



# National Fire Equipment Ltd.

## OSY2A Supervisory Switch

*System Sensor's OSY2A 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% synchronization activates both alarm panel and local bell simultaneously

**Robust Construction.** The OSY2A consists of a rugged housing, intended for indoor and outdoor use. When installed with the actuator in the vertical position, the OSY2A is NEMA 3R rated.

**Application Flexibility.** The OSY2A 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 OSY2A's gate valve bracket allows the unit to monitor side-bracket style pressure reducing valves.

**Simplified Operation.** Installation is made easier with the OSY2A'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 OSY2A's adjustable length actuator, which eliminates the need for cutting the shaft.

**Reliable Performance.** The OSY2A 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



National Fire  
Equipment Ltd.

TORONTO: (905) 761-6355  
Toll Free: (800) 267-8508

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## OSY2A Specifications

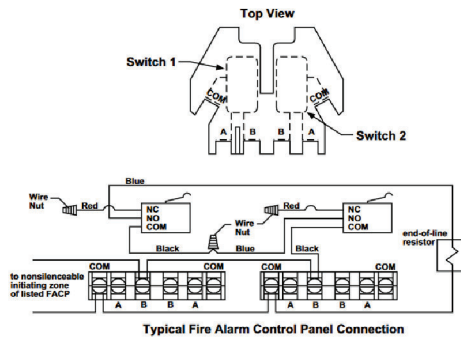
### Architectural/Engineering Specifications

Model shall be model number OSY2A supervisory switch as manufactured by System Sensor. OSY2A 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, which shall provide a side entrance for 1/2" conduit and incorporate 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 10Amp @ 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 OSY2A shall be Underwriters Laboratories of Canada listed for indoor or outdoor use. The OSY2A shall be Factory Mutual approved.

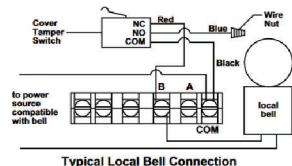
#### Physical/Operating Specifications

Overall Switch Dimensions	5 3/4" H x 3 1/2" W x 3 1/4" D (14.6cm x 8.9cm x 8.2cm)	Contact Ratings	Two sets of SPDT (Form C) 10.0 A @ 125/250VAC; 2.5 @ 6/12/24VDC
Shipping Weight	2.8 lbs. (1.3 kg)	Enclosure Rating	UL indoor/outdoor NEMA 3R when mounted with the actuator vertical
Operating Temperature Range	0°C to 49°C (32°F to 120°F) NOTE: The OSY2 will operate from -40°C to 49°C (-40°F to 120°F); however UL does not test control valve supervisory switches below 32°F (0°C).	Cover Tamper Switch	Standard with ULC model
Maximum Stem Extension	2 5/8" (6.7cm)	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
Bracket Span	1 1/4" H x 6 3/4" W x 1" D (5.7cm x 17.1cm x 2.5cm)	Warranty	3 years
Conduit Entrances	One single side open for 1/2" conduit	U.S. Patent Nos.	5,478,038; 5,213,205

### Electrical Connections for OSY2A



Typical Fire Alarm Control Panel Connection



Typical Local Bell Connection

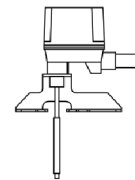
NOTE:  
Local bell will activate  
when cover is removed.

Wire Code:	
Supervisory Switch:	
Com to B = Open Circuit	(Non Alarm Condition)
Com to A = Closed Circuit	
Cover Tamper Switch:	
Black / Blue: Open	(Cover Off)
Black / Red: Closed	

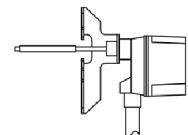
Break wire as shown for supervision of connection. DO NOT allow stripped wire leads to extend beyond switch housing. DO NOT loop wires.

### OSY2A Mounting

The following are examples of acceptable mounting positions:

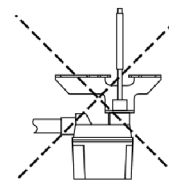


Actuator Vertical  
(Down)



Actuator Horizontal

The following mounting position is not acceptable:



Actuator Vertical  
(Pointing Up)

#### Ordering Information

Part No.	Description
7051005	Outside Screw and Yoke valve supervisory switch
Accessories	
OSYRK	Replacement hardware kit (wrenches, screw pack and J-hooks)
546-7000	Cover tamper switch kit
S07-66-XX	Tamper screws for cover



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# National Fire Equipment Ltd.

