WFDEN Series Waterflow Detector

The System Sensor WFDEN series is compatible with pipe diameters ranging from 50mm through 200mm and can be mounted in a vertical or horizontal position.

Features

- Compliant with Construction Products Regulation
- New directional cover allows installers and inspectors to easily see the direction of flow.
- European models are IP56 rated
- New cover provides a better seal, is lighter weight, not painted and corrosion resistant.
- Sealed retard mechanism immune to dust and other contaminants
- Less exposed metal reduces shock hazard, plastic cover acts as insulator and is resistant to arcing.
- Visual switch activation
- Audible switch activation (73 dBA)
- Field-replaceable timer/switch assembly.
- Accommodates up to 12 AWG wire
- 100 percent synchronization activates both alarm panel and local bell or horn strobe.
- Tamper-resistant cover screws
- Improved water sealing
- Reduced product weight
- Wire-ready terminals
- Improved wiring with new terminal block layout
- Snap-in optional cover tamper switch
- Timer repeatability
- Dial accuracy

Agency Listings

VdS  CE  FM  LPCB

The new WFDEN Series waterflow detectors from System Sensor consists of a rugged, IP56-rated enclosure that is more damage resistant than previous metal designs. The waterflow detector is designed for both indoor and outdoor use, with the widest available temperature range, from 0°C to 68°C (32°F to 55°F).

Models are equipped with tamper-resistant cover screws to prevent unauthorized entry. Inside, two sets of SPDT (Form C) synchronized switches are enclosed in a durable terminal block with new layout designed to make wiring easy with wire ready terminals. COM terminals are on a different elevation, large barrier between switches and easy to read raised textured lettering all make wiring easy. An optional cover tamper switch is available, securely snaps into place, no tools required.

The WFDEN series incorporates a mechanical time delay feature, which minimizes the risk of false alarm due to pressure surges or air trapped in the fire sprinkler system. The larger and easy to turn timer dial makes setting the waterflow detector easy with high contrast pad printed markings and three tabs to help with turning.

The WFDEN series is designed for accuracy and repeatability. The detector also offers improved performance during vibration in riser applications where detectors are exposed to a large in rush of water.
Waterflow Detector Specifications

Engineering Specifications

Vane-type airflow detectors shall be installed on system piping as designated on the drawing and/or as specified herein. Detectors shall mount on any clear pipe span of the appropriate nominal size, either a vertical upflow or horizontal run, at least 15 cm (6 in) from any fittings that may change water direction, flow rate, or pipe diameter or no closer than 61 cm (24 in) from a valve or drain. The detector shall respond to airflow 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 and audible indication of actuation. The actuation mechanism shall include an ethylene vinyl acetate 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 for standard fittings of commonly used electrical conduit shall be provided on the detectors. A grounding provision is provided. Unless noted, enclosures shall be IP56-rated. All detectors shall be Factory Mutual for indoor or outdoor use.

Standard Specifications

<table>
<thead>
<tr>
<th>Static Pressure Rating</th>
<th>Operating Temperature Range</th>
<th>Enclosure Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPC: 17.25 BAR (250 PSI)</td>
<td>32°F to 120°F (0°C to 49°C)</td>
<td>IP56</td>
</tr>
<tr>
<td>VdS: PN16 (16 BAR, 232 PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Surge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Feet Per Second (FPS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduit Entrances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two openings 22.2 mm (.875 in.) diameter, NEMA 4 rated plugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two sets of SPDT (Form C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0 A, ½ HP @ 125/250 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 A @ 6/12/24 VDC</td>
<td></td>
<td></td>
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</table>

Cover Tamper Switch

<table>
<thead>
<tr>
<th>Warranty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard with ULC models, optional for UL and European models, part no. CTS</td>
</tr>
<tr>
<td>3 Years</td>
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</table>

Compatible Pipe

<table>
<thead>
<tr>
<th>Model</th>
<th>Ref. Pipe Size mm (in.)</th>
<th>Triggering Flow Rate</th>
<th>Nominal Pipe O.D. (mm) LPC</th>
<th>Nominal Pipe O.D. (mm) VdS</th>
<th>Wall Thickness (mm) LPC</th>
<th>Wall Thickness (mm) VdS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFD20EN</td>
<td>50 (2)</td>
<td>47</td>
<td>60.3</td>
<td>60.3</td>
<td>3.6</td>
<td>2.3/2.9</td>
</tr>
<tr>
<td>WFD25EN</td>
<td>65 (2½)</td>
<td>49</td>
<td>76.0</td>
<td>76.1</td>
<td>3.6</td>
<td>2.6/2.9</td>
</tr>
<tr>
<td>WFD30EN</td>
<td>80 (3)</td>
<td>47</td>
<td>88.8</td>
<td>88.9</td>
<td>4.0</td>
<td>2.9/3.2</td>
</tr>
<tr>
<td>WFD40EN</td>
<td>100 (4)</td>
<td>53</td>
<td>114.1</td>
<td>114.3</td>
<td>4.5</td>
<td>3.2/3.6</td>
</tr>
<tr>
<td>WFD60EN</td>
<td>150 (6)</td>
<td>55</td>
<td>165.1</td>
<td>168.3</td>
<td>5.0</td>
<td>4.0/4.5</td>
</tr>
<tr>
<td>WFD80EN</td>
<td>200 (8)</td>
<td>64</td>
<td>219.1</td>
<td>219.1</td>
<td>6.3</td>
<td>4.5/5.9</td>
</tr>
</tbody>
</table>

WFDEN 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 DETECTOR.

CONTACT RATINGS

| 125/250 VAC | 10 AMPS |
| 24 VDC | 2.5 AMPS |

SCHEMATIC OF INDIVIDUAL SWITCH IN "NO WATERFLOW" CONDITION

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

UL-LISTED COMPATIBLE CONTROL PANEL

POWER 24VDC OR 120VAC

INITIATING LOOP

SUGGESTED EOL RESISTOR

SSM24-X SSV120-X

SWITCH IN READY STATE

A-NC B-NO A-NC B-NO

COM COM

SW 1 SW 2

CONTACT RATING

A-NC COM B-NO
Delay Adjustment Dial

NOTE: NUMBER ON DIAL IS APPROXIMATE TIME DELAY IN SECONDS.

