



Patent Pending

Ordering Information

Model	Description	Stock No.
PS10-1	Pressure switch with one set SPDT contacts	1340103
PS10-2	Pressure switch with two sets SPDT contacts	1340104
	Hex Key	5250062
	Cover Tamper Switch Kit	0090200

Tamper

Cover incorporates tamper resistant fastener that requires a special key for removal. One key is supplied with each device. For optional cover tamper switch kit, order Stock No. 0090200. See bulletin #5401200 PSCTSK.

Installation

The Potter PS10 Series Pressure Actuated Switches are designed for the detection of a waterflow condition in automatic fire sprinkler systems of particular designs such as wet pipe systems with alarm check valves, dry pipe, preaction, or deluge valves. The PS10 is also suitable to provide a low pressure supervisory signal; adjustable between 4 and 15 psi (0,27 and 1,03 BAR).

1. Apply Teflon tape to the threaded male connection on the device.
(Do not use pipe dope)
2. Device should be mounted in the upright position (threaded connection down).
3. Tighten the device using a wrench on the flats on the device.

Wiring Instructions

1. Remove the tamper resistant screw with the special key provided.
2. Carefully place a screwdriver on the edge of the knockout and sharply apply a force sufficient to dislodge the knockout plug. See Fig 9
3. Run wires through an approved conduit connector and affix the connector to the device.
4. Connect the wires to the appropriate terminal connections for the service intended. See Figures 2,4,5, and 6. See Fig 7 for two switch, one conduit wiring.

Testing

The operation of the pressure alarm switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Wet System

Method 1: When using PS10 and control unit with retard - connect PS10

(UL, cUL, and CSFM Listed, FM and LPC Approved, NYMEA Accepted, CE Marked Pending)

Dimensions: 3.78" (9,6cm)W x 3.20" (8,1cm)D x 4.22" (10,7cm)H

Conduit Entrance: Two knockouts provided for 1/2" conduit. Individual switch compartments and ground screws suitable for dissimilar voltages.

Enclosure: Cover - Die-cast with textured red powdercoat finish, single cover screw and rain lip.

Base - Die-cast

Pressure Connection: Nylon 1/2" NPT Male

Factory Adjustment: 4 - 8 PSI (0,27 - 0,55 BAR)

Differential: 2 PSI (0,13 BAR) typical

Maximum System Pressure: 300 PSI (20,68 BAR)

Switch Contacts: SPDT (Form C)

10.1 Amps at 125/250VAC, 2.0 Amps at 30VDC

One SPDT in PS10-1, Two SPDT in PS10-2

Environmental Specifications:

NEMA 4/IP55 Rated Enclosure - indoor or outdoor when used with NEMA 4 conduit fittings.

Temperature range: -40°F to 140°F (-40°C to 60°C)

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

into alarm port piping on the input side of retard chamber and electrically connect PS10 to control unit that provides a retard to compensate for surges. Insure that no unsupervised shut-off valves are present between the alarm check valve and PS10.

Method 2: When using the PS10 for local bell application or with a control that does not provide a retard feature - the PS10 must be installed on the alarm outlet side of the retard chamber of the sprinkler system.

Testing: Accomplished by opening the inspector's end-of-line test valve. Allow time to compensate for system or control retard.

Note: Method 2 is not applicable for remote station service use, if there is an unsupervised shut-off valve between the alarm check valve and the PS10.

Wet System With Excess Pressure

Connect PS10 into alarm port piping extending from alarm check valve. Retard provisions are not required. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

Testing: Accomplished by opening the water by-pass test valve or the inspector's end-of-line test valve. When using end-of-line test, allow time for excess pressure to bleed off.

Dry System

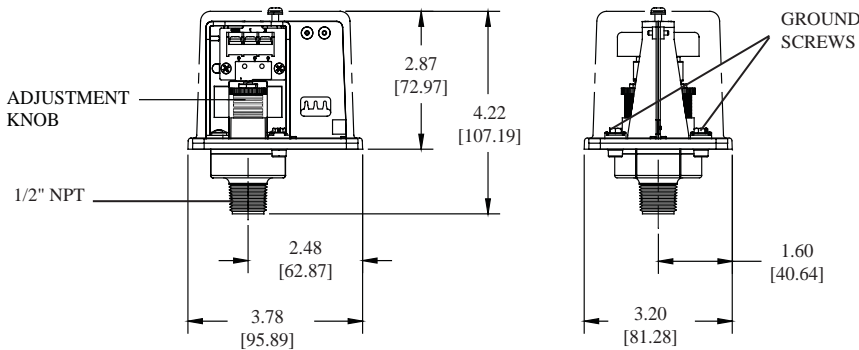
Connect PS10 into alarm port piping that extends from the intermediate chamber of the alarm check valve. Install on the outlet side of the in-line check valve of the alarm port piping. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

Testing: Accomplished by opening the water by-pass test valve.

Note: The above tests may also activate any other circuit closer or water motor gongs that are present on the system.

Dimensions

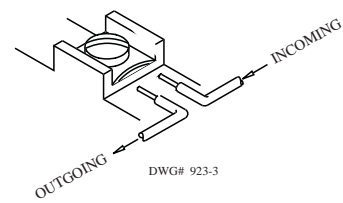
Fig. 1



NOTE: To prevent leakage, apply Teflon tape sealant to male threads only.

Switch Clamping Plate Terminal

Fig. 2

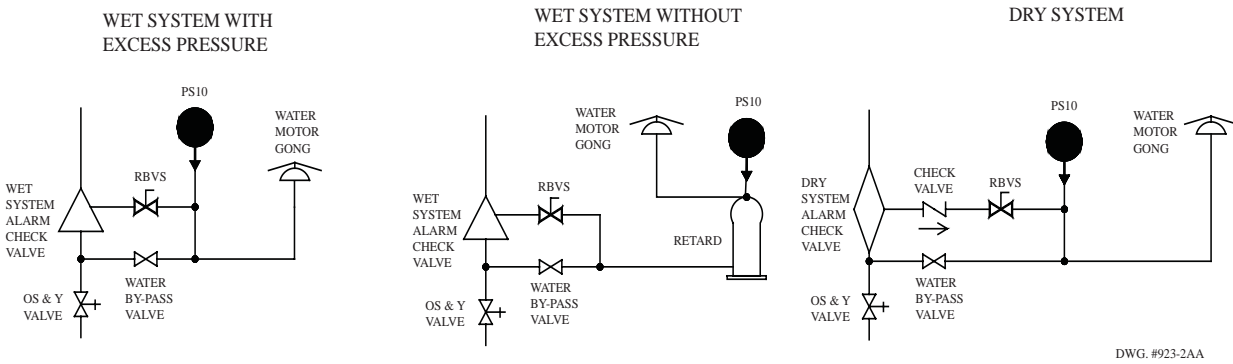


WARNING

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, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Sprinkler Applications

Fig. 3

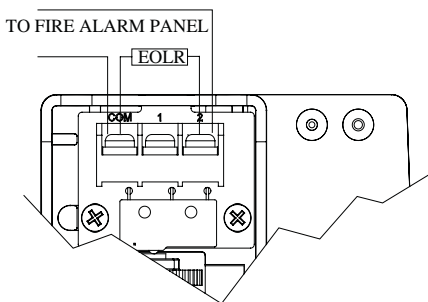


CAUTION

Closing of any shutoff valves between the alarm check valve and the PS10 will render the PS10 inoperative. To comply with NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