## PIBV2A Supervisory Switch

*System Sensor's PIBV2A 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  $-40^{\circ}\text{C}$  to  $49^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $120^{\circ}\text{F}$ )
- Tamper resistant cover screws

**Robust Construction:** The PIBV2A's rugged housing is intended for indoor and outdoor use. When installed with the actuator in the vertical position, the PIBV2A is NEMA 3R rated.

**Application Flexibility:** The PIBV2A features a flexible design, which accommodates post indicator, butterfly, and many other types of wall post, recessed wall post and pressure reducing valves. The PIBV2A'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 PIBV2A'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 PIBV2A'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 PIBV2A 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  $-40^{\circ}\text{C}$  to  $49^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $120^{\circ}\text{F}$ ). The PIBV2A 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



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## PIBV2A Specifications

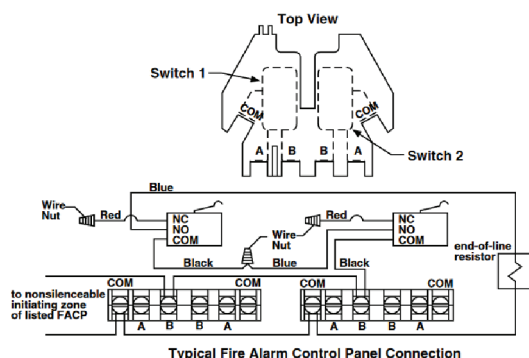
### Architectural/Engineering Specifications

Model shall be model number PIBV2A Post Indicator Butterfly Valve supervisory switch as manufactured by System Sensor. PIBV2A 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 1/2" conduit and incorporate a 1/2" 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. PIBV2A shall be ULC listed for indoor or outdoor use.

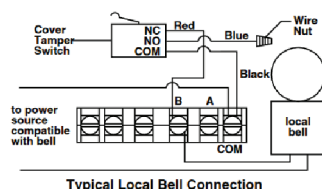
### Physical/Operating Specifications

Overall Switch Dimensions	4 1/4" H x 3 1/2" W x 3 1/4" D (10.8cm x 8.9cm x 8.2cm)	Contact Ratings	Two sets of SPDT (Form C) 10.0 A @ 125/250V AC; 2.5 @ 6/12/24V DC
Shipping Weight	2 lbs. (0.9 kg)	Enclosure Rating	UL indoor/outdoor NEMA 3R when mounted with the actuator vertical
Operating Temperature Range	-40°C to 49°C (-40°F to 120°F)	Cover Tamper Switch	Standard with ULC model Optional for UL model, part no. 546-7000
Maximum Stem Extension	35/32" (8.0 cm)	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
Mounting	1/2" NPT nipple	Warranty	3 years
Conduit Entrances	One single side open for 1/2" conduit	U.S. Patent No.	5,213,205

### Electrical Connections for PIBV2A

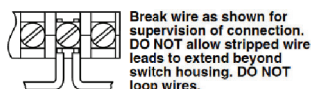


Typical Fire Alarm Control Panel Connection



Typical Local Bell Connection

NOTE:  
Local bell will activate  
when cover is removed.



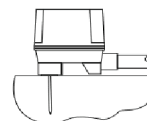
Break wire as shown for  
supervision of connection.  
DO NOT allow stripped wire  
leads to extend beyond  
switch housing. DO NOT  
loop wires.

