Water Flow Detector
Fig. RDWFDR-2

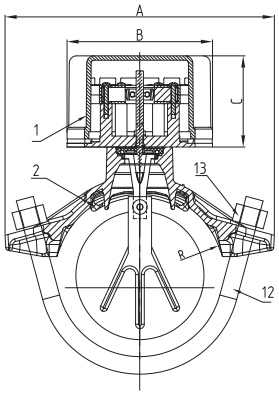
Product Description

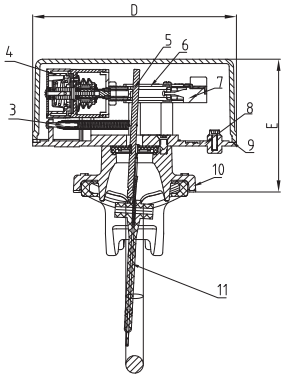
The water flow detector with delay timer (RDWFDR-2) is designed according to UL346 and FM1024.

The water flow detector is an important part of the automatic sprinkler system, usually installed in the riser pipe or branch pipe of the system piping. When the vane detects the water flow, it will send a signal to the Alarm Panel (after the preset delay) which will Indicate the Fire Zone & start the Fire Pump.

Features

- Adjustable delay function. Adjust with rotating switch, accurate adjustable time within 0~90 seconds, high reliability.
- Air delay device with miniature bearing. Time consistency and reliability are assured
- Adjustable spring design. Convenient sensitivity adjustment, easy maintenance.
- Double micro switch design. One end can be used to operate the central control room, and the other end can be used to connect the alarm apparatus.
- Surface treatment. Red epoxy coating, high corrosion resistance performance





Standards

- Standard for installation of sprinkler system NFPA-13
- One and two - family dwellings and manufactured homes installation of sprinkler systems NFPA-13D
- Standard for the installation of sprinkler system in low rise residential occupancies NFPA-13R
- National fire alarm code NFPA-72

Specifications

Applicaion	Fire Protection System
Sizes	DN50 - 2" to DN250 - 10"
Working Pressure	DN50 - 2" ~ DN200 - 8": 25bar (365psi) DN250 - 10": 20.7bar (300psi)
Flow Sensitivity Range	15 - 37.5 lpm
Temperature Range	0°C - 68°C (32°F - 154°F)
Fluid	Water
Contact Rating	125/250VAC 5A 24/30DC 3A

Material Specifications

Part No.	Part	Material
1	Cover	ASTM B85-96 383.0E
2	Rubber Gasket	EPDM
3	Spring	SS304
4	Air Delay Device	PC GV3410R
5	Stem Sealing Gasket	SS304 + NBR
6	Connecting Rod	POM 500P
7	Micro-Switch	PC GV3410R
8	Connection Plate	ASTM B85-96 383.0E
9	Connection Plate Seal	NBR
10	Saddle	ASTM A536 65-45-12
11	Vane	PTFE
12	U-Bolts	Carbon Steel Zinc Plated
13	Nuts	Carbon Steel Zinc Plated

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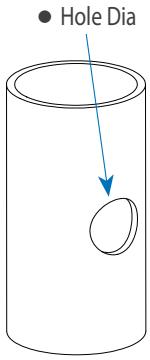
Fig. RDWFDR-2

Dimensions

Size		R	A	B	C	D	E	Hole Dia.
mm	inch							
DN50 (60.3mm)	2"	30.2	116	100	59.5	140	79.5	29
DN65 (73.0mm)	2 1/2"	36.5	120	100	59.5	140	79.5	29
DN65 (76.1mm)	2 1/2"	38.1	120	100	59.5	140	79.5	29
DN80 (88.9mm)	3"	44.5	145	100	59.5	140	80.9	51
DN100 (114.3mm)	4"	57.2	185	100	59.5	140	98.5	51
DN125 (139.7mm)	5"	69.9	212	100	59.5	140	82.6	51
DN125 (141.3mm)	5"	70.7	212	100	59.5	140	82.6	51
DN150 (165.1mm)	6"	82.6	254	100	59.5	140	90.4	51
DN150 (168.3mm)	6"	84.2	254	100	59.5	140	90.4	51
DN200 (219.1mm)	8"	109.6	298	100	59.5	140	90.5	51
DN250 (273.0mm)	10"	136.5	381	100	59.5	140	94	70



