TECHNICAL DATA

ALARM PRESSURE SWITCHES
(EXPLOSION-PROOF/WATERTIGHT)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Explosion-Proof/Watertight Alarm Pressure Switches are electric alarm initiating devices for use on wet, dry, preaction, deluge, or foam-water sprinkler systems where the alarm pressure switch must be located in an area exposed to weather or an explosive atmosphere. The device is equipped with two single-pole double-throw (SPDT) snap action switches, factory set to transfer the contacts at a specific pressure. When the pressure drops below the set point of the switches, they will automatically reset. The Viking Explosion-Proof/Watertight Alarm Pressure Switches can be wired for normally open or normally closed operation and are designed to activate alarms when the sprinkler system operates. The switch may also signal annunciator panels, trip municipal fire alarm boxes, signal fire pump start-up, or any other function that can be initiated or controlled by the opening or closing of an electrical switch. The switches may also be used as a pressure supervisory switch for pressures within the adjustment range of the switch. Switches can be adjusted to operate between 4 PSI (.28 bar) and 20 PSI (1.37 bar).

2. LISTINGS AND APPROVALS

Switch 10381 (Potter 1350001)
- CENELEC Approved

Switch 10382 (Potter 1350102)
- UL and ULC Listed - Guide VOXZ (Potter Listing)
- FM Approved - Sprinkler Waterflow, Pressure Actuated (Potter Listing)
- California State Fire Marshal Listing No.: 7770-0328:141 (Potter Listing)
- New York City MEA No.: 299-91-E. Vol V (Potter Listing)

3. TECHNICAL DATA

Specifications:

Environmental Specifications:
Part Number 10381: For use in hazardous locations classified as EEXDIIBT6 (IP66)
Part Number 10382: For use in hazardous locations classified as:
- Class I: Groups B, C, D, Div. 1
- Class II: Groups E, F, G, Div. 1
- Class III: Div. 1

NEMA 4 Rated Enclosure
Ambient Temperature Range:
Part Number 10381: -4 °F to 104 °F (-20 °C to 40 °C)
Part Number 10382: -40 °F to 140 °F (-40 °C to 60 °C)
Pressure Connection: ½" (15 mm) NPT Brass, external threads
Electrical Connection: ½" (15 mm) NPT, internal threads
Maximum Differential: 1 PSI (.07 bar)
Maximum System (Proof) Pressure: 250 PSI (17 bar)
Switch Contacts: Two sets of SPDT (Form C)
- 15.0 Amps at 125/250V AC
- 2.5 Amps at 30VDC

Viking Technical Data may be found on The Viking Corporation's Web site at http://www.vikinggroupinc.com. The Web site may include a more recent edition of this Technical Data Page.

Material Specifications:

Cover: Gasketed Cast Aluminum Cover
Base: Cast Aluminum Body

Ordering Information:

Part No. 10381 - For use in Europe
Part No. 10382

Accessories:

Switch 10381 - Pressure Adjustment Hex Key, Viking Part No. 10600 and Cover Removal Key, Viking Part No. 10601
Switch 10382 - Pressure Adjustment and Cover Removal Key, Viking Part No. 10600

4. INSTALLATION

Install the Explosion-Proof/Watertight Alarm Pressure Switch into a ½" (15 mm) NPT outlet, mounted in upright position (threaded connection down). Locate the switch where indicated on Viking schematic drawings, Trim Charts, System Data, or Technical Data for the

Revised page replaces page 705e-h dated June 15, 2007.
(Corrected part number from 10380 to 10382 under Listings and Approvals)

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system used. To prevent leakage, apply Teflon® tape sealant to the male threads only. (CAUTION: Use of pipe joint cement may result in obstruction of aperture and loss of signal). Use a pipe wrench applied to the wrench shoulder, located just above the ½" (15 mm) NPT external threaded base of the switch, to tighten the unit. DO NOT over-tighten. Alarm Pressure Switches are factory set to operate at a specific pressure. DO NOT adjust the actuation setting of the switch, except to use it as a pressure supervisory switch for pressures within the adjustment range of the switch. See section 6. B - ADJUSTMENT PROCEDURES.

To wire the unit, proceed as follows:

1. De-energize electrical circuits involved.
2. Use the hex key wrench supplied with the switch to loosen the three socket head cover screws. Remove the switch cover with an upward twisting pull.
3. Connect the electrical conduit to the ½" (15 mm) NPT conduit opening provided. A NEMA Type 4 conduit hub is required for outdoor installations.
4. Connect ground wire from the ground screw provided to suitable ground.
   a. A grounding screw is provided inside both Switch Part Numbers 10381 and 10382. Switch 10381 is also equipped with an external grounding screw.
5. Connect electrical circuitry for the alarm and any auxiliary equipment being controlled by the switch (see Figures 2 and 3).