Overall Dimensions, Installed

OVERALL WIDTH = PIPE DIAMETER + 6.4 CM (2.5")
## Ordering Information

<table>
<thead>
<tr>
<th>UL Model</th>
<th>Pipe Size</th>
<th>Hole Size</th>
<th>Torque Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFD20EN</td>
<td>50mm (2 in.)</td>
<td>31.8mm (1¼ in.)</td>
<td>40.7 - 47.5 NT-M (30 - 35 FT-LBS)</td>
</tr>
<tr>
<td>WFD25EN</td>
<td>65mm (2½ in.)</td>
<td>31.8mm (1¼ in.)</td>
<td>40.7 - 47.5 NT-M (30 - 35 FT-LBS)</td>
</tr>
<tr>
<td>WFD30EN</td>
<td>80mm (3 in.)</td>
<td>50.8mm (2 in.)</td>
<td>61.6 - 67.8 NT-M (45 - 50 FT-LBS)</td>
</tr>
<tr>
<td>WFD40EN</td>
<td>100mm (4 in.)</td>
<td>50.8mm (2 in.)</td>
<td>61.6 - 67.8 NT-M (45 - 50 FT-LBS)</td>
</tr>
<tr>
<td>WFD60EN</td>
<td>150mm (6 in.)</td>
<td>50.8mm (2 in.)</td>
<td>61.6 - 67.8 NT-M (45 - 50 FT-LBS)</td>
</tr>
<tr>
<td>WFD80EN</td>
<td>200mm (8 in.)</td>
<td>50.8mm (2 in.)</td>
<td>61.6 - 67.8 NT-M (45 - 50 FT-LBS)</td>
</tr>
</tbody>
</table>

## Accessories

- CTS: Tamper-proof switch kit
- WFDW: Tamper-proof wrench for cover

*Maximum pressure rating 400 psi as approved by Factory Mutual.*
EPS10-1 and EPS10-2
Alarm Pressure Switches

EPS10 Series switches are designed for use in wet, dry, deluge, and pre-action automatic sprinkler systems to indicate a discharge from a sprinkler.

Features
- Sensitivity adjustment wheel, no special tools required
- Reinforced diaphragm resists pressure spikes
- Two conduit entrances
- Both one- and two-switch models available

The EPS10-1 has a single SPDT switch while the EPS10-2 model contains two SPDT switches. The EPS10 Series features field adjustable pressure sensitivity to provide an alarm response between 4 and 20 psi. It is factory set to respond at 4 – 8 psi on rising or falling pressure. The pressure adjustment wheel requires no special tools and does not affect switch synchronization on the EPS10-2. The EPS10 Series switches are NEMA 4 rated.

Agency Listings

Specifications, EPS10-1 and EPS10-2
Architectural/Engineering Specifications EPS10-1 (SPDT), EPS10-2 (2/SPDT)
Model shall be an EPS10-1 or EPS10-2 pressure type workflow switch as manufactured by System Sensor of St. Charles, IL. They shall be installed on the sprinkler system with connection as shown on the drawings and/or as specified herein. Pressure switches shall be of the bellows-activated type. Switches shall have a maximum service pressure rating of 300 psi and shall be factory adjusted to operate at a pressure of 4 – 8 psi. There shall be one (1) or two (2) SPDT contacts rated at 10.0 Amp @ 125/250 VAC and 2.5 Amp @ 6/12/24 VDC. The contractor shall furnish and install, where indicated on the plans, pressure switches according to appropriate NFPA standards. Switches shall be provided with a ½” NPT male pressure connection to be connected to the alarm check valve of a “wet” sprinkler system, into the intermediate chamber of a “dry” system, or to a pre-action or deluge valve. They shall be activated by any flow of water equal to or in excess of the discharge from one sprinkler head. Switches shall provide 1 knockout type and 1 open hole for ½” conduit fitting attachment and a ground screw provision for electrical grounding. The switch enclosure shall be weatherproof and carry a UL 4x/NEMA 4 rating when used with proper electrical fittings and conduit. The cover shall incorporate tamper-resistant screws. The unit shall be listed by Underwriters Laboratories, Inc. and approved by Factory Mutual.
## Specifications, EPS10-1 and EPS10-2 (continued)

| Physical/Operating Specifications | Operating Temperature Range | Indoor or outdoor use:  
-40°F to 160°F (-40°C to 71°C) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Operating Pressure</td>
<td>Cover Tamper Switch</td>
<td>UL Models: Optional P/N 546-8000</td>
</tr>
<tr>
<td>Maximum Adjustment Pressure Range</td>
<td>Enclosure</td>
<td>ULC Models: Factory Installed</td>
</tr>
<tr>
<td>Differential</td>
<td>Shipping Weight</td>
<td>Rated UL 4x, NEMA 4 for indoor or outdoor use</td>
</tr>
<tr>
<td>Factory Setting</td>
<td>Service Use</td>
<td>1.2 lbs. (.54 Kg)</td>
</tr>
<tr>
<td>Switch Contact Ratings</td>
<td></td>
<td>Automatic Sprinkler: NFPA 13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One or Two Family Dwelling: NFPA 13D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residential Occupancies up to 4 Stories: NFPA 13R</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National Fire Alarm Code: NFPA 72</td>
</tr>
<tr>
<td>Pressure Connection</td>
<td>Warranty</td>
<td>3 years</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td>5.12”H x 3.325”W x 4.250”L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(13.0 cm x 8.4 cm x 10.8 cm)</td>
</tr>
</tbody>
</table>

### Typical Sprinkler Applications

- **WET SYSTEM**
  - EPS10-1: One set SPDT (Form C)
  - EPS10-2: Two sets SPDT (Form C)
  - 10.0 A, ½ HP @ 125/250 VAC
  - 2.5 A @ 6/12/24 VDC

- **DRY SYSTEM**

### Pressure Switch Basic Dimensions

![Pressure Switch Basic Dimensions](image)

### Electrical Connections

- **MODEL EPS10-1**
  - Switch at 0 PSI
  - Switch at 4-8 PSI (High Trip Pt.)
  - BOTH SWITCHES ACTIVATE SIMULTANEOUSLY

- **MODEL EPS10-2**
  - Switches at 0 PSI
  - Switches at 4-8 PSI (High Trip Pt.)

### Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS10-1</td>
<td>Alarm Waterflow Pressure Switch, One SPDT, 4–20 PSI</td>
</tr>
<tr>
<td>EPS10-2</td>
<td>Alarm Waterflow Pressure Switch, Two SPDT, 4–20 PSI</td>
</tr>
<tr>
<td>EPSA10-1</td>
<td>ULC/Canadian Version</td>
</tr>
<tr>
<td>EPSA10-2</td>
<td>ULC/Canadian Version</td>
</tr>
</tbody>
</table>

### Replacement Parts

- S07-66-02 Replacement Tamper Screws for Cover of EPS
- WFDW Replacement Tamper Proof Wrench for Cover of EPS
- 546-8000 Cover Tamper Switch for EPS Series
EPS40-1 and EPS40-2 Supervisory Pressure Switches

System Sensor EPS40 Series switches are designed for use in dry pipe systems or pressure tanks and water pressure supplies of automatic water control valves.

Features
- Sensitivity adjustment wheel, no special tools required
- Reinforced diaphragm resists pressure spikes
- Two conduit entrances
- Both one- and two-switch models available

Agency Listings

The EPS40-1 has a single SPDT switch while the EPS40-2 model contains two SPDT switches. The EPS40 Series features field adjustable pressure sensitivity to provide an alarm response between 10 and 100 psi. All models are factory set for use in a nominal 40 psi system. The EPS40-1 is factory set to respond at 30 psi at decreasing pressure while the EPS40-2 is factory set to respond at 50 psi on rising pressure and 30 psi at decreasing pressure. The pressure adjustment wheel requires no special tools and does not affect switch synchronization on the EPS40-2. The EPS40-1 and EPS40-2 supervisory pressure switches are NEMA 4 rated.

Specifications, EPS40-1 and EPS40-2

Architectural/Engineering Specifications EPS40-1 (SPDT), EPS40-2 (2/SPDT)
Model shall be an EPS40-1 or EPS40-2 pressure type workflow switch as manufactured by System Sensor of St. Charles, IL. They shall be installed on the sprinkler system with connection as shown on the drawings and/or as specified herein. Pressure switches shall be of the bellows-activated type. Switches shall have a maximum service pressure rating of 300 psi and shall be adjustable from 10 – 100 psi. There shall be one (1) or two (2) SPDT contacts rated at 10.0 Amp @ 125/250 VAC and 2.5 Amp @ 6/12/24 VDC. The contractor shall furnish and install, where indicated on the plans, pressure switches according to appropriate NFPA standards. Switches shall be provided with a \( \frac{1}{2} \) \text{\textnormal{NPT}} \) male pressure connection to be connected into the air supply line on the system side of any shut-off valve. Switches shall provide 1 knockout type and 1 open hole for \( \frac{1}{4} \) \text{\textnormal{conduit fitting attachment}} \) and a ground screw provision for electrical grounding. The switch enclosure shall be weatherproof and carry a UL 4x/NEMA 4 rating when used with proper electrical fittings and conduit. The cover shall incorporate tamper-resistant screws. The unit shall be listed by Underwriters Laboratories, Inc., the California State Fire Marshal, MEA, CSFM, LPCB, VdS and approved by Factory Mutual.
Specifications, EPS40-1 and EPS40-2 (continued)

<table>
<thead>
<tr>
<th>Physical/Operating Specifications</th>
<th>Operating Pressure</th>
<th>Operating Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Operating Pressure</td>
<td>300 psi</td>
<td>-40°F to 160°F (−40°C to 71°C)</td>
</tr>
<tr>
<td>Maximum Adjustment Pressure Range</td>
<td>10 to 100 psi</td>
<td></td>
</tr>
<tr>
<td>Differential</td>
<td>Approximately 3 psi @ 10 psi, 6 psi @ 100 psi</td>
<td></td>
</tr>
<tr>
<td>Factory Setting</td>
<td>EPS40-1 operates at decreasing pressure at 30 psi</td>
<td>EPS40-2 operates at increasing pressure at 50 psi and decreasing pressure at 30 psi</td>
</tr>
<tr>
<td>Switch Contact</td>
<td>EPS10: One set SPDT (Form C)</td>
<td>EPS10-2: Two sets SPDT (Form C)</td>
</tr>
<tr>
<td>Ratings</td>
<td>10.0 A, ½ HP @ 125/250 VAC</td>
<td>2.5 A @ 6/12/24 VDC</td>
</tr>
<tr>
<td>Service Use</td>
<td>Automatic Sprinkler: NFPA 13</td>
<td>One or Two Family Dwelling: NFPA 13D</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Rated UL 4x, NEMA 4 for indoor or outdoor use</td>
<td></td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>1.2 lbs. (.54 Kg)</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>5.12“ H x 3.325” W x 4.250” L (13.0 cm x 8.4 cm x 10.8 cm)</td>
<td></td>
</tr>
</tbody>
</table>

Typical Sprinkler Applications

Dry System

Electrical Connections

Pressure Switch Basic Dimensions

Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS40-1</td>
<td>Low Pressure Supervisory Switch, One SPDT, 10–100 PSI</td>
</tr>
<tr>
<td>EPS40-2</td>
<td>High/Low Pressure Supervisory Switch, Two SPDT, 10–100 PSI</td>
</tr>
<tr>
<td>EPS4A-1</td>
<td>Low Pressure Supervisory Switch, One SPDT, 10–100 PSI (ULC Model)</td>
</tr>
<tr>
<td>EPS4A-1</td>
<td>High/Low Pressure Supervisory Switch, Two SPDT, 10–100 PSI (ULC Model)</td>
</tr>
</tbody>
</table>

Replacement Parts

- S07-66-XX: Replacement Tamper Screws for Cover of EPS
- WFDW: Replacement Tamper Proof Wrench for Cover of EPS
- 546-8000: Cover Tamper Switch for EPS Series
EPS120-1 and EPS120-2 Supervisory Pressure Switches

System Sensor EPS120 Series switches are designed to supervise system air pressure in pipes or pressure tanks, as well as water or air pressure supplies of automatic water control valves.

