters Laboratories Inc. for indoor or outdoor use.

Features

- Designed and approved to operate in hazardous locations
- NEMA 4 enclosure rating
- Sensitivity-setting spring mechanism located outside of explosion environment
- Sealed retard mechanism
- Visual switch activation
- Synchronized activation circuit
- Field-replaceable terminal block and retard mechanism
- Only one conduit entrance required for hook-up

Robust Construction: The RDWFDEXP series consists of a rugged, NEMA 4-rated cast aluminum housing. Designed for both indoor and outdoor use, the RDWFDEXP series operates across a wide temperature range, from 32°F to 160°F. Inside, two sets of SPDT (Form C) synchronized switches are enclosed in a rugged terminal block to assure reliable performance.

Consistent Performance: The RDWFDEXP series offers unique features that assure greater operational reliability. By housing the spring mechanism separately from the explosion environment, the sensitivity of the adjustment spring and the detector is protected at all times. Adding to RDWFDEXP's reliability is its sealed retard mechanism, which prevents contamination by dust and dirt when the cover is removed.

Simplified Operation: Like all Rapidrop waterflow detectors, the RDWFDEXP series is designed for easy installation. With its visible switch activation, the RDWFDEXP's retard timing can be verified, even during noisy conditions.

Approvals

UL Listed, FM Approved

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Fig. RDWFDEXP

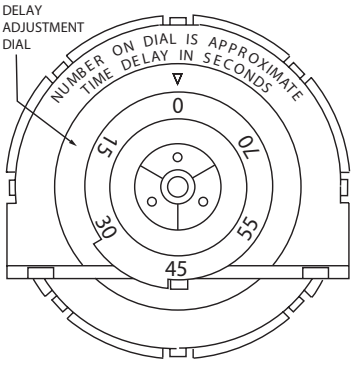
Standard Specifications

Static Pressure Rating	31 bar (450 psi)
Maximum Surge	5.5 m/s (18 ft/s)
Triggering Threshold Bandwidth (Flow Rate)	15.1 - 37.9 lpm (4 - 10 US gpm)
Conduit Entrances	Two openings for ½" conduit
Contact Ratings	Two sets of SPDT (Form C)10.0 A @ 125/250V AC 2.5 A @ 6/12/24V DC
Compatible Pipe	Steel water pipe, schedule 10 through 40
Operating Temperature Range	0°C to 49°C (32°F to 120°F)
Enclosure Rating*	NEMA 4 – suitable for indoor/outdoor use
Service Use	Automatic Sprinkler: NFPA-13 National Fire Alarm Code: NFPA-72

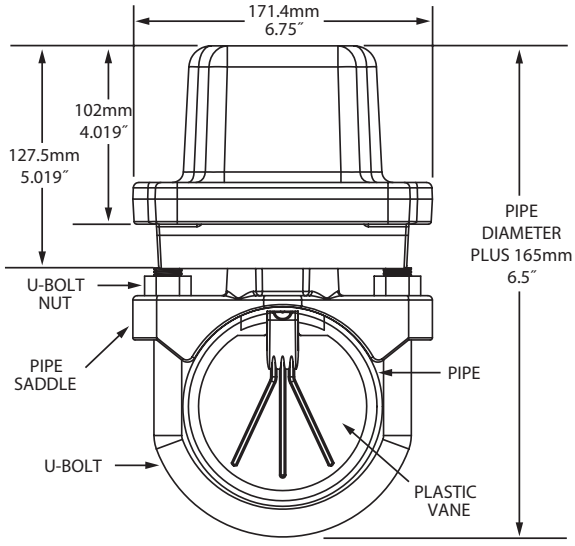
Sizes

Model	Pipe Size	Hole Size
RDWFD20EXP	DN50 (2")	31.8 mm (1¼")
RDWFD25EXP	DN65 (2½")	31.8 mm (1¼")
RDWFD30-2EXP	DN80 (3")	50.8 mm (2")
RDWFD40EXP	DN100 (4")	50.8 mm (2")
RDWFD50EXP	DN125 (5")	50.8 mm (2")
RDWFD60EXP	DN150 (6")	50.8 mm (2")
RDWFD80EXP	DN200 (8")	50.8 mm (2")

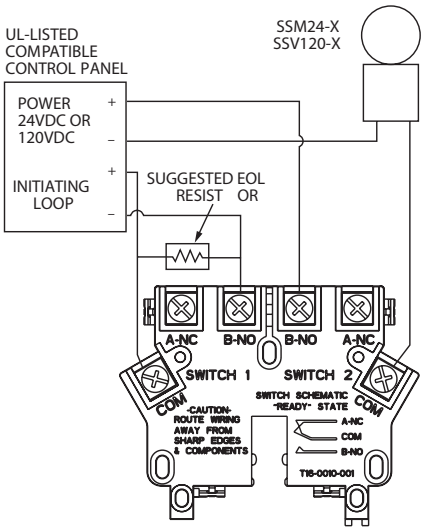
Delay Adjustment Dial



RETARD TIME MAY EXCEED 90 SECONDS. ADJUST AND VERIFY THAT TIME DOES NOT EXCEED 90 SECONDS. NUMBER ON DIAL IS APPROXIMATE TIME DELAY IN SECONDS WITH AN ACCURACY OF ± 50%



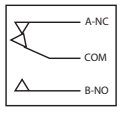
Field Wiring Diagram



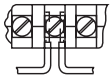
NOTE: COMMON AND B-NO CONNECTIONS WILL CLOSE WHEN VANE IS DEFLECTED, I.E., WHEN WATER IS FLOWING. DUAL SWITCHES PERMIT APPLICATIONS TO BE COMBINED ON A SINGLE DETECT OR.

CONTACT RATINGS	
125/250VAC	10 AMPS
24 V DC	2.5 AMPS

SCHEMATIC OF INDIVIDUAL SWITCH IN "NO WATERFLOW" CONDITION



BREAK WIRE AS SHOWN FOR SUPER VISION OF CONNECTION. DO NOT ALLOW STRIPPED WIRE LEADS TO EXTEND BEYOND SWITCH HOUSING. DO NOT LOOP WIRES.



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