1. Pipe Size

Size		Pipe Wall Thickness (mm)			Hole Dia.
mm	inch	ASME B36.1 Sch 10	ASME B36.1 Sch 40	BS1387	
DN50 (60.3mm)	2"	2.7	3.9	3.6	29
DN65 (73.0mm)	2 1/2"	3.1	5.2	--	29
DN65 (76.1mm)	2 1/2"	--	--	3.6	29
DN80 (88.9mm)	3"	3.1	5.5	4	51
DN100 (114.3mm)	4"	3.1	6	4.5	51
DN125 (139.7mm)	5"	--	--	5	51
DN125 (141.3mm)	5"	3.4	6.6	--	51
DN150 (165.1mm)	6"	--	--	--	51
DN150 (168.3mm)	6"	3.4	7.1	5	51
DN200 (219.1mm)	8"	3.8	8.2	6.3	51
DN250 (273.0mm)	10"	4.2	9.3	--	70

2. Caution

2.1 Please read the instructions carefully before installation, any damage caused by improper installation void manufacturer warranty.

2.2 Before installation, check the nominal diameter, nominal pressure, temperature range and fluid of the water flow detector.Do not install if the technical specification of the water flow detector don't match the requirement of the pipe system.

2.3 Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.

2.4 The water flow detector can be mounted on horizontal or vertical pipe. On horizontal pipe the water flow detector should be at the top of the pipe or side of the pipe, not at the bottom of the pipe. On vertical pipe it should be mounted in the direction of the flow. Direction of waterflow has to be upward only.

2.5 The pipe length before and after the water flow detector must be minimum 5 times the pipe diameter. Water flow detector size should match the Pipe Diameter.

2.6 The water flow direction must be same as the arrow direction, must not be installed in opposite direction.

2.7 Leave enough space for easy installation and maintenance.

2.8 To avoid shock / injury, turn off electrical power before installation or maintenance.

2.9 Not to be used in inflammable and explosive environment.

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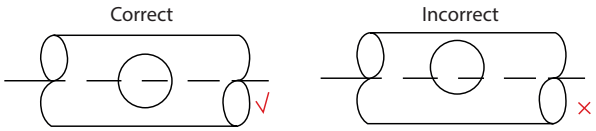
3. Installation

3.1 Hole Cutting

a. Hole Cutting Size

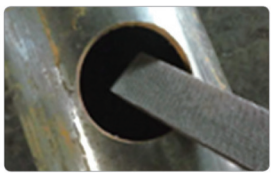
Size	Hole Dia.
DN50 & DN65	29 (±2)
DN80, DN100, DN125, DN125, DN150 & DN200	51 (±2)
DN250	70 (±2)

b. Hole position: Hole must be drilled perpendicular to the pipe and vertically centred, otherwise, the vane may not have enough space to move which can affect its functioning. The surrounding part around the hole must be smooth, no sunken or bulge.

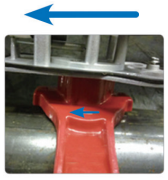


Caution: remove all the debris in the pipe to avoid pipe blockage.

3.2 Grinding:
Deburrs to make the hole edge smooth.
Caution: clean the pipe of any foreign materials after grinding.

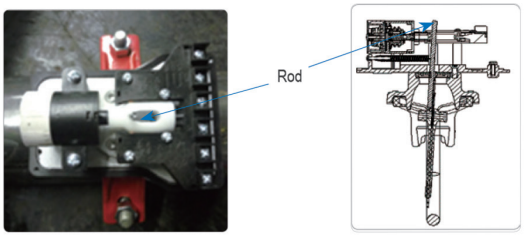


3.3 Installation



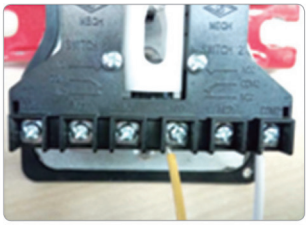
a. Select the correct water flow detector corresponding to the pipe diameter.
b. Check the direction of the water flow, make sure the arrow direction on the saddle matches the water flow direction.
Caution: the arrow direction must be same as the water flow direction, otherwise, the water flow detector cannot start and function properly.
C. Roll the vane, insert the vane into the hole, press the locating slot into the hole, make sure the rubber gasket is in the locating slot.
Caution: when installed horizontally, the water flow detector should be at the top of the pipe or side of the pipe, not at the bottom of the pipe.