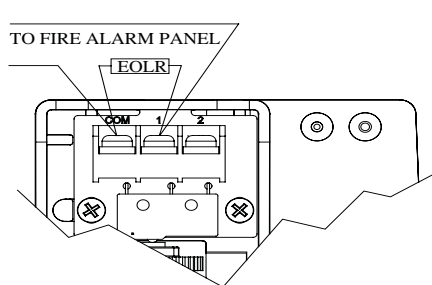
Low Pressure Signal Connection

Fig. 4



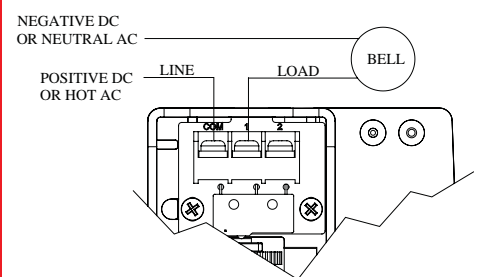
Waterflow Signal Connection

Fig. 5



Local Bell For Waterflow Connection

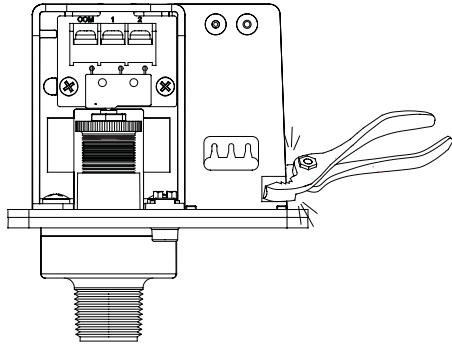
Fig. 6



One Conduit Wiring

Fig. 7

Break out thin section of divider to provide path for wires when wiring both switches from one conduit entrance.

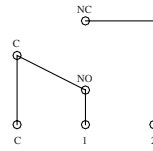


Changing Pressure

Fig. 8

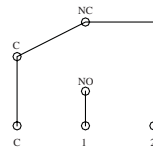
For low pressure use:
Com and Terminal 1

W/ PRESSURE APPLIED



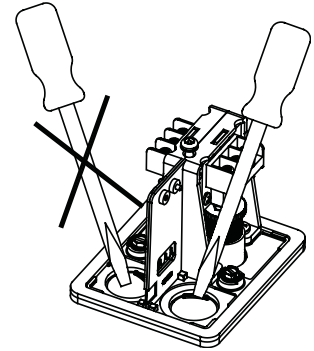
For waterflow use:
Com and Terminal 2

W/O PRESSURE APPLIED



Removing Knockouts

Fig. 9



WARNING

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Read all instructions carefully and understand them before starting installation. Save instructions for future use. Failure to read and understand instructions could result in improper operation of device resulting in serious injury or death.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

CAUTION

- Do not tighten by grasping the switch enclosure. Use wrenching flats on the bushing only. Failure to install properly could damage the switch and cause improper operation resulting in damage to equipment and property.
- To seal threads, apply Teflon tape to male threads only. Using joint compounds or cement can obstruct the pressure port inlet and result in improper device operation and damage to equipment.
- Do not over tighten the device, standard piping practices apply.

Engineer/Architect Specifications Pressure Type Waterflow Switch

Pressure type waterflow switches; shall be a Model PS10 as manufactured by Potter Electric Signal Company, St Louis MO., and shall be installed on the fire sprinkler system as shown and or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection and shall be connected to the alarm port outlet of; Wet Pipe Alarm Valves, Dry Pipe Valves, Pre-Action Valves, or Deluge Valves. The pressure switch shall be actuated when the alarm line pressure reaches 4 - 8 PSI (0,27 - 0,55 BAR).

Pressure type waterflow switches shall have a maximum service pressure rating of 300 PSI (20,68 BAR) and shall be factory adjusted to operate on a pressure increase of 4 - 8 PSI (0,27 - 0,55 BAR)

Pressure switch shall have one or two form C contacts, switch contact rating 10.1 Amps at 125/250 VAC, 2.0 Amps at 30 VDC.

Pressure type waterflow switches shall have two conduit entrances one for each individual switch compartment to facilitate the use of dissimilar voltages for each individual switch.

The cover of the pressure type waterflow switch shall be Zinc die-cast with rain lip and shall attach with one tamper resistant screw. The Pressure type waterflow switch shall be suitable for indoor or outdoor service with a NEMA 4/IP55 rating.

The pressure type waterflow switch shall be UL Ulc and CSFM listed, FM and LPC approved and NYMEA accepted.



(UL, cUL, and CSFM Listed, FM and LPC Approved, NYMEA Accepted, CE Marked Pending)

Dimensions: 3.78" (9,6cm)W x 3.20" (8,1cm)D x 4.22" (10,7cm)H

Conduit Entrance: Two knockouts provided for 1/2" conduit. Individual switch compartments and ground screw suitable for dissimilar voltages

Enclosure: Cover- Die-cast with textured red powdercoat finish, single cover screw and rain lip.
Base- Die-cast

Pressure Connection: Nylon 1/2" NPT male

Factory Adjustment: PS40-1 operates on decrease at 30 PSI (2,1 BAR)
PS40-2 operates in increase at 50 PSI (3,5 BAR)
and on decrease at 30 PSI (2,1 BAR)

Pressure Range: 10-60 PSI (.7 - 4,1 BAR)

Differential: Typical 1 lb. at 10 PSI (.07 at .7 BAR)
4 lbs at 60 PSI (.28 at 4,1 BAR)

Maximum System Pressure: 300 PSI (20,68 BAR)

Switch Contacts: SPDT (Form C)
10.1 Amps at 125/250VAC, 2.0 Amps at 30VDC
One SPDT in PS40-1, Two SPDT in PS40-2

Environmental Specifications:

NEMA 4/IP55 Rated Enclosure - indoor or outdoor when used with NEMA 4 conduit fittings.

Temperature range: -40°F to 140°F (-40°C to 60°C)

Tamper: Cover incorporates tamper resistant fastener that requires a special key for removal. One key is supplied with each device. For optional cover tamper switch kit, order Stock No. 0090200. See bulletin #5401200 PSCTSK.

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

Ordering Information

Model	Description	Stock No.
PS40-1	Pressure switch with one set SPDT contacts	1340403
PS40-2	Pressure switch with two sets SPDT contacts	1340404
	Hex Key	5250062
	Cover Tamper Switch Kit	0090200
BVL	Bleeder valve	1000018

Installation

The Potter PS40 Series Pressure Actuated Switches are designed primarily to detect an increase and/or decrease from normal system pressure in automatic fire sprinkler systems. Typical applications are: Dry pipe system, pre-action air/nitrogen supervision, pressure tanks, air supplies, and water supplies. The PS40 switch is factory set for 40 PSI (2,8 BAR) normal system pressure. The switch marked with the word LOW is set to operate at a pressure decrease of 10 PSI (.7 BAR) at 30 PSI (2,1 BAR). The switch marked with the word HIGH is set to operate at a pressure increase of 10 PSI (.7 BAR) at 50 PSI (3,5 BAR). See section heading **Adjustments and Testing** if other than factory set point is required.

1. Connect the PS40 to the system side of any shutoff or check valve.
2. Apply Teflon tape to the threaded male connection on the device.
(Do not use pipe dope)
3. Device should be mounted in the upright position.
(Threaded connection down)
4. Tighten the device using a wrench on the flats on the device.

Wiring Instructions

1. Remove the tamper resistant screw with the special key provided.
2. Carefully place a screwdriver on the edge of the knockout and sharply apply a force sufficient to dislodge the knockout plug. See Fig. 9
3. Run wires through an approved conduit connector and affix the connector to the device. A NEMA-4 rated conduit fitting is required for outdoor use.