Note: Wire all devices to national and local codes and requirements of the Authority Having Jurisdiction.

6. When the Alarm Pressure Switch is used for pressure supervision:
   a. Two sets of SPDT form C contacts are provided. Use either set for HIGH pressure supervision. Use the other for LOW pressure supervision.
   b. Adjust settings as required for the system used. Each SPDT switch can be adjusted to operate between 4 PSI (.28 bar) and 20 PSI (1.37 bar). For adjustment and test procedures, see section 6. B - ADJUSTMENT PROCEDURES.
7. Replace cover by reversing the procedure described in steps 1 and 2.
8. Energize the circuits. DO NOT exceed the electrical rating of the switch.
9. Test for proper setting and operation of the device. See section 6. A - TESTING AND MAINTENANCE.

5. OPERATION

See individual system data sheets for proper operation.

6. INSPECTION, TESTS AND MAINTENANCE

Operate and test the Alarm Pressure Switch after installation, prior to start-up, and periodically as required by the Authority Having Jurisdiction.

NOTICE: The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance, inspection, and testing requirements, refer to appropriate NFPA 25, which describes care and maintenance of sprinkler systems.

A. TESTING AND MAINTENANCE:

CAUTION: If auxiliary equipment is controlled by operation of the switch, take appropriate steps to prevent unwanted operation or shutdown of those devices when testing.

A-1. Testing Alarm Pressure Switch:

Operate the alarm circuit monthly or as required by the Authority Having Jurisdiction.

1. Notify the Authority Having Jurisdiction, and those in the area affected by the alarm test.
2. Test operation of the switch by pressurizing the piping in which it is installed. When the switch is pressurized above the set point of the SPDT switch controlling the alarm circuit, the alarm should activate. If the switch is properly installed in the trim of a Viking valve, testing may be accomplished by operating the proper test valve or by tripping the system. Refer to the appropriate Technical Data for the system used.
3. When testing is complete, de-pressurize the piping in which the switch is installed. Alarms should stop sounding.
4. Reset all necessary equipment and place the system in service. Refer to the appropriate Technical Data for the system used.

B. ADJUSTMENT PROCEDURE when used for Pressure Supervision:

(Refer to Figure 5.)

Consult the appropriate Technical Data for recommended pressure for the system used. Explosion-Proof/Watertight Alarm Pressure Switches are factory set and may only be used as a pressure supervisory switch for pressures within the adjustment range of the switch. It can be adjusted to operate between 4 PSI (.28 bar) and 20 PSI (1.37 bar). If adjustment is necessary, proceed according to the instructions given below.

1. De-energize electrical circuits involved.
2. Use the hex key wrench supplied with the switch to remove the socket head screw above the sliding access cover sleeve (see Figure 5).

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3. Slide adjustment access cover up.
4. HIGH and LOW supervisory switches operate independently of one another. The operating point of each switch can be adjusted between 4 PSI (.28 bar) and 20 PSI (1.37 bar). Turn the appropriate adjustment knob clockwise to raise the actuation point or counter-clockwise to lower the actuation point.
5. Verify pressure settings of the switch. To test for proper settings without energizing the circuit, connect an ohm meter to the circuit used. Alternately raise and lower system pressure to verify proper operation of the switch.

C. Testing when used for Pressure Supervision:

The Explosion-Proof/Watertight Alarm Pressure Switch may be used as a pressure supervisory switch for pressures within the adjustment range of the switch.

WARNING: Any system maintenance that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

1. Close the main control valve, placing the system out of service.
2. High-pressure supervisory switch:
   Increase system pressure above the set point of the switch. The alarm should activate.
3. Low-pressure supervisory switch:
   Reduce system pressure below the set point of the switch. The alarm should activate.

CAUTION: When reducing pressure in pneumatic release lines, be careful not to operate the release and activate the system. Refer to the appropriate Technical Data for the system being tested.

4. When testing is complete, return the system to normal operating pressure. Alarms should stop sounding.
5. If test is satisfactory, reset all necessary equipment, and place the system in service. If adjustment is necessary, refer to section 6 B. - ADJUSTMENT PROCEDURES.
6. When testing is complete, verify that the system has been placed back in service, that the water supply control valve is open, and all other valves are in their normal operating position.