Features

- Pressure adjustment wheel, no special tools required
- Field-adjustable pressure sensitivity
- Factory set for use in a nominal 115 psi system
- Reinforced diaphragm resists pressure spikes
- Two conduit entrances provided
- NEMA 4 rated

The EPS120-1 has a single SPDT switch. The EPS120-2 model contains two SPDT switches. The EPS120 Series features field-adjustable pressure sensitivity to provide an alarm response between 10 and 200 psi. All models are factory set for use in a nominal 115 psi system. The EPS120-1 is factory set to respond at 105 psi at decreasing pressure. The EPS120-2 is factory set to respond at 125 psi on rising pressure and 105 psi on decreasing pressure. The pressure adjustment wheel requires no special tools and does not affect switch synchronization on the EPS120-2.

Agency Listings

UL
LISTED
5739
7770-16530117
3005663
FM
APPROVED
VdS
G40200027
EPS120 Series Specifications

Architectural/Engineering Specifications
Model shall be an EPS120-1 or EPS120-2 pressure-type waterflow switch as manufactured by System Sensor of St. Charles, IL. They shall be installed on the sprinkler system with connection as shown on the drawings and/or as specified herein. Pressure switches shall be of the bellows-activated type. Switches shall have a maximum service pressure rating of 300 psi and shall be adjustable from 10-200 psi. There shall be one (1) or two (2) SPDT contacts rated at 10.0 Amp @ 125/250 VAC and 2.5 Amp @ 6/12/24 VDC. The contractor shall furnish and install, where indicated on the plans, pressure switches according to appropriate NFPA standards. Switches shall be provided with a 1/8” NPT male pressure connection to be connected to the air supply line on the system side of any shut-off valve. Switches shall provide 1 knockout type and 1 open hole for 1/8” conduit fitting attachment and a ground screw provision for electrical grounding. The switch enclosure shall be weatherproof and carry a UL 4x/NEMA 4 rating when used with proper electrical fittings and conduit. The cover shall incorporate tamper-resistant screws. The unit shall be listed by Underwriters Laboratories, Inc., Underwriters Laboratories of Canada, Inc. and approved by Factory Mutual.

Physical/Operating Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Operating Pressure</td>
<td>300 psi</td>
</tr>
<tr>
<td>Pressure Connection</td>
<td>1/8” NPT male</td>
</tr>
<tr>
<td>Maximum Adjustment Pressure Range</td>
<td>10 to 200 psi</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>Indoor or outdoor use −40°F to 160°F (−40°C to 71°C)</td>
</tr>
<tr>
<td>Factory Setting</td>
<td>EPS120-1 operates at decreasing pressure at 105 psi; EPS120-2 operates at increasing pressure at 125 psi and decreasing pressure at 105 psi</td>
</tr>
<tr>
<td>Switch Contact Ratings</td>
<td>EPS120-1: One set SPDT (Form C); EPS120-2: Two sets SPDT (Form C)</td>
</tr>
<tr>
<td></td>
<td>10.0 A, 1/8 HP @ 125/250 VAC 2.5 A @ 6/12/24 VDC</td>
</tr>
<tr>
<td>Differential</td>
<td>Approximately 3 psi @ 10 psi, 9 psi @ 200 psi</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Rated UL 4x, NEMA 4 for indoor or outdoor use</td>
</tr>
<tr>
<td>Dimensions</td>
<td>5.120”H x 3.325”W x 4.250”L (13.0 cm x 8.4 cm x 10.8 cm)</td>
</tr>
<tr>
<td>Cover Tamper Switch</td>
<td>UL Models: Optional P/N 546-8000 ULC Models: Factory Installed</td>
</tr>
<tr>
<td>Service Use</td>
<td>Automatic Sprinkler: NFPA 13; One- or Two-Family Dwelling: NFPA 13D Residential Occupancies up to 4 Stories: NFPA 13R; National Fire Alarm Code: NFPA 72</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>1.2 lbs. (.54 Kg)</td>
</tr>
<tr>
<td>Warranty</td>
<td>3 years</td>
</tr>
</tbody>
</table>

Pressure Switch Basic Dimensions

Electrical Connections

Typical Sprinkler Applications

Ordering Information

<table>
<thead>
<tr>
<th>UL Model No.</th>
<th>ULC/Canadian Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS120-1</td>
<td>EPSA120-1</td>
<td>Low-pressure supervisory switch, one SPDT, 10–200 PSI</td>
</tr>
<tr>
<td>EPS120-2</td>
<td>EPSA120-2</td>
<td>High/low-pressure supervisory switch, two SPDT, 10–200 PSI</td>
</tr>
</tbody>
</table>

Replacement Parts

<table>
<thead>
<tr>
<th>Replacement Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S07-66-XX</td>
<td>Replacement tamper screws for cover of EPS</td>
</tr>
<tr>
<td>WFDW</td>
<td>Replacement tamper-proof wrench for cover of EPS</td>
</tr>
</tbody>
</table>
OSY2
Supervisory Switch

The System Sensor OSY2 is used to monitor the open position of an Outside Screw and Yoke (OS&Y) type gate valve.

Features

- NEMA 3R-rated enclosure
- User-friendly mounting bracket fits newer valve yokes
- Single side conduit entry does not require right angle fittings
- Adjustable length actuator eliminates the need for cutting the shaft
- Accommodates up to 12 AWG wire
- Three position switch monitors vandal and valve close signals
- Two SPDT contacts are enclosed in a durable terminal block for added strength
- 100 percent synchronization activates both alarm panel and local bell simultaneously

Robust Construction. The OSY2 consists of a rugged housing, intended for indoor and outdoor use. When installed with the actuator in the vertical position, the OSY2 is NEMA 3R rated per UL.