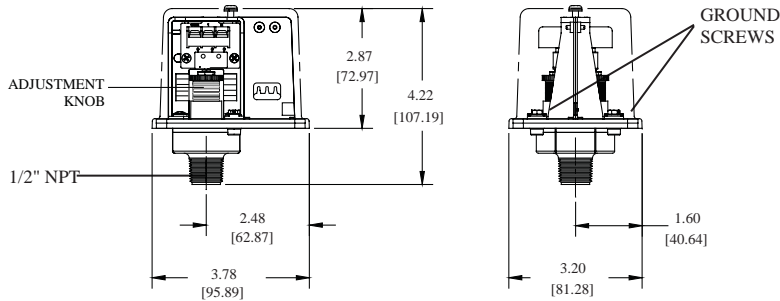
4. Connect the wires to the appropriate terminal connections for the service intended. See Figures 2,4,5,6, and 8

Adjustment And Testing

The operation of the pressure supervisory switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently). *Note:* Testing the PS40 may activate other system connected devices. The use of a Potter BVL (see product bulletin 8900067 for details) is recommended to facilitate setting and testing of the PS40 pressure switch. When a BVL (bleeder valve) is used, the pressure to the switch can be isolated and bled from the exhaust port on the BVL without effecting the supervisory pressure of the entire system. See Fig. 3
The operation point of the PS40 Pressure Switch can be adjusted to any point between 10 and 60 PSI (0,7 - 4,11 BAR) by turning the adjustment knob(s) clockwise to raise the actuation point and counter clockwise to lower the actuation point. In the case of the PS40-2, both switches operate independent of each other. Each switch may be independently adjusted to actuate at any point across the switch adjustment range. Initial adjustment can be made with a visual reference from the top of the adjustment knob across to the printed scale on the switch bracket. Final adjustments should be verified with a pressure gauge.

Dimensions

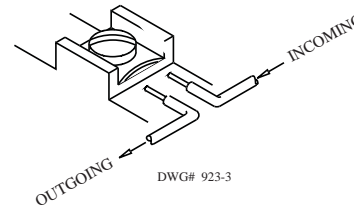
Fig. 1



NOTE: To prevent leakage, apply teflon tape sealant to male threads only.

Switch Clamping Plate Terminal

Fig. 2

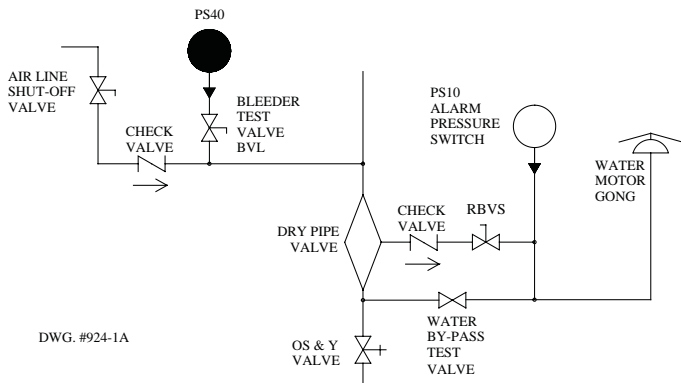


WARNING

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, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Sprinkler Applications

Fig. 3



CAUTION

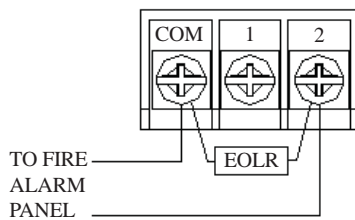
Closing of any shutoff valves between the alarm check valve and the PS10 will render the PS10 inoperative. To comply with NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Typical Connections

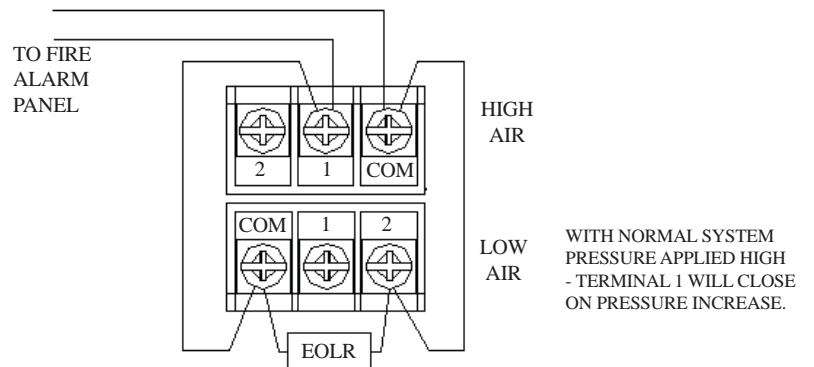
Fig. 4

WITH NORMAL SYSTEM PRESSURE APPLIED LOW - TERMINAL 2 CLOSES ON PRESSURE DROP.

PS40-1

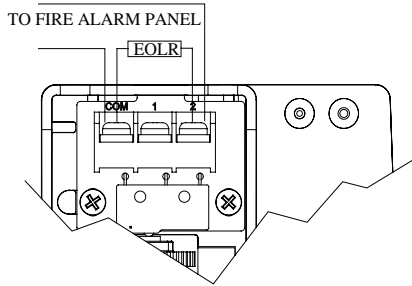


PS40-2



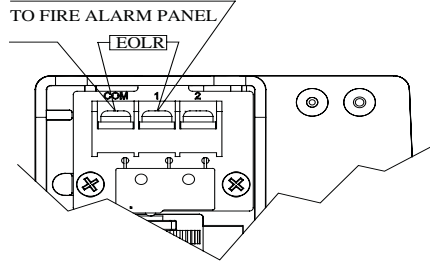
Low Pressure Signal Connection

Fig. 5



High Pressure Signal Connection

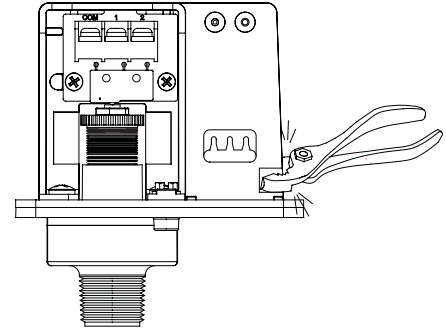
Fig. 6



One Conduit Wiring

Fig. 7

Break out thin section of divider to provide path for wires when wiring both switches from one conduit entrance.



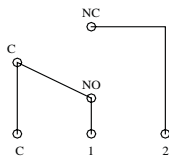
Changing Pressure

(With normal system pressure)

Fig. 8

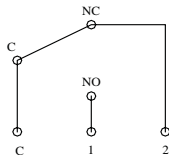
LOW PRESSURE SWITCH

For low pressure use: Com and Terminal 1



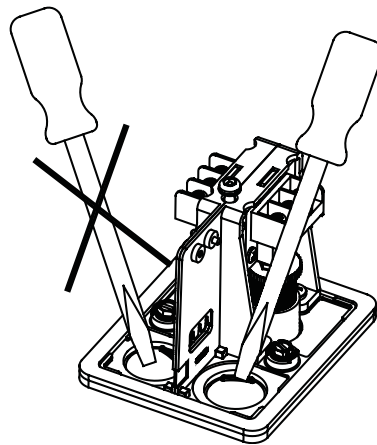
HIGH PRESSURE SWITCH

For waterflow use: Com and Terminal 2



Removing Knockouts

Fig. 9



Engineer/Architect Specifications Pressure Type Waterflow Switch

Pressure type supervisory switches; shall be a Model PS40 as manufactured by Potter Electric Signal Company, St. Louis, MO., and shall be installed on the fire sprinkler system as shown and or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection to be connected into the air supply line on the system side of any shut-off valve. A Model BVL bleeder valve as supplied by Potter Electric Signal Company of St. Louis, MO., or equivalent shall be connected in line with the PS40 to provide a means of testing the operation of the supervisory switch. (See Fig. 3)

The switch unit shall contain SPDT (Form C) switch(es). One switch shall be set to operate at a pressure decrease of 10 PSI (0,7 BAR) from normal. If two switches are provided, the second switch shall be set to operate at a pressure increase of 10 PSI (0,7 BAR) from normal.