7. AVAILABILITY & SERVICE

Viking Pressure Switches are available through a network of domestic and international distributors. See the Yellow Pages of the telephone directory under “Sprinklers-Automatic-Fire” or contact The Viking Corporation.

8. GUARANTEES

For details of warranty, refer to Viking’s current list price schedule or contact Viking directly.

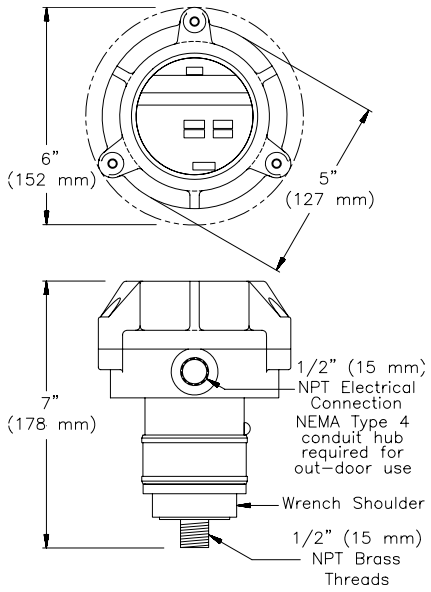
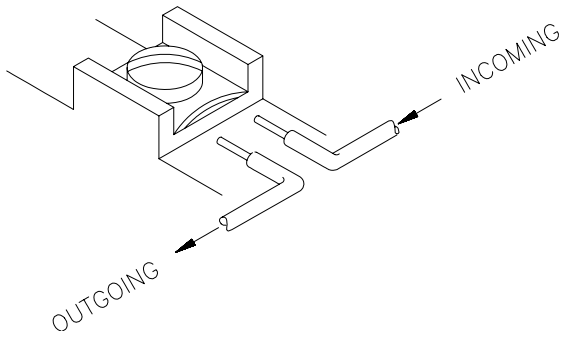


Figure 1



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.

Switch Terminal Connections
Clamping Plate Terminal
Figure 2

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WATERFLOW INDICATOR

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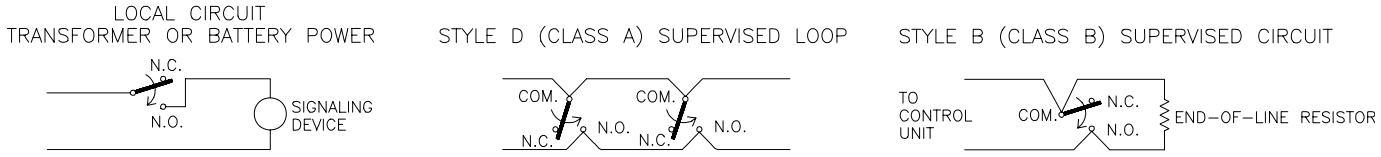
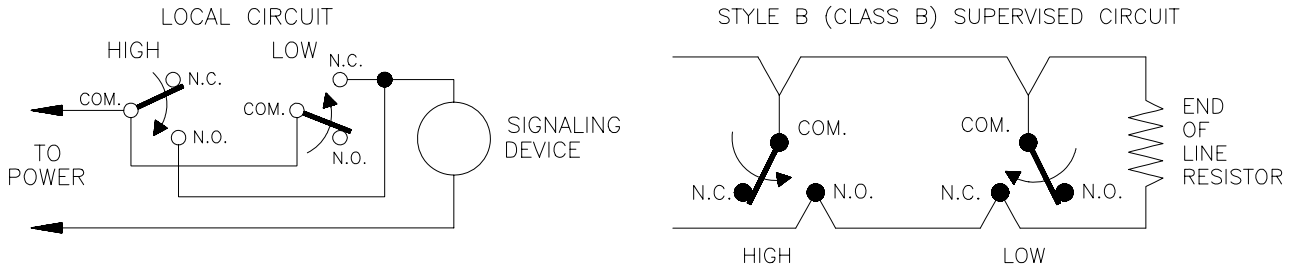


Notes
[1] Maximum recommended wire size: 14 AWG.
[2] Switch positions are shown when switch is NOT pressurized.
[3] See Figure 2 for terminal connections.

Typical Wiring diagrams for Viking Explosion-Proof/Watertight Pressure Supervisory Switch
Figure 3



Notes
[1] Maximum recommended wire size: 14 AWG.
[2] Switch positions are shown when switch is NOT pressurized.
[3] See Figure 2 for terminal connections.