CONTACT RATINGS	
125/250 VAC	10 AMPS
24 VDC	2.5 AMPS

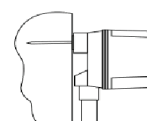
Wire Code:	
Waterflow or Supervisory Switch:	
Com to B = Open Circuit	(Non Alarm Condition)
Com to A = Closed Circuit	
Cover Tamper Switch:	
Black / Blue: Open	(Cover Off)
Black / Red: Closed	

### PIBV2A Mounting

The following are examples of acceptable mounting positions:

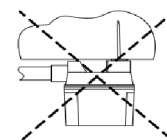


Actuator Vertical  
(Down)



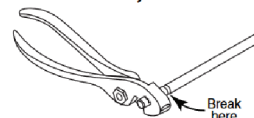
Actuator Horizontal

The following mounting position is not acceptable:



Actuator Vertical  
(Pointing Up)

Actuating Arm Breakaway Feature:



### Ordering Information

Part No.	Description		
7051010	Post Indicator/Butterfly valve supervisory switch		
<b>Accessories</b>			
A3010-00	Replacement hardware kit (wrenches, screw pack)	WFDW	Replacement tamper proof wrench for cover
546-7000	Cover tamper switch kit	HEXW	Replacement hex wrench
S07-66-XX	Tamper screws for cover		



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# National Fire Equipment Ltd.

## PSP1A Plug-in Special Purpose Supervisory Switch

*System Sensor's PSP1A plug-in switch is a special application supervisory switch designed for applications where no other type of listed valve supervisory switch can be used.*



### 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 PSP1A 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 PSP1A consists of a rugged rain tight metal housing. With its NEMA 3 rated housing and water-resistant cord, the PSP1A may be used in either indoor or outdoor applications.

**Simplified Operation.** The PSP1A 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 PSP1A 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



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# National Fire Equipment Ltd.

## PSP1A Specifications

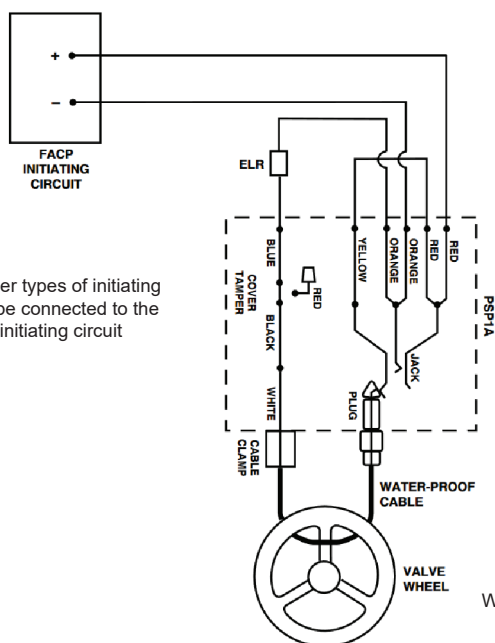
### Architectural/Engineering Specifications

Model shall be a model number PSP1A 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 PSP1A shall be capable of operating on Class A or Class B circuits. The PSP1A shall be NEMA 3 rated for indoor/outdoor use and shall have an operating temperature range of  $-20^{\circ}\text{C}$  to  $65^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $149^{\circ}\text{F}$ ). The PSP1A shall be listed by ULC.

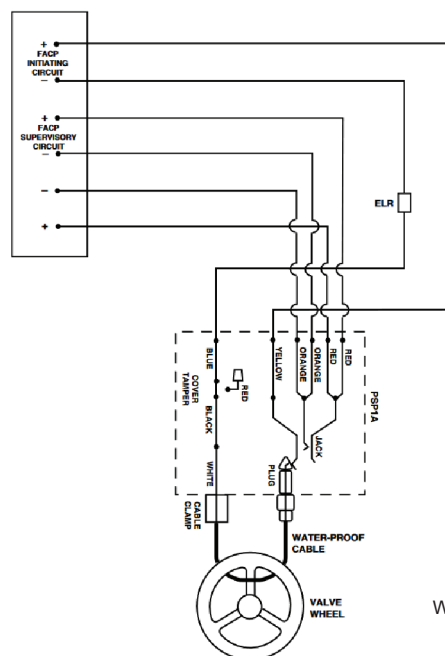
#### Physical/Electrical Specifications

Dimensions	4 1/4" L x 3" W x 2 1/2" D (12 cm x 7.5 cm x 5.6 cm)
Dimensions with Bracket	8 1/2" L (21.5 cm)
Shipping Weight	1.7 lbs. (0.8 kg)
Operating Temperature Range	$-20^{\circ}\text{C}$ to $65^{\circ}\text{C}$ ( $-4^{\circ}\text{F}$ to $149^{\circ}\text{F}$ )
Enclosure Rating	NEMA 3 UL Indoor/Outdoor Rated
Cover Tamper Switch	Standard
Cable	2 wire, 18 gauge waterproof, 8 feet long (2.4 m)
Operating Voltage	6/12/24V AC/DC
Maximum Operating Current	250 mA
Warranty	3 years
U.S. Patent Number	6,037,867