Switch contacts shall be rated at 10.1 Amps at 125/250VAC and 2.0 Amps at 30VDC. The units shall have a maximum pressure rating of 300 PSI (20,68 BAR) and shall be adjustable from 10 to 60 PSI (0,7 to 4,1 BAR).

Pressure switches shall have two conduit entrances, one for each individual switch compartment to facilitate the use of dissimilar voltages for each individual switch. The cover of the pressure switch shall be zinc die-cast with rain lip and shall attach with one tamper resistant screw. The pressure switch shall be suitable for indoor or outdoor service with a NEMA-4/IP55 rating.

The pressure switch shall be UL, ULC, and CSFM listed, FM and LPC approved and NYMEA accepted.

WARNING

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Read all instructions carefully and understand them before starting installation. Save instructions for future use. Failure to read and understand instructions could result in improper operation of device resulting in serious injury or death.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

CAUTION

- Do not tighten by grasping the switch enclosure. Use wrenching flats on the bushing only. Failure to install properly could damage the switch and cause improper operation resulting in damage to equipment and property.
- To seal threads, apply Teflon tape to male threads only. Using joint compounds or cement can obstruct the pressure port inlet and result in improper device operation and damage to equipment.
- Do not over tighten the device, standard piping practices apply.



Model	Description	Stock No.
PS10-EX	Pressure switch with 2 sets of contacts (SPDT)	1350102
BVL	Bleeder Valve	1000018
	Hex Key (For cover removal)	5250074
	Hex Key (For pressure adjustment access)	5250073

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

Check with local AHJ for additional Codes & Standards

Installation

The Potter PS10-EX Pressure Actuated Switch is designed for the detection of a waterflow condition in automatic fire sprinkler systems located in hazardous locations classified as shown above. Typical applications are: Wet pipe systems with alarm check valves, dry pipe, preaction, or deluge valves. The PS10-EX is also suitable to provide a low pressure supervisory signal; adjustable between 4 and 20 psi (0,27 and 1,3 BAR).

1. Apply Teflon tape to the threaded male connection on the device. (Do not use pipe dope)
2. Device should be mounted in the upright position (threaded connection down).

Adjustments

If the pressure needs to be adjusted from the factory settings, adjust the system pressure to the desired trip point. Use an ohmmeter on the appropriate contact (COM and NC for pressure decrease and COM and NO for pressure increase). Adjust the knurled knob until the meter changes state. At that point the switch is set for that particular pressure. When the adjustments are complete, raise and lower the system pressure to ensure the switch is properly set and make final adjustments if necessary.

CUL, UL AND CSFM Listed, FM Approved and NYMEA Accepted CENELEC, DEMKO NO. 03 ATEX 0311298X, EN60079-0:2009, EN60079-1:2009

Dimensions: 152mm Dia. x 178mm H (6" Dia. x 7" H)

Enclosure: Cast aluminum

Pressure Connection: 1/2" NPT male brass fitting

Conduit Entrance: 1/2" NPT female conduit opening

To maintain type "d" component protection use an Ex component conduit sealing device.

Factory Setting:

Both switches operate on pressure increase at:

41 ±7 kPA/.41 ±.07 BAR (6 ±1 PSI)

Both switches operate on pressure decrease at:

34 ±7 kPA/.34 ±.07 BAR (5 ±1 PSI)

Pressure Range:

27-137 kPA/.27-1.3 BAR/ 4-20 PSI

Maximum Differential (Approx.):

7 kPA/.07 BAR (1 PSI)

Maximum System Pressure: 1724 kPA/17.24 BAR (250 PSI)

Switch Contacts: Two Sets of SPDT (Form C)

15.0 Amps at 125/250 VAC

2.0 Amps at 30 VDC

Environmental Specifications:

For use in hazardous locations classified by CENELEC: Ex d IIB T6 Gb

Class I: Div 1 & Div. 2 Groups B, C, D

Class II: Div. 1 & Div. 2 Groups E, F, G,

Class III: Div. 1 & Div. 2

Enclosure Ratings: IP66/NEMA 4,9

Temperature Range: -40°C to 60°C (-40°F to 140°F)

Testing

The operation of the pressure alarm/supervisory switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

⚠ CAUTION

Testing the PS10-EX may activate other system connected devices.

Special Conditions of Safe Use

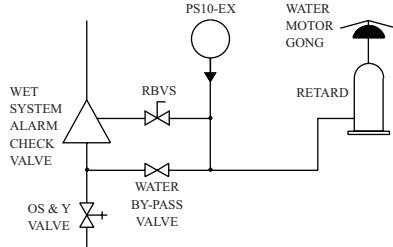
Dimensions of flameproof joints are other than the relevant minimum or maximum specified in Table 2 of EN 60079-1:2009. Pressure switches are marked with an "x" and manufacturer's drawing no. 1350102 detail the dimensions of flameproof joints.

Wet System Water Flow Alarm

(Wet System: With or Without Excess Pressure)

METHOD 1: When using PS10-EX and control unit with retard, connect the PS10-EX into alarm port piping on the input side of retard chamber and electrically connect PS10-EX to control unit that provides a retard to compensate for surges. Ensure that no shut off valves are present between the alarm check valve and the PS10-EX.

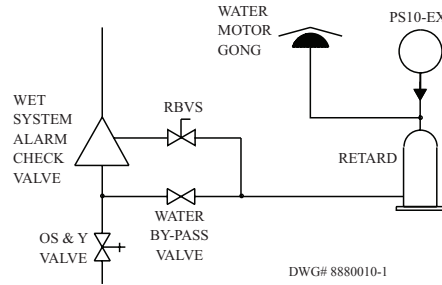
METHOD 1



DWG# 8880010-1

METHOD 2: When using the PS10-EX for local bell application or with a control that does not provide a retard feature, the PS10-EX must be installed on the alarm outlet side of the retard chamber of the Wet Pipe Alarm Valve trim.

METHOD 2



DWG# 8880010-1

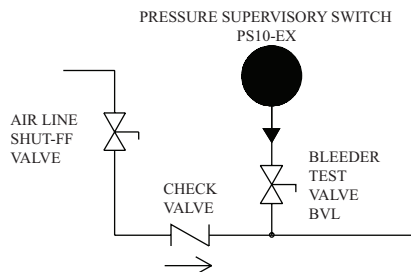
CAUTION

The closing of any shutoff valves between the alarm check valve and the PS10-EX will render the PS10-EX inoperative. To comply with the IBC, IFC, & NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Dry System Supervisory Signal (Low/High air)

Connect the PS10-EX to the Dry Pipe Valve Trim piping at the supervisory Air/Gas Dry Pipe Valve supply line connected to the DPV. A Model BVL bleeder valve as supplied by Potter Electric Signal St. Louis, MO. or equivalent shall be connected between the air line and the device to provide a means of testing the operation of the supervisory switch. (*Low Air Only*) To test the High setting the system pressure must be increased in the alarm line to operate the switch.