Typical Wiring diagrams when Explosion-Proof/Watertight Pressure Supervisory Switch is used for High/Low Pressure Supervision
Figure 4

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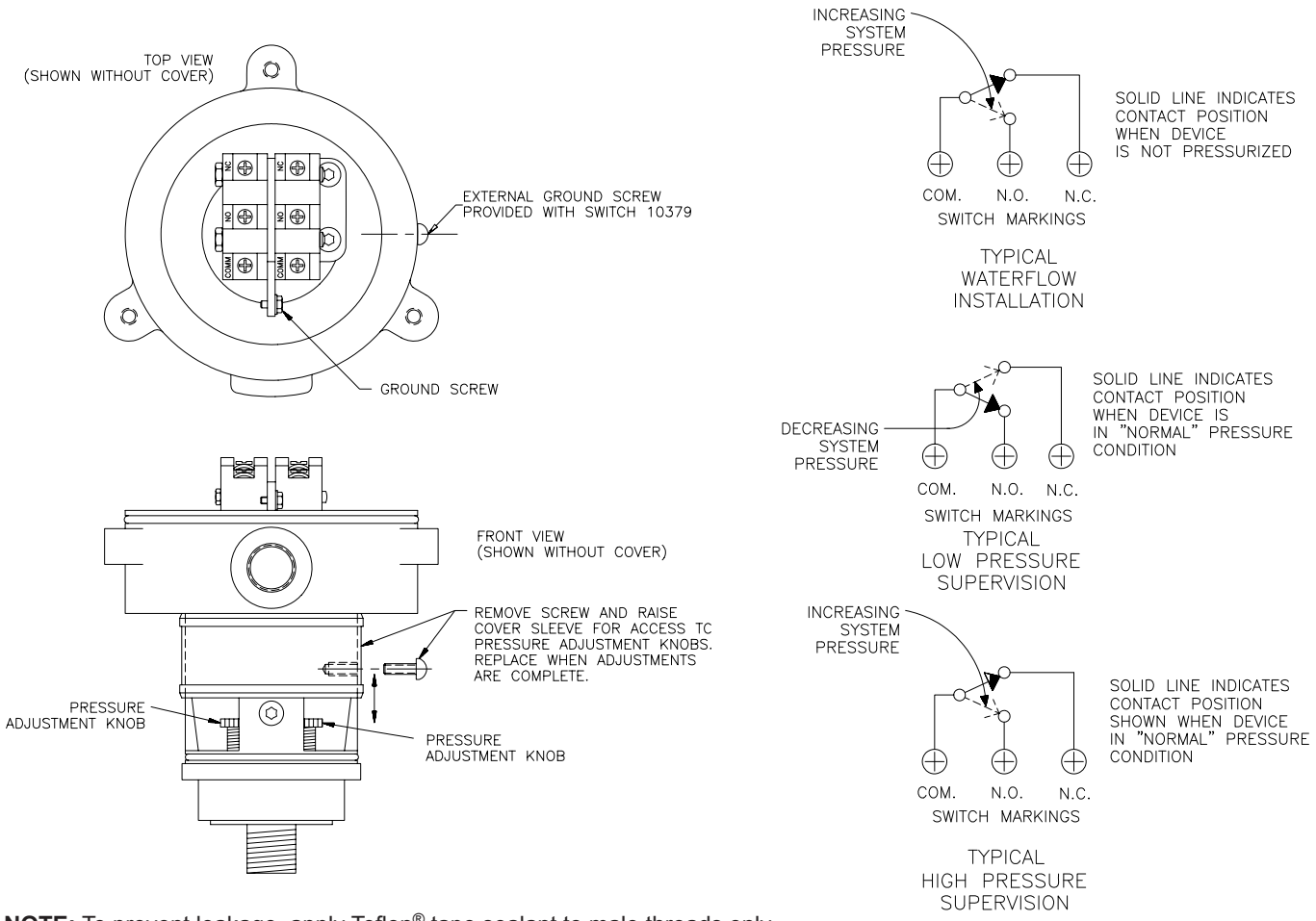

NOTE: To prevent leakage, apply Teflon® tape sealant to male threads only.
WARNING: Use of pipe joint cement may result in obstruction of aperture and loss of signal.

CAUTION: When this device is to be installed in an area that is classified as “HAZARDOUS”, the person responsible for safety in the area should 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. Cover screws must be torqued to 45-50 in. lbs.

Figure 5

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