Application Flexibility. The OSY2 features a user-friendly mounting bracket and adjustable shaft to permit mounting to most OS&Y valves, ranging in size from 1” to 12". Its right angle design and wide bracket span provides maximum clearance for valve components, to accommodate troublesome valves. Removing the OSY2’s gate valve bracket allows the unit to monitor side-bracket-style pressure reducing valves.

Simplified Operation. Installation is made easier with the OSY2’s single side conduit entrance. By providing a direct conduit pathway to the electrical source, right angle fittings are not required. Installation is further simplified by the OSY2’s adjustable length actuator, which eliminates the need for cutting the shaft.

Reliable Performance. The OSY2 is equipped with tamper-resistant cover screws to prevent unauthorized entry. Inside, two sets of SPDT (Form C) synchronized switches are enclosed in a durable terminal block to assure reliable performance.

Agency Listings

UL
LISTED
01739

UL
CSA
6148

FM
Approve
ON1668-AY

MEA
Approved
167-98-R

7778-1653-118
OSY2 Specifications

Architectural/Engineering Specifications

Model shall be model number OSY2 supervisory switch as manufactured by System Sensor. OSY2 shall be installed on each valve as designated on the drawings and/or as specified herein. Switches shall be mounted so as not to interfere with the normal operation of the valve and shall be adjusted to operate within two revolutions of the valve control or when the stem has moved no more than one-fifth of the distance from its normal position. The mechanism shall be contained in a weatherproof die cast metal housing that provides a side entrance for ½˝ conduit and incorporates the necessary facilities for attachment to the valve. A grounding provision is provided. The switch assembly shall include two switches each with a rated capacity of 10 Amp @ 125/250VAC and 2.5 Amp @ 24VDC. The cover shall contain tamper-resistant screws for which a security wrench will be provided with each switch. The OSY2 shall be Underwriters Laboratories listed for indoor or outdoor use. The OSY2 shall be Factory Mutual, CSFM, and MEA approved.

<table>
<thead>
<tr>
<th>Physical Specifications</th>
<th>Operating Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Switch Dimensions</strong></td>
<td><strong>Contact Ratings</strong></td>
</tr>
<tr>
<td>5¾˝H x 3½˝W x 3¼˝D (14.6cm x 8.9cm x 8.2cm)</td>
<td>Two sets of SPDT (Form C)</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
<td><strong>Enclosure Rating</strong></td>
</tr>
<tr>
<td>2.8 lbs. (1.3 kg)</td>
<td>UL indoor/outdoor</td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
<td><strong>Cover Tamper Switch</strong></td>
</tr>
<tr>
<td>32°F to 120°F (0°C to 49°C)</td>
<td>Standard with ULC model</td>
</tr>
<tr>
<td><strong>Maximum Stem Extension</strong></td>
<td>Optional for UL model, part no. 546-7000</td>
</tr>
<tr>
<td>2¾˝ (6.7cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Bracket Span</strong></td>
<td><strong>Service Use</strong></td>
</tr>
<tr>
<td>¼˝H x 6¼˝W x 1˝D (5.7cm x 17.1cm x 2.5cm)</td>
<td>Automatic Sprinkler: NFPA 13</td>
</tr>
<tr>
<td></td>
<td>One or Two Family Dwelling: NFPA 13D</td>
</tr>
<tr>
<td></td>
<td>Residential Occupancies up to 4 stories: NFPA 13R</td>
</tr>
<tr>
<td></td>
<td>National Fire Alarm code: NFPA 72</td>
</tr>
<tr>
<td><strong>Conduit Entrances</strong></td>
<td><strong>Warranty</strong></td>
</tr>
<tr>
<td>One single side open for ½˝ conduit</td>
<td>3 years</td>
</tr>
<tr>
<td><strong>Conduit Entrances</strong></td>
<td><strong>U.S. Patent Nos.</strong></td>
</tr>
<tr>
<td>One single side open for ½˝ conduit</td>
<td>5,478,038, 5,213,205</td>
</tr>
</tbody>
</table>

Electrical Connections for OSY2

**CONTACT RATINGS**

<table>
<thead>
<tr>
<th>125/250 VAC</th>
<th>24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 AMPS</td>
<td>2.5 AMPS</td>
</tr>
</tbody>
</table>

**NOTE:** COMMON AND B CONNECTIONS WILL CLOSE WHEN VALVE MOVES 1/8 OF ITS TOTAL TRAVEL DISTANCE.

OSY2 Mounting

The following are examples of acceptable mounting positions:

- Actuator Vertical (Down)
- Actuator Horizontal

The following mounting position is not acceptable:

- Actuator Vertical (Pointing Up)

Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSY2</td>
<td>Outside Screw and Yoke valve supervisory switch</td>
</tr>
<tr>
<td>OSY2A</td>
<td>Outside Screw and Yoke valve supervisory switch (ULC model)</td>
</tr>
<tr>
<td>OSYRK</td>
<td>Replacement hardware kit (wrenches, screw pack and J-hooks)</td>
</tr>
<tr>
<td>S46-7000</td>
<td>Cover tamper switch kit</td>
</tr>
<tr>
<td>S07-66-XX</td>
<td>Tamper screws for cover</td>
</tr>
<tr>
<td>WFDW</td>
<td>Replacement tamper-proof wrench for cover</td>
</tr>
<tr>
<td>HEXW</td>
<td>Replacement hex wrench</td>
</tr>
</tbody>
</table>
PIBV2
Supervisory Switch

System Sensor’s PIBV2 supervisory switch monitors the open position of post indicator and butterfly control valves.