DRY SYSTEM



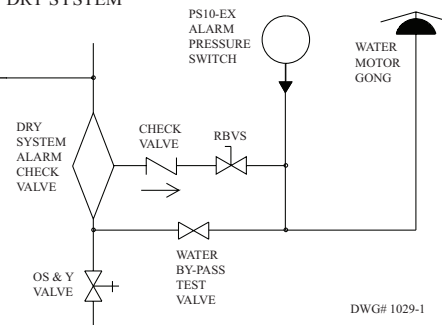
DWG# 1029-1

Dry System Water Flow Alarm

Connect the PS10-EX into the piping that extends from the intermediate chamber of the dry sprinkler valve. Install on the outlet side of the in-line check valve of the piping. Insure that no shut off valves are present between the dry sprinkler valve and the PS10-EX.

Testing: Accomplished by opening the water by-pass test valve.

DRY SYSTEM

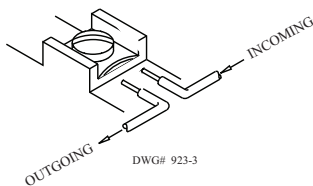


DWG# 1029-1

CAUTION

The closing of any shutoff valves between the alarm check valve and the PS10-EX will render the PS10-EX inoperative. To comply with the IBC, IFC, & NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Typical Electrical Connections



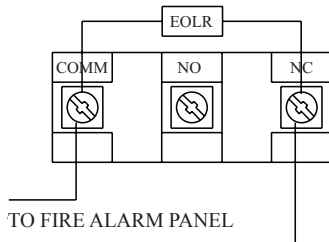
DWG# 923-3

CAUTION

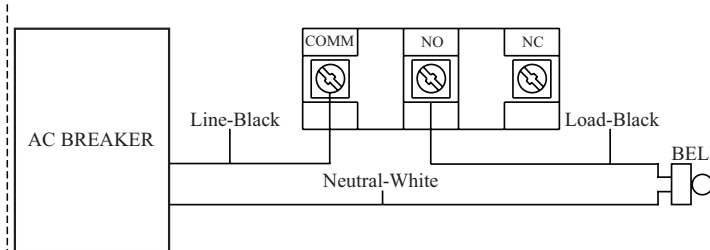
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Electrical Connections

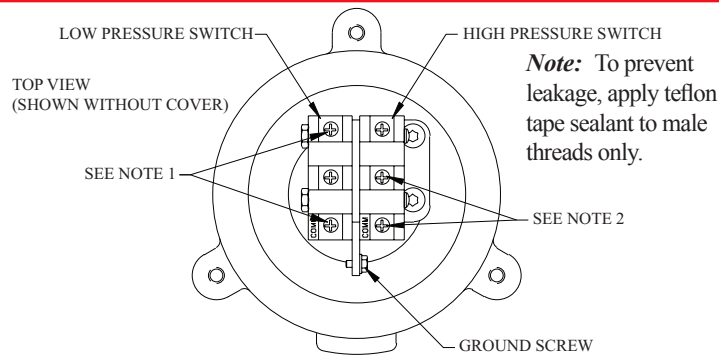
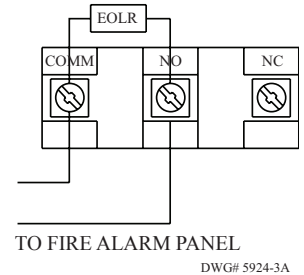
Note: For low pressure signal used on dry or pre-action systems with less than 20 psi only.



Note: To ring a local bell for waterflow.

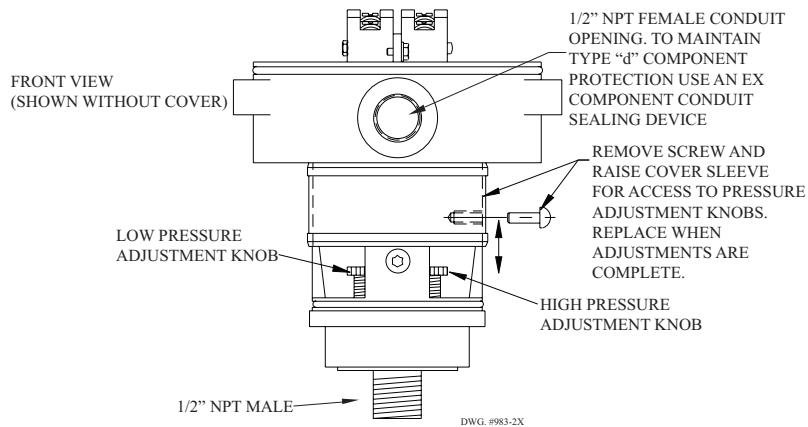


Note: For waterflow signal.

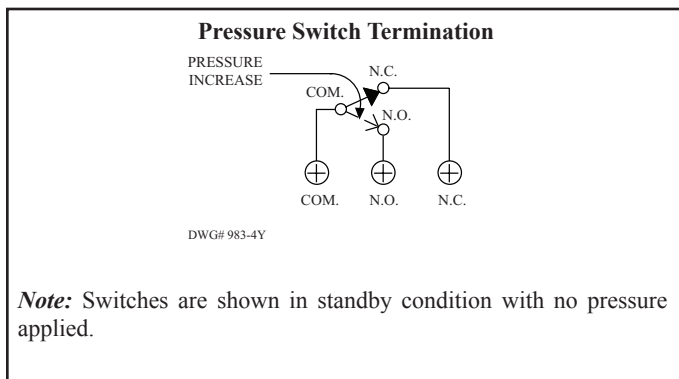


Note: To prevent leakage, apply teflon tape sealant to male threads only.

- NOTES:
 1. THESE CONTACTS CLOSE ON A PRESSURE DECREASE
 2. THESE CONTACTS CLOSE ON A PRESSURE INCREASE



DWG. #983-2X



Field Adjustments

The operating point of the switches on the PS10-EX can be adjusted to any point between 27-137 kPa/.27-1.3 BAR/4-20 PSI by turning the adjustment knob(s) clockwise to raise the actuation point, and counter-clockwise to lower the actuation point. The two switches operate completely independently of one another, and each switch may be adjusted to actuate at any point the system requires. Final adjustment should be made with a pressure gauge.

CAUTION

Use of pipe joint cement may result in obstruction of the aperture and loss of signal.

 **WARNING**

When this device is to be installed in an area that is classified as “**HAZARDOUS**”, the person responsible for safety in the area shall be contacted to determine if the tools and operations required for the installation of the device and associated components are permitted in the area. To reduce the risk of ignition of hazardous atmospheres, disconnect supply circuits before opening cover. Keep cover tight while circuits are live.

The mating surfaces of the cover and housing are designed and machined to meet the hazardous location requirements of the applicable listing agencies. These surfaces shall be protected from any damage and shall be clean and free of all foreign matter. No gasket or sealant of any type is allowed on these surfaces. The use of any type of gasket, sealant, or damage to these surfaces will void the hazardous rating of the device and can lead to explosion and death. These surfaces are not repairable and the cover is not replaceable. If any damage has occurred to either surface or a gasket or sealant has been applied to either surface, the entire device must be immediately removed from service and replaced. All foreign matter must be removed. If mating surfaces are damaged, do not place the device in service.