### PSP1A Wiring: Single Device Class B



W0167-00



W0168-00

#### Ordering Information

Ordering Information	Ordering Information
7051200	Plug-in Special Purpose Supervisory Switch (ULC model)



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# National Fire Equipment Ltd.

## OSYEXP and PIBVEXP Explosion Proof Supervisory Switch

*System Sensor's OSYEXP and PIBVEXP explosion proof supervisory switches are designed for hazardous locations and to handle extreme conditions.*



### Features

- Designed and approved to operate in hazardous locations
- NEMA 1, 7 and 9 enclosure rating
- Compact, rugged housing
- Ample wiring space
- Captured cover screws
- Single conduit entrance

These units are ideal for installation in hazardous locations classified as follows:

Class I, Groups C, D, Division 1 and 2  
Class II, Groups E, F, G, Division 1 and 2

**Intended Use.** The OSYEXP is intended for use with outside screw and yoke type valves, while the PIBVEXP monitors the open position of post indicator and butterfly type valves.

**Robust Construction.** The OSYEXP and PIBVEXP switches are contained in a compact and rugged NEMA 1, 7 and 9 rated enclosure. The enclosure operates across a wide temperature range, from -40°C to 71°C (-40°F to 160°F).

**Simplified Operation.** The OSYEXP and PIBVEXP covers are secured with four captured screws to prevent screw misplacement while the cover is removed. A single tapped conduit entrance and ample wiring space provide quick and easy electrical connection.

### Agency Listings



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# National Fire Equipment Ltd.

## OSYEXP, PIBVEXP Specifications

### Architectural/Engineering Specifications

Model shall be an OSYEXP or PIBVEXP as manufactured by System Sensor. The OSYEXP and PIBVEXP shall be installed on each valve as designated on the drawings and/or 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 NEMA 1, 7 and 9 rated metal enclosure, which shall provide a side entrance for 1/2" conduit and incorporate a 1/2" NPT nipple for attachment to the valve body. A grounding provision shall be provided. The switch assembly shall include one SPDT (Form C) switch with a rated capacity of 15 A, 125/250/480 VAC; 1/8 hp, 125 VAC; 1/4 hp, 250 VAC; 1/2 A, 125 VDC; 1/4 A, 250 VDC. The cover shall contain captive screws. The OSYEXP's and PIBVEXP's switch shall be Underwriters Laboratories listed for indoor use and CSA certified.

#### Physical/Operating Specifications

Overall Dimensions, Installed	OSYEXP: 7'L x 3.125'D x 4.875'H PIBVEXP: 3.75'L x 3.25'D x 4.5'H
Shipping Weight	OSYEXP: 1.25 lbs. PIBVEXP: 1.75 lbs.
Operating Temperature Range	-40°C to 71°C (-40°F to 160°F)
Enclosure Rating	NEMA 1, 7 and 9 – suitable for indoor applications
Conduit Entrances	One tapped opening for 1/2" conduit
Pressure Connection	1/2" NPT male brass fitting
Actuating Lever Extension Length for OSYEXP (max.)	2" from nipple
Hazardous Locations Classifications	Class I, Groups C, D Class II, Groups E, F, G
Contact Ratings	One SPDT (Form C) switch: 15 A, 125/250/480 VAC 1/8 hp, 125 VAC 1/4 hp, 250 VAC 1/2 A, 125 VDC 1/4 A, 250 VDC
Service Use	Automatic Sprinkler: NFPA-13 One or two family dwelling: NFPA-13D Residential occupancy up to four stories: NFPA-13R National Fire Alarm Code: NFPA-72
Warranty	3 years

#### Ordering Information

Part No.	Description
OSYEXP	Explosion proof OS&Y supervisory switch
PIBVEXP	Explosion proof PIBV supervisory switch



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