VIKING®

TECHNICAL DATA

PRESSURE SUPERVISORY SWITCHES

1. PRODUCT NAME

PRESSURE SUPERVISORY SWITCHES

- Single SPDT: Part Number 09472
- Dual SPDT: Part Number 09473

2. MANUFACTURED FOR:

THE VIKING CORPORATION
210 N. Industrial Park Road
Hastings, Michigan 49058 U.S.A.
Telephone: (616) 945-9501
(877) 384-5464
Fax: (616) 945-9599
e-mail: techsvcs@vikingcorp.com

3. PRODUCT DESCRIPTION

Viking Pressure Supervisory Switches are designed to initiate an electric signal at a predetermined low pressure setting, or a predetermined high pressure setting on any system pressurized with air, nitrogen, or water. These systems include dry-pipe systems, preaction systems, pneumatic release lines, and any other system pressurized with air or nitrogen, as well as pressure tanks and waterflow control systems. The switches may also initiate signals to release control panels, annunciator panels, or any other auxiliary equipment that can be controlled by the opening or closing of an electrical switch. Two models of the Viking Pressure Supervisory Switch are available. The first is equipped with one single-pole double-throw (SPDT) snap action switch; the other with dual SPDT switches. Both models can be wired for normally open or normally closed circuits and are field adjustable. Use the single SPDT model to initiate a signal or activate auxiliary equipment at either a pre-determined low-pressure setting or pre-determined high-pressure setting. The dual SPDT model includes one SPDT switch to actuate at a pre-determined low-pressure setting, and another to actuate at a pre-determined high-pressure setting. Both models are equipped with 1/2" (15 mm) NPT pressure connections manufactured from brass to ensure mechanical strength and endurance.

4. TECHNICAL DATA

LISTINGS AND APPROVALS CE
UL and ULC Listed
FM Approved

Dimensions:
4-3/4" (120,7 mm) W x 2-1/4" (57,2 mm) D x 4-3/8" (111,1 mm) H
See Figure A

Pressure Connection:
1/2" Brass NPT, male

Cover:
Die-cast with textured red powdercoat finish

Base:
Plated Steel

Electrical Connection:
7/8" (22 mm) diameter hole through base

Wrench Flats:
1-5/8" (41,3 mm) across flats

Factory Settings:
- Single SPDT (Part No. 09472): Switch operates at 25 PSI (172 kPa) on pressure decrease.
- Dual SPDT (Part No. 09473): One Switch operates at 25 PSI (172 kPa) on pressure decrease. One Switch operates at 50 PSI (345 kPa) on pressure increase.

Maximum Differential:
Approximately 2 PSI (14 kPa) at 20 PSI (138 kPa) and approximately 5 PSI (35 kPa) at 175 PSI (1 207 kPa).

Available Adjustment:
Switches can be adjusted to operate at any pressure between 10 and 175 PSI (68,9 kPa and 1 207 kPa).

Maximum System Pressure:
250 PSI (1 723 kPa)

Switch Contacts:
SPDT (Form C)
15.0 Amps at 125/250VAC
2.5 AMPS at 30 VDC

Environmental Specifications:
- Indoor or outdoor use
- NEMA 4 Rated Enclosure/IP55
- Temp.: -40 °F (-40 °C) to 140 °F (60 °C)

(Not for use in hazardous locations.)
NEMA 4 conduit hub required for outdoor installations.

Tamper Resistance:
Cover incorporates tamper-resistant fasteners that require a special key for removal. One key is supplied with each device.

Accessories:
- Optional cover tamper switch kit, Viking Part Number 09601
- Cover access key, Viking Part Number 09600

5. AVAILABILITY & SERVICE

Viking Pressure Supervisory 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.

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

6. GUARANTEES

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

7. INSTALLATION

WARNING: The Pressure Supervisory Switches described on this data page are general service switches, not designed for use in explosive atmospheres. Refer to the technical data page for the Explosion-Proof/Watertight Pressure Supervisory Switches intended for use in those environments.

Viking Supervisory Pressure Switches equipped with one SPDT switch can be used to initiate a signal at either a predetermined low-pressure setting or a pre-determined high-pressure setting. The model equipped with dual SPDT switches can be used to monitor both low and high pressure limits (see Figure C).

1. Refer to current Viking System Data, schematic drawings, and Technical Data for the system used to determine the appropriate location for installing the Viking Pressure Supervisory Switch.
2. When installing the Pressure Supervisory Switch, apply Teflon® tape sealant to the male threads only. Install the Pressure Supervisory Switch in a 1/2" (15 mm) pipe fitting. Use a wrench applied to the wrench flats to tighten the unit. Do not over-tighten.

Note: Units of measure in parentheses may be approximations.

Form No. F_100995

Replaces pages 706 a-c, dated February 5, 1998 (Added ULC Listing).

VIKING®

TECHNICAL DATA

PRESSURE SUPERVISORY SWITCHES

a. Mount the Pressure Supervisory Switch in the upright position (threaded connection down).

3. To raise or lower the actuation setting of the switch, see MAINTENANCE paragraph B.
4. To wire the unit proceed as follows:
   a. De-energize electrical circuits involved.
   b. Use the special wrench supplied with the switch to loosen and remove the tamper-resistant screws. Remove cover. Use care not to lose the rubber O-ring screw retainers.
   c. Connect conduit to the conduit opening provided. See Technical Data for size of opening.
   d. Connect electrical circuitry for the signaling device and any auxiliary equipment being controlled by the switch. Refer to Figures B, C, and D.

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

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. Note: For adjustment procedure see MAINTENANCE, paragraph B.
6. Replace cover and tamper-resistant screws.
7. Energize the circuits.
8. Test for proper operation of the device. See MAINTENANCE.