Important: When reinstalling the cover during installation or maintenance, wipe the mating cover and housing surfaces with a soft clean lint free cloth. Carefully inspect the surfaces for any damage or foreign matter. Firmly push the cover on the housing to fully seat the mating surfaces. Initially tighten each of the (3) cover screws evenly to 5 in-lbs (.56 n-m) to ensure that the cover is fully seated. Next, torque each cover screw to a final torque of 50 in-lbs (5.7 n-m). Failure to follow these instructions may result in injury or death.

Engineer/Architect Specifications

Pressure type waterflow switches shall be a Model PS10-EX as manufactured by Potter Electric Signal Co. of St. Louis, Mo. and shall be installed on the sprinkler systems as shown on the drawings and/or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection to be connected into the alarm check valve of a “wet” sprinkler system or into the intermediate chamber of a “dry” pipe system and shall be actuated by any flow of water to or in excess of the discharge from one sprinkler head.

Switches shall have a maximum service pressure rating of 17.2 BAR (250 PSI) and shall be factory adjusted to operate on pressure increase at $.41 \pm .07$ BAR (6 ± 1 PSI). There shall be two (2) SPDT contacts rated at 15.0 Amps at 125/250VAC and 2.0 Amps at 30VDC. The switch housing shall be weather proof and oil resistant with a NEMA 4,9 rating.

The unit shall be listed by Underwriters Laboratories, Inc. and CSFM and approved by Factory Mutual. It shall be rated for use in hazardous locations classified as Class I, Div. 1 & 2, Groups B, C, D; Class II, Div. 1 & 2, Groups E, F, G; Class III, Div. 1 & 2.



Ordering Information

Model	Description	Stock No.
PS10-1A	Pressure switch with one set SPDT contacts	1340101
PS10-2A	Pressure switch with two sets SPDT contacts	1340102
	Hex Key	5250062
	Cover Tamper Switch Kit	0090134

UL Listed, FM Approved

Dimensions: 4 3/4" (12,1cm)W x 2 1/4" (5,7cm)D x 4 3/8" (11,1cm)H

Conduit Entrance: One knockout provided for 1/2" conduit.

Enclosure: Cover - Die-cast with textured red powdercoat finish
Base - Steel/Zinc plated

Pressure Connection: Nylon 1/2" NPT Male

Factory Adjustment: 5 - 7 PSI (0,34 - 0,48 BAR)

Differential: 1 PSI (0,06 BAR) typical

Maximum System Pressure: 250 PSI (17,2 BAR)

Switch Contacts: One or two SPDT (Form C)
15.0 Amps at 125/250VAC, 2.5 Amps at 30VDC

Environmental Specifications:

NEMA 4/IP66 Rated Enclosure - indoor or outdoor when used with NEMA 4 conduit fittings.

Temperature range: -40°F to 140°F (-40°C to 60°C)

Tamper:

Cover incorporates tamper resistant fasteners that requires a special key for removal. One key is supplied with each device. For optional cover tamper switch kit, order Stock No. 0090134. See bulletin #5400984.

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

Installation

The Potter PS10 Series Pressure Actuated Switches are designed for the detection of a waterflow condition in automatic fire sprinkler systems of particular designs such as wet pipe systems with alarm check valves, dry pipe, preaction, or deluge systems. The PS10 is also suitable to provide a low pressure supervisory signal; adjustable between 4 and 20 psi (0,27 and 1,37 BAR).

1. Apply Teflon tape to the threaded male connection on the device.
(Do not use pipe dope)
2. Device should be mounted in the upright position (threaded connection down).
3. Tighten the device using a wrench on the flats on the device.

Wiring Instructions

1. Remove the tamper resistant screws with the special key provided.
2. Run wires through an approved conduit connector and affix the connector to the device.
3. Connect the wires to the appropriate terminal connections for the service intended. See Figures 2, 4, and 5.

Testing

The operation of the pressure alarm switch shall be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Wet System

Method 1: When using PS10 and control unit with retard - connect PS10 into alarm port piping on the input side of retard chamber and electrically connect PS10 to control unit that provides a retard to compensate for surges. Insure that no unsupervised shut-off valves are present between the alarm check valve and PS10.

Method 2: When using the PS10 for local bell application or with a control that does not provide a retard feature - the PS10 must be installed on the alarm outlet side of the retard chamber of the sprinkler system.

Testing: Accomplished by opening the inspector's end-of-line test valve. Allow time to compensate for system or control retard.

Note: Method 2 is not applicable for remote station service use, if there is an unsupervised shut-off valve between the alarm check valve and the PS10.

Wet System With Excess Pressure

Connect PS10 into alarm port piping extending from alarm check valve. Retard provisions are not required. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

Testing: Accomplished by opening the water by-pass test valve or the inspector's end-of-line test valve. When using end-of-line test, allow time for excess pressure to bleed off.

Dry System

Connect PS10 into alarm port piping that extends from the intermediate chamber of the alarm check valve. Install on the outlet side of the in-line check valve of the alarm port piping. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

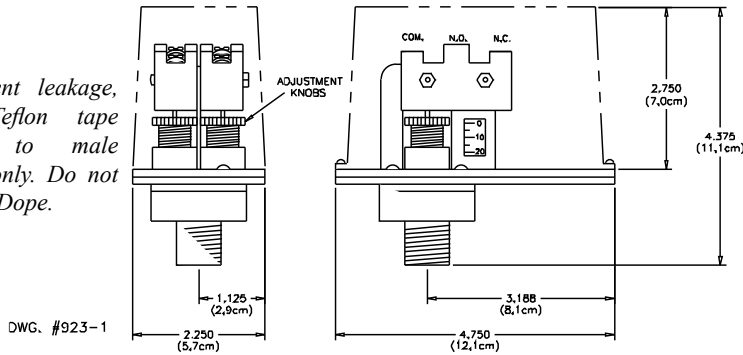
Testing: Accomplished by opening the water by-pass test valve.

Note: The above tests may also activate any other circuit closer or water motor gongs that are present on the system.

Dimensions

Fig. 1

NOTE:
To prevent leakage, apply Teflon tape sealant to male threads only. Do not use Pipe Dope.



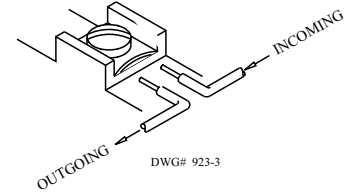
DWG. #923-1

⚠ WARNING

Use of Pipe Joint Cement may result in obstruction of the aperture and loss of signal.

Switch Clamping Plate Terminal

Fig. 2

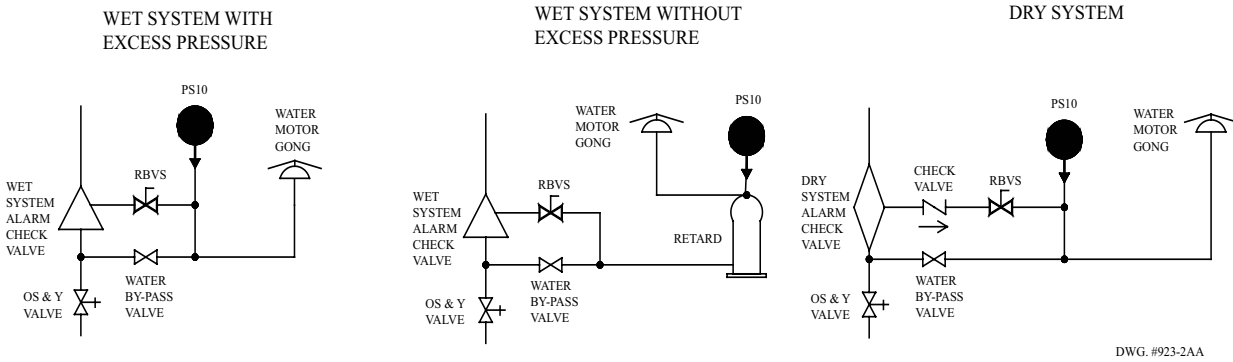


⚠ WARNING

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, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Sprinkler Applications

