PRESSURE SWITCH

Model PS40-EX

Explosion proof supervisory pressure switch



PRODUCT DESCRIPTION

The pressure switch model PS40-EX can be used in fire sprinkler systems. It has been designed and approved for use in hazardous locations internationally.

TECHNICAL DATA

Model	PS40-EX
Enclosure	Cast aluminium
Pressure connection	½" NPT male brass fitting
Factory setting	One switch operates on pressure increase at: 3,5 bar (50 psi) One switch operates on pressure decrease at: 2,1 bar (50 psi)
Pressure range	0,69 to 12,07 bar (10 to 175 psi)
Maximum differential	0,14 to 1,38 bar (2 to 20 psi) 0,34 to 12,07 bar (5 to 175 psi)
Maximum system pressure	17,24 bar (250 psi)
Switch Contacts	Two sets SPDT (Form C) 15 Amps at 125/250 VAC 2 Amps at 30 VDC
Conduit entrance	1/2" NPT female conduit opening To maintain type "d" component protection use an Eex component conduit sealing device
Environmental limitations	For use in hazardous locations classified by CENELEC: Ex d 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: NEMA 4,9/IP66
Temperature rating	-40ºC to 60ºC (-40ºF to 140ºF)
Cover tamper	Cover incorporates tamper resistant fastener that requires a special key for removal. One key is supplied with each device.
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
Dimensions	Diameter: 6" (152 mm) Height: 7" (178 mm)

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INSTALLATION

The Supervisory Pressure Actuated Switches PS40-EX are designed primarily to detect an increase and/or decrease from normal system pressure in automatic fire sprinkler systems located in hazardous locations. Typical applications are: air/nitrogen supervision in dry pipe and pre-action systems, pressure tanks, air supplies, and water supplies. The PS40-EX has two switches. The Low switch is factory set to activate at approximately 30 psi (2,1 bar) on a decrease in pressure. The High switch is factory set to activate at approximately 50 psi (3,5 bar) on an increase in pressure. NFPA 72 requires a supervisory signal if the pressure increases or decreases by 10 psi from normal. The PS40-EX is factory set for a normal air pressure of 40 psi. See section heading Adjustments and Testing if other than factory set point is required.

1. Connect the PS40-EX 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) .

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 is hazardous locations. Serious injury or death could result.

ANJUSTMENT AND TESTING

NOTE: Testing the PS40-EX may activate other system connected devices.

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

The use of a BVL is recommended to facilitate setting and testing of the PS40-EX 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 affecting the supervisory pressure of the entire system.

The operation point of the PS40-EX Pressure Switch can be adjusted to any point between 0,69 bar (10 psi) to 12.07 bar (175 psi) by turning the adjustment knob(s) clockwise to raise the actuation point and counter clockwise to lower the actuation point. Each switch may be independently adjusted to actuate at any point across the switch adjustment range. 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. Final adjustments should be made with a pressure gauge.

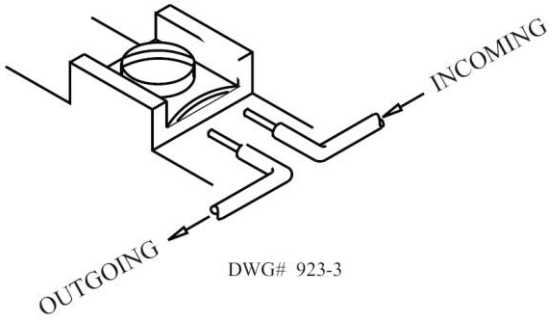
The position of the top of the adjustment knob across to the printed scale on the switch bracket can be used to provide an approximate visual reference of the pressure switch setting.

SPECIAL CONDITION 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.

