

Features

- Designed and approved for use in hazardous locations internationally
- Weatherproof
- Two independently adjustable switches, no tools needed
- Brass pressure connection
- Solid metal enclosure



NOTICE

This document contains important information on the installation and operation of PS10-EX pressure switches. Please read all instructions carefully before beginning installation. A copy of this document is required by NFPA 72 to be maintained on site.



CENELEC DEMKO No. 03, ATEX 0311298X, IECEx UL 18.0005X, EN60079-0:2012+A11:2013, EN60079-1:2007

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).

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.

Technical Specifications

Dimensions	152mm Dia. x 178mm H (6" Dia. x 7" H)
Enclosure	Cast aluminum
Pressure Connection	1/2" NPT male brass fitting
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	7 kPA/.07 BAR (1 PSI)
Maximum System Pressure	2068 kPA/20.68 BAR/300 PSI
Switch Contact Ratings	Two Sets of SPDT (Form C) 15.0 Amps at 125/250 VAC 2.0 Amps at 30 VDC
Conduit Entrance	1/2" NPT female conduit opening To maintain type "d" component protection use an Ex component conduit sealing device.
Environmental Specifications	For use in hazardous locations classified by CENELEC: Ex db IIB T6 Gb Class I: Div 1 Groups B, C, D Class II: Div. 1 Groups E, F, G, Class III: Div. 1
Enclosure Rating	IP66/NEMA 4,9
Temperature Rating	-40°C to 60°C (-40°F to 140°F)
Cover Tamper	Cover incorporates tamper resistant fastener that requires a special key for removal. One key is supplied with each device.
Service Use	NFPA 13, 13D, 13R, 72

Adjustment and Testing

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. Final adjustments should be made with a pressure gauge.

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

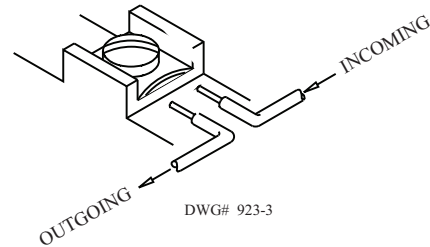
Testing the PS10-EX may activate other system connected devices.

Special Conditions For Safe Use

Dimensions of flameproof joints are other than the relevant minimum or maximum specified in Table 2 of EN 60079-1:2007. Pressure switches are marked with an “x” and manufacturer’s drawing no. 1350102 detail the dimensions of flameproof joints.

Switch Terminal Connections Clamping Plate Terminal

Fig 1



⚠ CAUTION

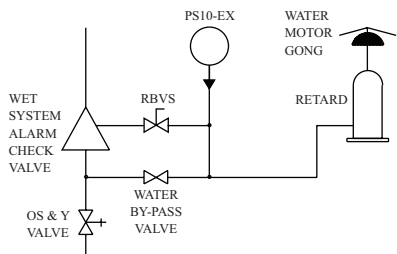
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

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.

Fig 2

METHOD 1

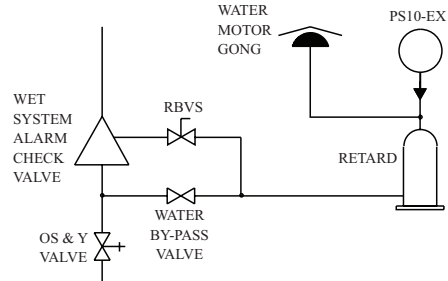


DWG# 8880010-1

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.

Fig 3

METHOD 2



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CAUTION

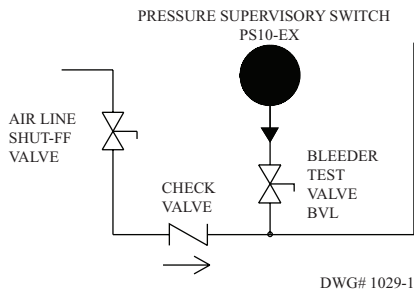
The closing of any shutoff valves between the alarm check valve and the PS10-EX will render the PS10-EX inoperative. To comply with the IBC, IFC, and NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Dry System: Supervisory Signal (Low/High air)

Connect the PS10-EX to the Dry Pipe Valve Trim piping on the system side of any shutoff or check valve in 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 to operate the switch.