Fig. 3

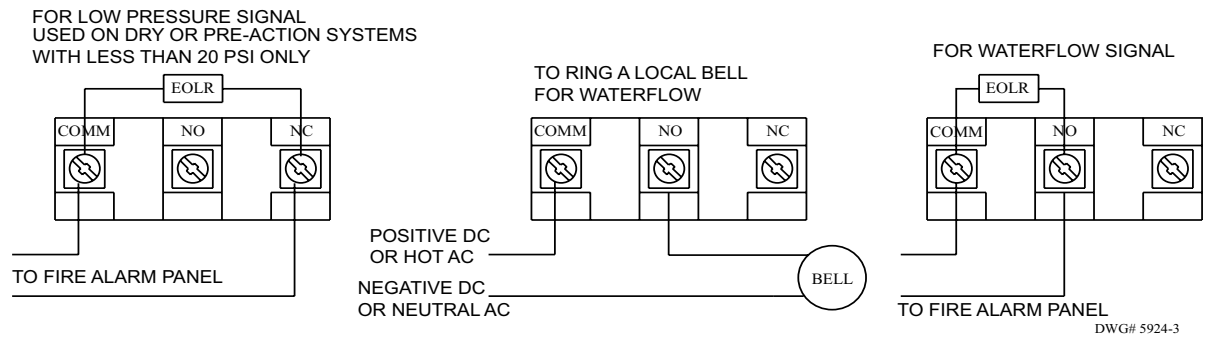


⚠ CAUTION

Closing of any shutoff valves between the alarm check valve and the PS10 will render the PS10 inoperative. To comply with NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Typical Electrical Connections

Fig. 4



Switch Operation

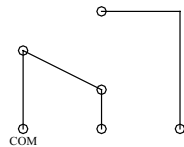
Fig. 5

Terminal

NO: Closed when installed under normal system pressure.

NC: Open when installed under normal system pressure. Closes on pressure drop. Use for low pressure supervision.

W/ PRESSURE APPLIED

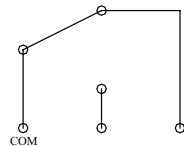


Terminal

NO: Open with no pressure supplied. Closes upon detection of pressure. Use for waterflow indication.

NC: Closed with no pressure applied.

W/O PRESSURE APPLIED



DWG#1505-1

⚠ WARNING

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Read all instructions carefully and understand them before starting installation. Save instructions for future use. Failure to read and understand instructions could result in improper operation of device resulting in serious injury or death.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

⚠ CAUTION

- Do not tighten by grasping the switch enclosure. Use wrenching flats on the bushing only. Failure to install properly could damage the switch and cause improper operation resulting in damage to equipment and property.
- To seal threads, apply Teflon tape to male threads only. Using joint compounds or cement can obstruct the pressure port inlet and result in improper device operation and damage to equipment.
- Do not over tighten the device, standard piping practices apply.

Engineer/Architect Specifications Pressure Type Waterflow Switch

Pressure type waterflow switches; shall be a Model PS10 as manufactured by Potter Electric Signal Company, St Louis MO., and shall be installed on the fire sprinkler system as shown and or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection and shall be connected to the alarm port outlet of; Wet Pipe Alarm Valves, Dry Pipe Valves, Pre-Action Valves, or Deluge Valves. The pressure switch shall be actuated when the alarm line pressure reaches 5 - 7 PSI (0,34 - 0,48 BAR).

Pressure type waterflow switches shall have a maximum service pressure rating of 250 PSI (17,2 BAR) and shall be factory adjusted to operate on a pressure increase of 5 - 7 PSI (0,34 - 0,48 BAR).

Pressure switch shall have two form C contacts, switch contact rating 15.0 Amps at 125/250 VAC, 2.5 Amps at 30 VDC.

The cover of the pressure type waterflow switch shall be die-cast and shall attach with tamper resistant screws. The Pressure type waterflow switch shall be suitable for indoor or outdoor service with a NEMA 4/ IP66 rating.

The pressure type waterflow switch shall be FM approved.



UL Listed, FM Approved

Dimensions: 4 3/4" (12,1cm)W x 2 1/4" (5,7cm)D x 4 3/8" (11,1cm)H

Conduit Entrance: One knockout provided for 1/2" conduit.

Enclosure: Cover- Die-cast with textured red powdercoat finish.
Base- Steel/Zinc Plated

Pressure Connection: Nylon 1/2" NPT male

Factory Adjustment: One switch operates on increase at 50 PSI (3,5 BAR) and one switch operates on decrease at 30 PSI (2,1 BAR)

Pressure Range: 10-175 PSI (,7 - 12,1 BAR)

Differential: Typical 2 lb. at 20 PSI (0,14 at 1,4 BAR)
5 lbs at 175 PSI (0,35 at 12,1 BAR)

Maximum System Pressure: 250 PSI (17,2 BAR)

Switch Contacts: One or two SPDT (Form C)
15.0 Amps at 125/250VAC, 2.5 Amps at 30VDC

Environmental Specifications:

NEMA 4/IP66 Rated Enclosure - indoor or outdoor when used with NEMA 4 conduit fittings.

Temperature range: -40°F to 140°F (-40°C to 60°C)

Tamper: Cover incorporates tamper resistant fasteners that requires a special key for removal. One key is supplied with each device. For optional cover tamper switch kit, order Stock No. 0090134. See bulletin #5400984.

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

Ordering Information

Model	Description	Stock No.
PS40-1A	Pressure switch with one set SPDT contacts	1340401
PS40-2A	Pressure switch with two sets SPDT contacts	1340402
	Hex Key	5250062
	Cover Tamper Switch Kit	0090134
BVL	Bleeder valve	1000018

Installation

The Potter PS40 Series Supervisory Pressure Actuated Switches are designed primarily to detect an increase and/or decrease from normal system pressure in automatic fire sprinkler systems. Typical applications are: Dry pipe systems, pre-action air/nitrogen supervision, pressure tanks, air supplies, and water supplies. The PS40 switch is factory set for 40 PSI (2,8 BAR) normal system pressure. The switch marked with the word LOW is set to operate at a pressure decrease of 10 PSI (,7 BAR) at 30 PSI (2,1 BAR). The switch marked with the word HIGH is set to operate at a pressure increase of 10 PSI (,7 BAR) at 50 PSI (3,5 BAR). See section heading **Adjustments and Testing** if other than factory set point is required.

1. Connect the PS40 to the system side of any shutoff or check valve.
2. Apply Teflon tape to the threaded male connection on the device. (Do not use pipe dope)
3. Device should be mounted in the upright position. (Threaded connection down)
4. Tighten the device using a wrench on the flats on the device.

Wiring Instructions

1. Remove the tamper resistant screws with the special key provided.
2. Run wires through an approved conduit connector and affix the connector to the device. A NEMA-4 rated conduit fitting is required for outdoor use.
3. Connect the wires to the appropriate terminal connections for the service intended. See Figures 2, 4, and 5.

Adjustment And Testing

The operation of the supervisory pressure switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Note: Testing the PS40 may activate other system connected devices.