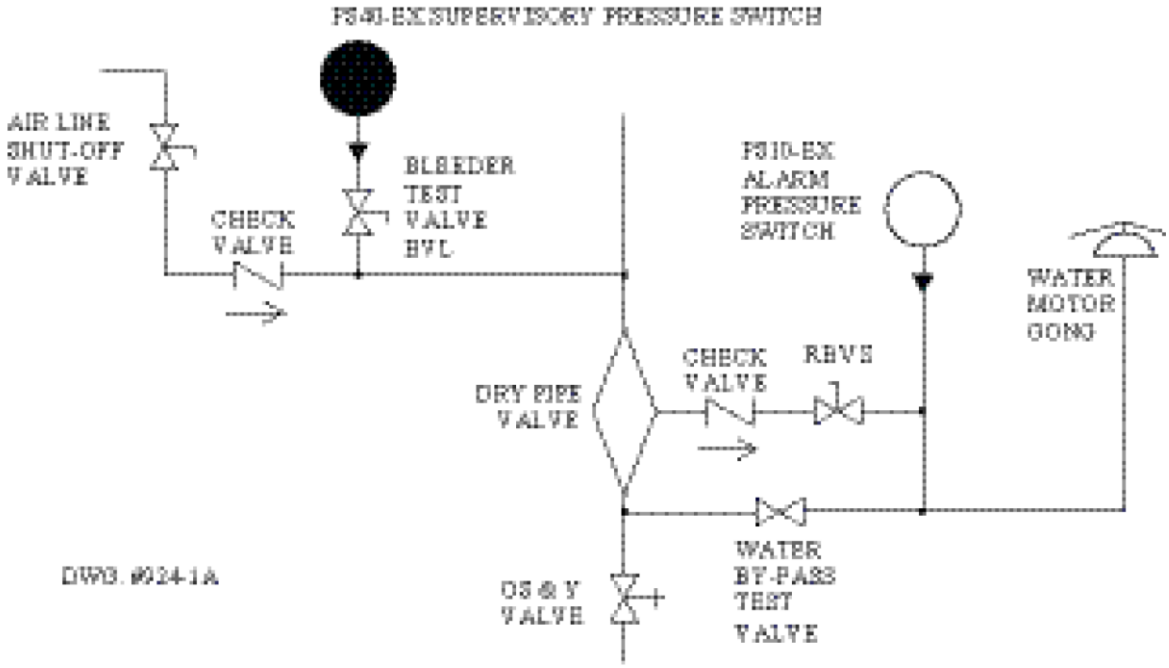
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SWITCH CLAMPING PLATE TERMINAL



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.

WET SYSTEM: WITH OR WITHOUT EXCESS PRESSURE



CAUTION: The closing of any shutoff valves between the alarm check valve and the PS10-EX will render the PS40-EX inoperative. To comply with the IBC, IFC, and NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Model RBVS.

DRY SYSTEM: SUPERVISORY SIGNAL (LOW / HIGH AIR)

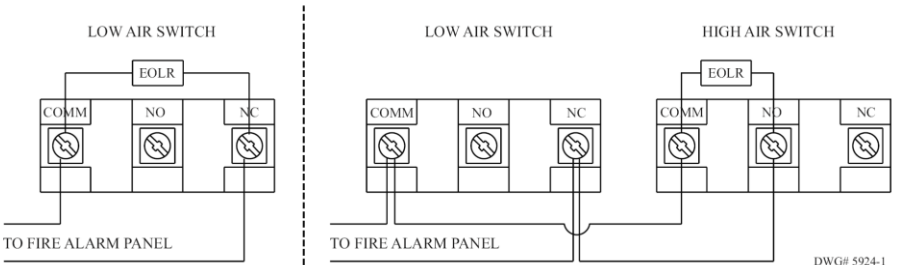
Connect the PS40-EX to the Dry Pipe Valve Trim piping on the system side of any shutoff or check valve in the supervisory Air/Gas Dry Pipe Valve supply line connected to the DPV. A Model BVL bleeder valve shall be connected between the air line and the device to provide a means of testing the operation of the supervisory switch. (Low Air Only) To test the High setting, the system pressure must be increased to operate the switch.