Fig 4

DRY SYSTEM



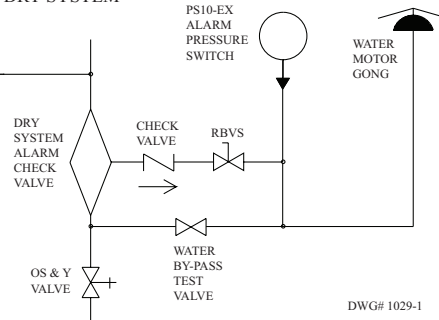
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Dry System: Water Flow Alarm

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, and NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

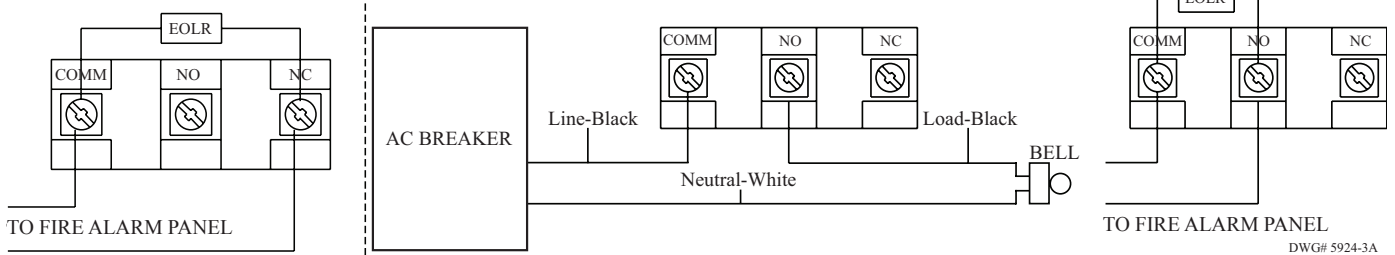
Typical Electrical Connections

Fig 5

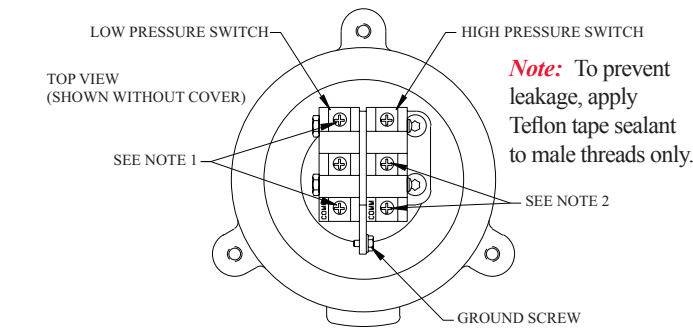
Note: For low pressure signal used on dry or pre-action systems with less than 20 psi only.

Note: To ring a local bell for waterflow.

Note: For waterflow signal.