**Features**
- NEMA 3R rated enclosure
- Bi-directional actuator
- Easy single side conduit entry
- Adjustable length actuator with breakaway feature
- Built to accommodate up to 12 AWG wire
- Two sets of SPDT contacts enclosed in a durable terminal block
- 100 percent synchronization activates alarm panel and local bell simultaneously
- Operating temperature range –40°F to 120°F (–40°C to 49°C)
- Tamper resistant cover screws

**Robust Construction:** The PIBV2’s rugged housing is intended for indoor and outdoor use. When installed with the actuator in the vertical position, the PIBV2 is NEMA 3R rated per UL.

**Application Flexibility:** The PIBV2 features a flexible design, which accommodates post indicator, butterfly, and many other types of wall post, recessed wall post and pressure reducing valves. The PIBV2’s unique bi-directional actuator allows the unit to be installed in either rising or falling flag installations.

**Simplified Installation:** Installation is made easier with the PIBV2’s single side conduit entrance. By providing a direct conduit pathway to the electrical source, right angle fittings are not required. Installation is further simplified by the PIBV2’s adjustable length actuator with a convenient breakaway feature for installation on shorter valves. This eliminates the need for cutting the shaft.

**Reliable Performance:** The PIBV2 has 100 percent synchronization which activates the alarm panel and local bell simultaneously. In addition, the switch is designed to operate in temperatures ranging from –40°F to 120°F (–40°C to 49°C). The PIBV2 is equipped with tamper resistant cover screws to prevent unauthorized entry. Inside, two sets of SPDT (Form C) synchronized switches are enclosed in a durable terminal block to assure reliable performance.

**Agency Listings**

![UL Listed](https://example.com/ul.png)
![ULC Listed](https://example.com/ulc.png)
![FM Approved](https://example.com/fm.png)
![MEA Approved](https://example.com/mea.png)

CS169 7770-1653:118 OW6A8.AY 167-91E
**PIBV2 Specifications**

**Architectural/Engineering Specifications**

Model shall be model number PIBV2 Post Indicator Butterfly Valve supervisory switch as manufactured by System Sensor. PIBV2 shall be installed on each valve as designated on the drawings and/or as specified herein. Switches shall be mounted so as not to interfere with the normal operation of the valve and shall be adjusted to operate within two revolutions of the valve control or when the valve flag has moved no more than one-fifth of the distance from its normal position. The mechanism shall be contained in a weatherproof die cast metal housing, which shall provide a side entrance for ½˝ conduit and incorporate a ½˝ NPT nipple for attachment to the valve body. A grounding provision is provided. The switch assembly shall include two switches each with a rated capacity of 10 Amp @ 125/250V AC and 2.5 Amp @ 24V DC. The cover shall contain tamper-resistant screws for which a security wrench will be provided with each switch. PIBV2 shall be Underwriters Laboratories listed for indoor or outdoor use. The PIBV2 shall be Factory Mutual, CSFM, and MEA approved.

---

**Physical Specifications**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIBV2</td>
<td>Post Indicator/Butterfly valve supervisory switch</td>
</tr>
<tr>
<td>PIBV2A</td>
<td>Post Indicator/Butterfly valve supervisory switch (ULC model)</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3010-00</td>
<td>Replacement hardware kit (wrenches, screw pack)</td>
</tr>
<tr>
<td>546-7000</td>
<td>Cover tamper switch kit</td>
</tr>
<tr>
<td>507-66-XX</td>
<td>Tamper screws for cover</td>
</tr>
</tbody>
</table>

---

**Ordering Information**

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**Electrical Connections for PIBV2**

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**PIBV2 Mounting**

The following are examples of acceptable mounting positions:

- **Actuator Vertical (Down)**
- **Actuator Horizontal**

The following mounting position is not acceptable:

- **Actuator Vertical (Pointing Up)**

---

**Actuating Arm Breakaway Feature:**

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System Sensor’s PSP1 plug-in switch is a special application supervisory switch designed for applications where no other type of listed valve supervisory switch can be installed.

**Features**

- Monitors non-rising stem gate and ball and angle valves
- NEMA 3 rated enclosures
- 360° mounting design provides greater installation flexibility
- Adjustable length supervisory cord
- Lockout feature ensures alarm signal integrity
- Cover tamper switch factory installed
- Tamper-resistant cover screws

**Application Flexibility.** The PSP1 is to be used on non-rising stem gate valves and ball and angle valves. The unit is approved for Class A and Class B circuits.

**Robust Construction.** The PSP1 consists of a rugged rain tight metal housing. With its NEMA 3 rated housing and water-resistant cord, the PSP1 may be used in either indoor or outdoor applications.

**Simplified Operation.** The PSP1 features a 360° versatile mounting design and an adjustable length cord which allow more freedom to install the unit at the most desirable alignment angle.

**Reliable Performance.** The PSP1 employs a supervisory cord which, when pulled out, closes a set of normally open contacts. A lockout feature prevents reinsertion of the cord until the cover is removed, and the unit is reset. Removal of the cover or cutting of the cord results in an open circuit.

---

**Agency Listings**

UL

ULC

FM

MEA
PSP1 Specifications

Architectural/Engineering Specifications

Model shall be a model number PSP1 special purpose supervisory switch as manufactured by System Sensor. The unit is not intended or designed for ordinary usage. It is a special application device to be used for unusual conditions where no other approved or listed method of protection is available or practical, such as non-rising stem gate valves. When installed on a non-rising stem gate valve, turning the valve wheel will pull the plug out of the jack and close a set of normally open contacts. A lockout will prevent reinsertion and will require removal of the cover. Tamper-proof screws are provided for the cover. Removal of the cover, cutting of the cord, or ground faults will cause an open circuit. The device should be wired to the trouble circuit of a fire alarm control panel. The PSP1 shall be capable of operating on Class A or Class B circuits. The PSP1 shall be NEMA 3 rated for indoor/outdoor use and shall have an operating temperature range of −4°F to 149°F (−20°C to 65°C). The PSP1 shall be listed by Underwriters Laboratories and Underwriters Laboratories of Canada, Inc. and shall be Factory Mutual approved.