The use of a Potter BVL (see product bulletin 8900067 for details) is recommended to facilitate setting and testing of the PS40 pressure switch. When a BVL (bleeder valve) is used, the pressure to the switch can be isolated and bled from the exhaust port on the BVL without effecting the supervisory pressure of the entire system. See Fig. 3

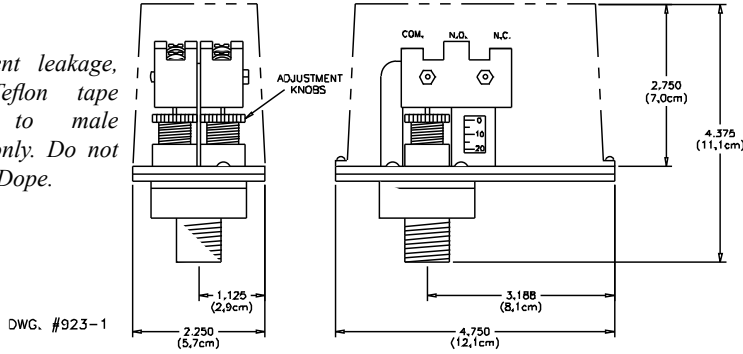
The operation point of the PS40 Pressure Switch can be adjusted to any point between 10 and 175 PSI (0,7 - 12,1 BAR) by turning the adjustment knob(s) clockwise to raise the actuation point and counter clockwise to lower the actuation point. In the case of the PS40-2, both switches operate independent of each other. Each switch may be independently adjusted to actuate at any point across the switch adjustment range. Initial adjustment can be made with a visual reference from the top of the adjustment knob across to the printed scale on the switch bracket. Final adjustments should be verified with a pressure gauge.

Dimensions

Fig. 1

NOTE:

To prevent leakage, apply Teflon tape sealant to male threads only. Do not use Pipe Dope.

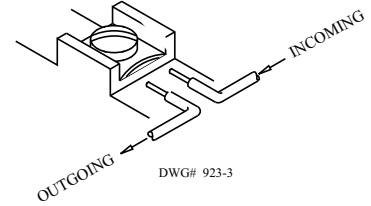


⚠ WARNING

Use of Pipe Joint Cement may result in obstruction of the aperture and loss of signal.

Switch Clamping Plate Terminal

Fig. 2

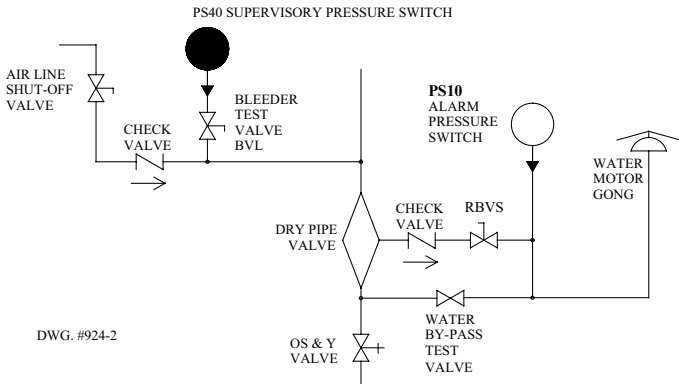


⚠ WARNING

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, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Sprinkler Applications

Fig. 3

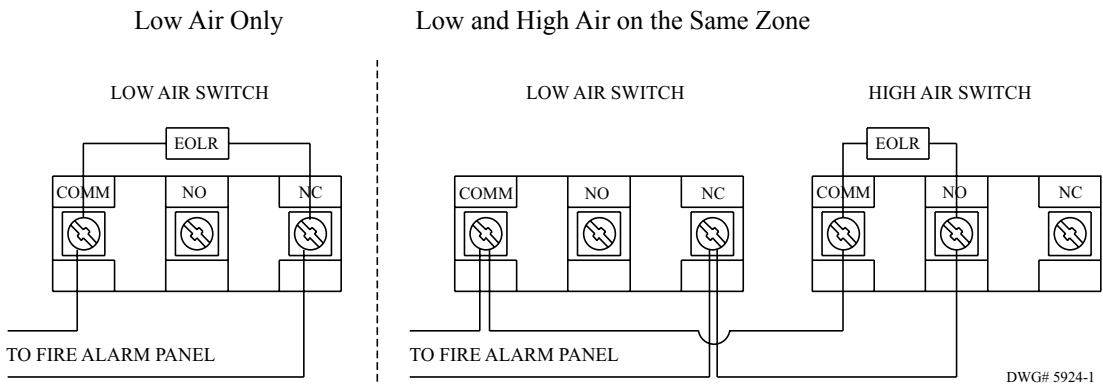


⚠ CAUTION

Closing of any shutoff valves between the alarm check valve and the PS40 will render the PS40 inoperative. To comply with IBC, IFC, and NFPA-13, any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS

Typical Electrical Connections

Fig. 4



NOTE: High switch changes with pressure increase. Low switch changes with pressure decrease.

Switch Operation (with normal system pressure applied)

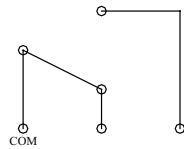
Fig. 5

Terminal

NO: Closed when installed under normal system pressure.

NC: Open when installed under normal system pressure. Closes on pressure drop. Use for low pressure supervision.

LOW PRESSURE SWITCH

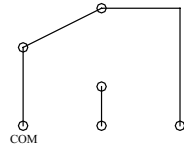


Terminal

NO: Open with no pressure supplied. Closes upon detection of pressure. Use for high pressure indication.

NC: Closed with no pressure applied.

HIGH PRESSURE SWITCH



DWG#1505-1

⚠ WARNING

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Read all instructions carefully and understand them before starting installation. Save instructions for future use. Failure to read and understand instructions could result in improper operation of device resulting in serious injury or death.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

⚠ CAUTION

- Do not tighten by grasping the switch enclosure. Use wrenching flats on the bushing only. Failure to install properly could damage the switch and cause improper operation resulting in damage to equipment and property.
- To seal threads, apply Teflon tape to male threads only. Using joint compounds or cement can obstruct the pressure port inlet and result in improper device operation and damage to equipment.
- Do not over tighten the device, standard piping practices apply.
- Do not apply any lubricant to any components of the pressure switch.

Engineer/Architect Specifications Pressure Type Waterflow Switch

Pressure type supervisory switches; shall be a Model PS40 as manufactured by Potter Electric Signal Company, St. Louis, MO., and shall be installed on the fire sprinkler system as shown and or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection to be connected into the air supply line on the system side of any shut-off valve. A Model BVL bleeder valve as supplied by Potter Electric Signal Company of St. Louis, MO., or equivalent shall be connected in line with the PS40 to provide a means of testing the operation of the supervisory switch. (See Fig. 3)

The switch unit shall contain SPDT (Form C) switch(es). One switch shall be set to operate at a pressure decrease of 10 PSI (0,7 BAR) from normal and the second switch shall be set to operate at a pressure increase of 10 PSI (0,7 BAR) from normal.

Switch contacts shall be rated at 15.0 Amps at 125/250VAC and 2.5 Amps at 30VDC. The units shall have a maximum pressure rating of 250 PSI (17,2 BAR) and shall be adjustable from 10 to 175 PSI (0,7 to 12,1 BAR).

Pressure switches shall have two conduit entrances, one for each individual switch compartment to facilitate the use of dissimilar voltages for each individual switch.

The cover of the pressure switch shall be die-cast and shall attach with tamper resistant screws. The pressure switch shall be suitable for indoor or outdoor service with a NEMA-4/IP66 rating.

The pressure switch shall be FM approved.