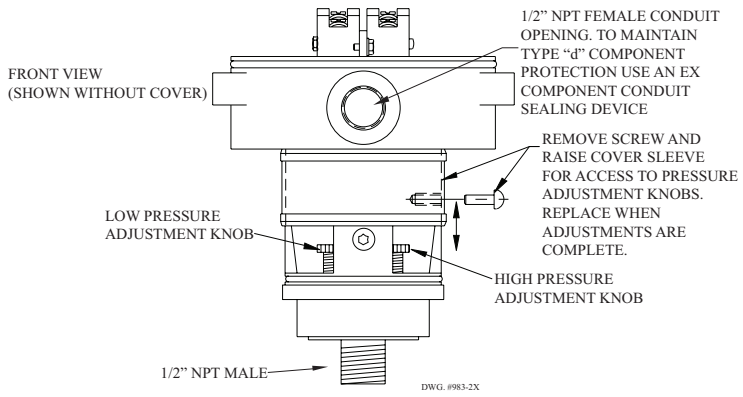


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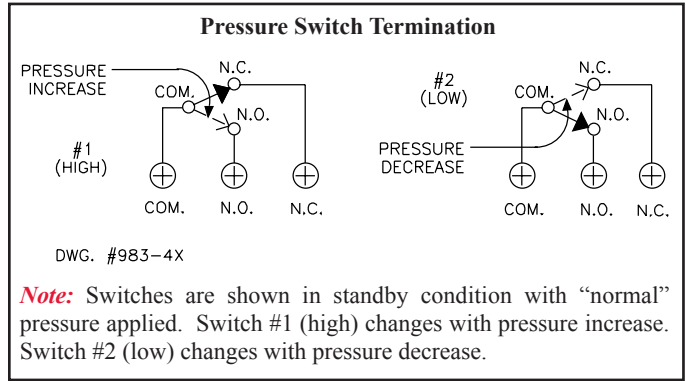


Note: To prevent leakage, apply Teflon tape sealant to male threads only.

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



DWG. #983-2X



DWG. #983-4X

Note: Switches are shown in standby condition with “normal” pressure applied. Switch #1 (high) changes with pressure increase. Switch #2 (low) changes with pressure decrease.

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. When the adjustments are complete, raise and lower the system pressure to ensure the switch is properly set and make final adjustments if necessary. Final adjustments should be made with a pressure gauge.

**Engineer/Architect Specifications
Waterflow Alarm Pressure Switch For
Use In Hazardous Locations**

UL, CUL Listed / FM, Atex Approved and CE Marked pressure type waterflow switches shall be furnished and installed on the alarm port of each dry pipe valve, on top of or downstream of each retard chamber on each alarm check valve, on the alarm port of each alarm check valve of each excess pressure system, the alarm port of each preaction system and where indicated on the drawings and plans and as required by applicable local and national codes and standards. Pressure type waterflow switches shall be diaphragm type devices consisting of a brass ½” NPT male nipple for connection to the sprinkler system, dual non-corrosive pressure chambers and diaphragms, independently adjustable pressure settings, one ½” threaded conduit entrance and two Single Pole Double Throw (SPDT) switches. The device shall be approved for use in hazardous locations classified as EX db IIB T6 Gb , (Class I: Div. 1, Groups B, C, D, Class II: Div. 1, Groups E, F, G, Class III: Div. 1). The enclosure shall be IP66 (NEMA 4 and 9) rated. It shall be possible to install an optional cover tamper switch to detect removal of the enclosure. Factory settings shall be 41 kPa / .41 BAR (6 PSI). The device shall be listed for pressures up to 2068 kPa/20.68 BAR (300 PSI). The adjustable range shall be 27-137 kPa / .27-1.37 BAR (4-20 PSI) and it shall be possible to change the factory set operating point of the pressure switch without the use of any tools. It shall be possible to change the pressure setting of either switch without affecting the pressure setting of the other switch. The switch contacts shall be rated at 15A, 125/250VAC and 2A, 30VDC. Pressure supervisory switch shall be model PS10-EX manufactured by Potter Electric Signal Company LLC. All in line valves shall be electrically supervised for their fully open position.

Ordering Information

Model	Description	Stock No.
PS10-EX	Pressure Switch with two sets of SPDT contacts	1350102
BVL	Bleeder Valve	1000018
	Hex Key (For cover removal)	5250074
	Hex Key (For pressure adjustment access)	5250073
	Optional Cover Tamper Switch Kit	0090200

⚠ CAUTION

- 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 component of the pressure switch.

NOTICE

Pressure Switches have a normal service life of 10-15 years. However, the service life may be significantly reduced by local environmental conditions.

⚠ 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.