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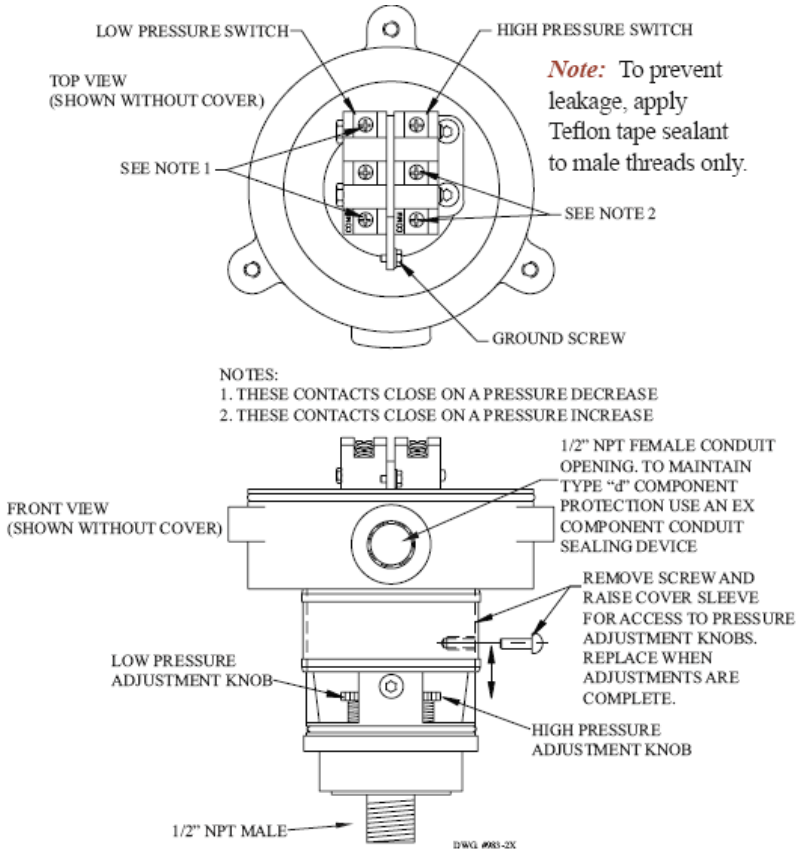
TYPICAL CONNECTIONS

Fig 3

Note: Low and High Air on the Same Zone



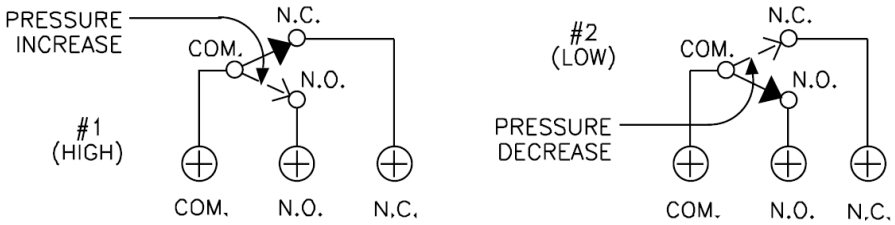
Note: High switch changes with pressure increase. Low switch changes with pressure decrease.



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

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PRESSURE SWITCH INSTALLATION



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.

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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.

ORDERING INFORMATION

MODEL	CODE
PS40-EX	SY1350402
PS40-EX-CENELEC	SY1350002

Specify:

Model	
Quantity	
Optional cover tamper switch kit	It must be ordered separately

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  - Dry
  - Accessories
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  - Dry
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  - Accessories
- Spray System Open Nozzles
  - High Velocity Nozzles
  - Medium Velocity Nozzles
  - Window Nozzles
  - Hydroshield Nozzles
  - Mushroom Type Nozzles
- Foam equipment
  - Tanks
  - Proportioners
  - Foam Discharge Equipment
  - Foam Concentrates
- Deluge equipment for Water Spray and Foam
  - Clapper Deluge Valves
  - Diaphragm Deluge Valves
- Monitors
  - Manual Monitors
  - Remote Monitors
  - Monitor Nozzles
  - Towers and Trolleys
- Valves
  - Butterfly Valves
  - Gate Valves
  - Check Valves
  - Pressure Control Valves
  - Test and Drain
  - Hose, Hydrant and Fire Connection Valves
  - Fire Department Connections

The equipment presented in this data sheet is to be installed in accordance with the latest published Standards of the national fire protection association (NFPA), FM Global, LPCB, VdS or other similar organizations, also with the provisions of governmental codes or ordinances whenever applicable.
This documentation is not contractual. AG Fire Sprinkler reserves the right to any kind of change without notice.

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