3.4 Fasten the Bolts

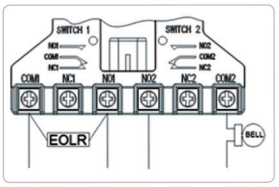


a. Mount the U-bolts, fasten the nuts alternately, keep the sealing surface between saddle and pipe evenly.
b. Switch the rod to verify if the vane can be active or not. If the vane acts slowly, perform above steps again.
Caution: do not exert force to the switch while fastening, else it may damage the switch.

3.5 Wiring



Typical electrical connection:



The water flow detector (RDWFDR-2) has two switches, one can be used to operate a central control station, proprietary or remote signalling unit, while the other contact is used to operate a local audible or visual annunciator.
Caution: Cut off the power source when wiring, 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, not exposed outside.

3.6 Cover the Shell
Cover the shell, fasten the bolts

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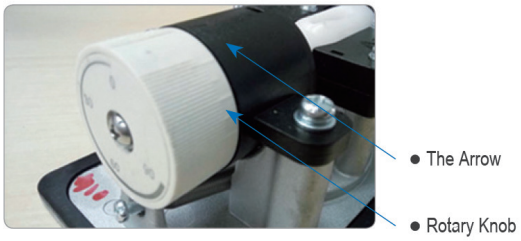
4. Adjustment



Delay Function Adjustment

4.1 The original delay is set to 30 seconds. To adjust the time, rotate the rotary knob to make sure the arrow direct to the scale, turn the knob clockwise to increase time and anticlockwise to reduce the time.

4.2 The unit of the scale is second, the accuracy is 50%.

Caution: The delay time must not exceed 90 seconds when adjusting the rotary knob.

5. Operation Test

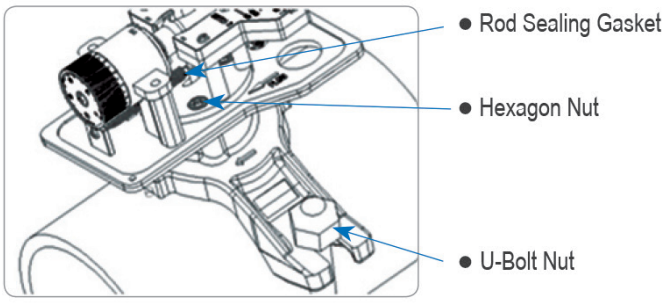
5.1 System full of water, check if there's leakage around the water flow detector, verify the leakage position.

a. Leakage between the connecting plate and the saddle.:
Open the cover, fasten the hexagon nuts.

b. Leakage between the saddle and pipe:
Fasten the U-bolts alternately, make sure the sealing surface is even & uniform.

c. Leakage from the rod sealing gasket:
Contact the customer service agent to replace the rod sealing gasket.

If leakage found except for a, b, and c, drain the water in the system, remove the saddle, check if there's other material or debris under the sealing gasket, make sure the pipe should be no defects of bulge or sunken, then install again.



6. Removal

For replacement / maintenance of water flow detector:

a. Turn off electrical power, drain the water of the pipe.

b. Loosen the two nuts to remove the U-bolts.

c. Lift the saddle far enough to get your fingers under it. With your fingers, roll the vane so it will fit through the hole while continuing to lift the water flow detector.

Caution: inspect and make sure the vane lifts from the pipe, otherwise will block the pipe.

Maintenance and Service

1. Quarterly Inspection:

a. Inspection requirement: appearance and marking inspection, function of the start and reset of the water flow detector; accuracy of signal delivery.

b. Inspection operation: check the appearance of the water flow detector; open the test & drain assembly and test valve of the floor, and verify the signal action of the water flow detector from the fire control equipment; close the test & drain assembly and test valve, and verify the signal reset of the water flow detector from the fire control equipment.

2. When the water flow detector is damaged from fire or other causes, replace for a new one immediately.

3. The retard and switch assembly are easily replaceable at field. Contact the sales agent if there is problem with any parts.

Transportation and Storage

1. During transportation, take care to prevent violent vibration, throwing, collision, etc., and with proper protection from rain or chemical erosion.

2. When receiving the water flow detectors, check and confirm if there's damage during transportation, and put them on the ground carefully.

3. The water flow detector should be stored in a clean, dry, well-ventilated place with non-corrosive environment.

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