Physical/Electrical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>4¾” L × 3” W × 2½” D (12 cm × 7.5 cm × 5.6 cm)</td>
</tr>
<tr>
<td>Dimensions with Bracket</td>
<td>8½” L (21.5 cm)</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>1.7 lbs. (0.8 kg)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>−4°F to 149°F (−20°C to 65°C)</td>
</tr>
<tr>
<td>Enclosure Rating</td>
<td>NEMA 3 UL Indoor/Outdoor Rated</td>
</tr>
<tr>
<td>Cover Tamper Switch</td>
<td>Standard</td>
</tr>
<tr>
<td>Cable</td>
<td>2 wire, 18 gauge waterproof, 8 feet long (2.4 m)</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>6/12/24V AC/DC</td>
</tr>
<tr>
<td>Maximum Operating Current</td>
<td>250 mA</td>
</tr>
<tr>
<td>Warranty</td>
<td>3 years</td>
</tr>
<tr>
<td>U.S. Patent Number</td>
<td>6,037,867</td>
</tr>
</tbody>
</table>

PSP1 Wiring: Single Device Class B

Note: No other types of initiating device may be connected to the same FACP initiating circuit

PSP1 Wiring: Single Device Class A

Note: No other types of initiating device may be connected to the same FACP initiating circuit

Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSP1</td>
<td>Plug-in Special Purpose Supervisory Switch</td>
</tr>
<tr>
<td>PSP1A</td>
<td>Plug-in Special Purpose Supervisory Switch (ULC model)</td>
</tr>
</tbody>
</table>
WFDTN Series
Waterflow Detector

System Sensor WFDTN T-Tap Waterflow detectors are
designed for primary signaling in residential systems and
branch line signaling.

Features
- New directional cover allows installers and inspectors to
easily see the direction of flow
- UL-listed models are NEMA 4 rated
- New cover provides a better seal, is lighter weight, not painted
and corrosion resistant
- Sealed retard mechanism immune to dust and other contaminants
- Less exposed metal reduces shock hazard, plastic cover acts
as insulator and is resistant to arcing
- Visual switch activation
- Audible switch activation (73 dBA)
- Field-replaceable timer/switch assembly
- Accommodates up to 12 AWG wire
- Switch Synchronization activates both alarm panel
and local bell or horn strobe
- Tamper-resistant cover screws
- Improved water sealing
- Reduced product weight
- Wire-ready terminals
- Improved wiring with new terminal block layout
- Snap-in optional cover tamper switch

The new WFDTN Series waterflow detectors from System
Sensor consists of a rugged, NEMA 4-rated enclosure that is
more damage resistant than previous metal designs. The waterflow
detector is designed for both indoor and outdoor use, with the widest
available temperature range, from 32°F to 150°F.

Both the WFDTN with incorporated timer and WFDTNRRN with
immediate activation fit any tee that has a 1 in. NPT branch,
including: 1 in., 1 1/4 in., 1 1/2 in. and 2 in. NPT threaded ferrous and
brass tees; 1 in., 1 1/4 in., 1 1/2 in. and 2 in. copper sweat tees; Tyco,
Spears, NIBSCO brand 1 in. CPVC tees. Twelve different clearly
marked plastic paddles are available to fit different installation
configurations.

UL-listed models are equipped with tamper-resistant cover screws
to prevent unauthorized entry. Inside, two sets of SPDT (Form C)
synchronized switches are enclosed in a durable terminal block with
new layout designed to make wiring easy with wire ready terminals,
COM terminals are on a different elevation, large barrier between
switches and easy to read raised textured lettering all make wiring
easy. An optional cover tamper switch is available, securely snaps
into place, no tools required.

The WFDTN incorporates a mechanical time delay feature, which
minimizes the risk of false alarm due to pressure surges or air
trapped in the fire sprinkler system. The larger and easy to turn timer
dial makes setting the waterflow detector easy with high contrast
pad printed markings. The dial offers three tabs to help with turning,
with one larger tab located on the dial position for approximately 60
seconds, a notch is also indicated on the dial to locate approximately
30 seconds making setting the detector in dimly lit locations easy.

The WFDTN series is designed for accuracy and repeatability. The
detector also offers improved performance during vibration in riser
applications where detectors are exposed to a large in rush of water.

Agency Listings

UL LISTED
5739

FM APPROVED
320512266

USA
## Waterflow Detector Specifications

### Engineering Specifications
Model shall be WFDTN or WFDTNRN as manufactured by System Sensor. T-Tap workflow detectors shall be installed on a tee that has a 1 in. NPT branch including: 1 in., 1 ¼ in., 1½ in. and 2 in. NPT threaded ferrous and brass tee; 1 in., 1 ¼ in., 1½ in. and 2 in. copper sweat tees; Tyco, Spears, NIBBICO brand 1 in. CPVC tees as designed on the drawing and/or as specified herein. 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 or valves that may change water direction, flow rate, or pipe diameter or no closer than 24 in. 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 375 psi. The WFDTN detector with incorporated time delay mechanism shall respond to workflow 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 and audible indication of actuation. The actuation mechanism shall include a ethylene vinyl acetate 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 for standard fittings of commonly used electrical conduit shall be provided on the detectors. A grounding provision is provided. Unless noted, enclosures shall be NEMA 4 listed by Underwriters Laboratories Inc. All detectors shall be listed by Underwriters Laboratories Inc. for indoor or outdoor use.

### Standard Specifications
<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Pressure Rating</td>
<td>375 PSI</td>
</tr>
<tr>
<td>Maximum Surge</td>
<td>18 Feet Per Second (FPS)</td>
</tr>
<tr>
<td>Triggering Threshold Bandwidth (Flow Rate)</td>
<td>4–10 GPM</td>
</tr>
<tr>
<td>Conduit Entrances</td>
<td>Two openings for ½ in. conduit. One open, one knock-out type</td>
</tr>
<tr>
<td>Contact Ratings</td>
<td>Two sets of SPDT (Form C) 10.0 A, ½ HP @ 125/250 VAC 2.5 A @ 6/12/24 VDC</td>
</tr>
<tr>
<td>U.S. Patent Numbers</td>
<td>5,213,205</td>
</tr>
</tbody>
</table>

### Compatible Tee Fittings
- Threaded ferrous and brass tees, copper sweat tees, CPVC tees.

### Operating Temperature Range
- 32°F to 150°F (0°C to 60°C)

### Enclosure Rating
- NEMA 4 – suitable for indoor/outdoor use

### Service Use
- Automatic Sprinkler: NFPA-13
- One or Two Family Dwelling: NFPA 13D Residential Occupancies up to 4 Stories: NFPA 13R National Fire Alarm Code: NFPA-72

### Warranty
- 3 Years

## WFDTN Field Wiring Diagram

![WFDTN Field Wiring Diagram](image-url)

**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 DETECTOR.

**CONTACT RATINGS**
- 125/250 VAC: 10 AMPS
- 24 VDC: 2.5 AMPS

**SCHEMATIC OF INDIVIDUAL SWITCH IN “NO WATERFLOW” CONDITION**

**BREAK WIRE AS SHOWN FOR SUPERVISION OF CONNECTION. DO NOT ALLOW STRIPPED WIRE LEADS TO EXTEND BEYOND SWITCH HOUSING. DO NOT LOOP WIRES.**
Delay Adjustment Dial

NOTE: 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

Overall Dimensions, Installed

3-1/2"  2-5/8"  4"

TEE ADAPTER

INSTALLATION GAUGE
END OF PADDLE TREE MUST FIT BETWEEN TOP OF TEE AND BOTTOM OF FLANGE

TEE FITTING
PLASTIC VANE

DESIGNED TO FIT WITHIN 2 X 4 STUD WALL CONSTRUCTION
### Ordering Information

<table>
<thead>
<tr>
<th>UL Model</th>
<th>ULC Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFDTN</td>
<td>WFDTNA</td>
<td>Waterflow Detector, Fits 1in., 1¼in., 1½in., 2in. ferrous and brass threaded tees; 1in., 1¼in., 1½in., 2in. copper sweat tees; 1in. CPVC tees.</td>
</tr>
<tr>
<td>WFDTNRN</td>
<td>—</td>
<td>Waterflow Detector without incorporated time delay mechanism, fits same tees as WFDTN</td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>FS-RT</th>
<th>Delay mechanism and switch assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>Tamper-proof switch kit</td>
</tr>
<tr>
<td>WFDW</td>
<td>Tamper-proof wrench for cover</td>
</tr>
</tbody>
</table>
WFDEXP
Explosion Proof
Waterflow Detector

The System Sensor WFDEXP series is designed to handle extreme conditions.

Features

- New WFD30-2EXP models install in 2” hole sizes
- 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

These units are ideal for installation in hazardous locations classified as follows:
- Class I, Groups B, C, D, Division 1 & 2
- Class II, Groups E, F, G, Division 1 & 2
- Class III, Division 1 & 2

Robust Construction. The WFDEXP series consists of a rugged, NEMA 4-rated cast aluminum housing. Designed for both indoor and outdoor use, the WFDEXP 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.

Reliable Performance. The WFDEXP 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 WFDEXP’s reliability is its sealed retard mechanism, which prevents contamination by dust and dirt when the cover is removed.

Simplified Operation. Like all System Sensor waterflow detectors, the WFDEXP series is designed for easy installation. With its visible switch activation, the WFDEXP’s retard timing can be verified, even during noisy conditions.
**WFDEXP Series Specifications**

### Architectural/Engineering Specifications

Vane-type, explosion-proof waterflow detectors shall be installed on system piping on the drawing and/or 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 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.

### Physical/Operating Specifications

#### Hazardous Locations Classifications
- Class I, Div 1 and 2, Groups B, C, D
- Class II, Div 1 and 2, Groups E, F, G
- Class III, Div 1 and 2

#### Static Pressure Rating
450 psi (max.)

#### Triggered Threshold Bandwidth (Flow Rate)
4 to 10 GPM

#### Maximum Surge
18 Feet Per Second (FPS)

#### Contact Ratings
Two sets of SPDT (Form C)
10.0 A @ 125/250 VAC
2.5 A @ 24 VDC

#### Compatible Pipe
Steel water pipe, schedule 10 through 40

#### Conduit Entrances
Two openings for ½” conduit

#### Operating Temperature Range
32°F to 120°F (0°C to 49°C)

#### Enclosure Rating
NEMA 4 – suitable for indoor/outdoor use

#### Service Use
- Automatic Sprinkler: NFPA-13
- National Fire Alarm Code: NFPA-72

#### Overall Dimensions
6”H × 9”L × 6.5”W

#### Weight
(see Ordering Information)

#### Warranty
3 years

### Ordering Information

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Pipe Size</th>
<th>Hole Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFD20EXP</td>
<td>2”</td>
<td>1¼”</td>
<td>10.6 lbs.</td>
</tr>
<tr>
<td>WFD25EXP</td>
<td>2½”</td>
<td>1¼”</td>
<td>10.7 lbs.</td>
</tr>
<tr>
<td>WFD30-2EXP</td>
<td>3”</td>
<td>2”</td>
<td>10.9 lbs.</td>
</tr>
<tr>
<td>WFD35EXP</td>
<td>3½”</td>
<td>1¼”</td>
<td>11.2 lbs.</td>
</tr>
<tr>
<td>WFD40EXP</td>
<td>4”</td>
<td>2”</td>
<td>11.5 lbs.</td>
</tr>
<tr>
<td>WFD50EXP</td>
<td>5”</td>
<td>2”</td>
<td>12.1 lbs.</td>
</tr>
<tr>
<td>WFD60EXP</td>
<td>6”</td>
<td>2”</td>
<td>12.5 lbs.</td>
</tr>
<tr>
<td>WFD80EXP</td>
<td>8”</td>
<td>2”</td>
<td>13.5 lbs.</td>
</tr>
</tbody>
</table>

### Accessories

- A3008-0 Replacement retard mechanism for all sizes 2”–8”
- A77-01-02 Replacement terminal block
- WFDRK Replacement hardware kit (contains tamper screws, wrench and conduit plug)