8. MAINTENANCE

Operate and test the Supervisory Switch after installation, prior to start-up, and periodically as required by the standards and/or the Authority Having Jurisdiction. Quarterly testing of Pressure Supervisory Switches is recommended.

NOTICE: The owner is responsible for maintaining the fire-protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the appropriate National Fire Protection Association pamphlet that describes care and maintenance of sprinkler systems.

A. PERIODIC TEST AND MAINTENANCE:

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

WARNING: Any system maintenance which 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 water-supply control valve, placing the system out of service.
2. Test operation of a high-pressure switch by increasing the pressure above the set point of the switch. The signaling device should activate.
3. Test operation of a low-pressure switch by reducing the pressure below the set point of the switch. The signaling device 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. Signaling devices should stop.
5. If adjustment is necessary, see instructions below.
   If test is satisfactory, reset all necessary equipment, and place the system in service.

B. SUPERVISORY SWITCH ADJUSTMENT

Consult the appropriate technical data for recommended pressure for the system used. Viking Supervisory Switches are factory set. If adjustment is necessary, proceed according to the instructions given below.

1. Loosen the tamper-resistant lock screw, with the wrench supplied, and remove the switch cover. Use care not to lose the rubber O-ring screw retainers.
2. To adjust the set point, turn the adjustment knob(s) clockwise to raise the actuation setting, or counterclockwise to lower the actuation setting. See Figure A.
3. 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. If further adjustment is necessary, repeat steps 2 and 3.
4. Replace cover and tighten the tamper-resistant screws.
5. Energize the circuits.
6. Test for proper operation of the device.
7. Reset all necessary equipment and place the system in service. Refer to the appropriate technical data for the system used.

Engineer/Architect Specifications

Pressure Supervisory Switches shall be Viking labeled Pressure Supervisory Switches as manufactured for The Viking Corporation and shall be installed on the sprinkler systems as shown on current Viking System Data and Technical Data for the system used.

Switches shall be provided with a brass 1/2" NPT male pressure connection.

The switch unit shall contain SPDT (Form C) switch(es). Switches shall operate at pressure settings referenced in Viking System Data and Technical Data for the system used. 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 and shall be adjustable from 10 to 175 PSI.

The switch housing shall be metallic, NEMA 4 rated, and oil resistant. The cover shall incorporate tamper-resistant screws.

VIKING®

TECHNICAL DATA

PRESSURE SUPERVISORY SWITCHES

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

WARNING:
Use of pipe dope may result in obstruction of the aperture and loss of signal.

FIELD ADJUSTMENTS:
The operating point of the switch (or switches) can be adjusted to any point between 10 PSI (68,9 kPa) and 175 PSI (1 207 kPa) by turning the adjustment knob(s) clockwise to raise the actuation point or counter-clockwise to lower the actuation point.

In the case of units equipped with dual SPDT switches, each switch operates independently of the other. Each may be adjusted to operate at any pressure required by the system and within the range of the switch. Final adjustment should be made with a pressure gauge.

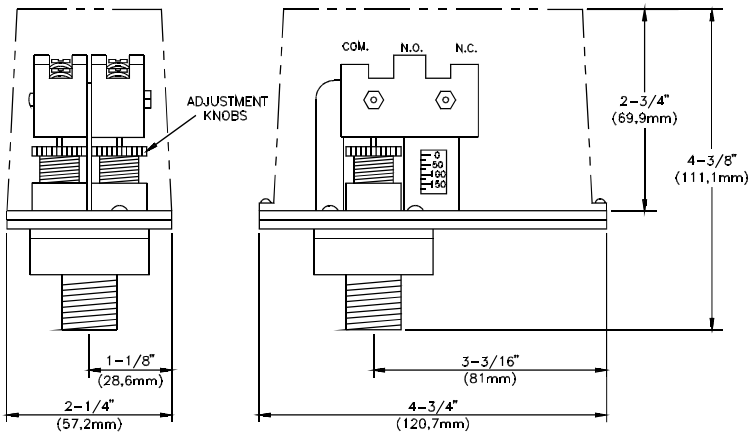
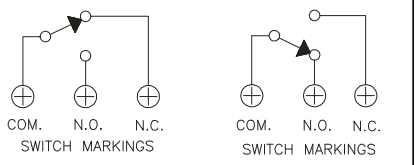


Figure A

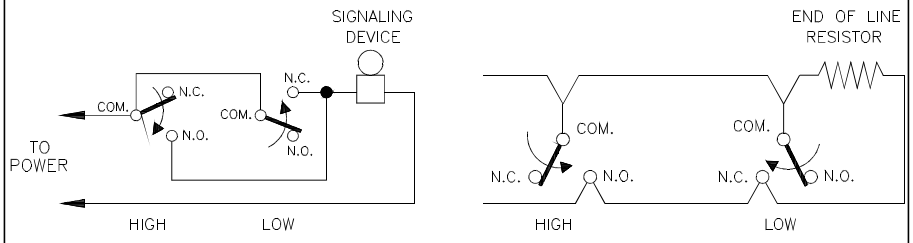


Position of contacts when switch is NOT PRESSURIZED or, PRESSURIZED BELOW the set point of the switch

Position of contacts when switch is PRESSURIZED ABOVE the set point of the switch

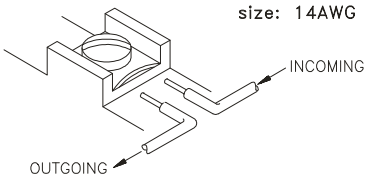
TYPICAL WATERFLOW INSTALLATION

Figure B



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.

Figure C



CAUTION: Do NOT wrap an uninsulated portion of a single conductor around a terminal screw to serve as two separate connections. Sever the wire, and remove the necessary portion of insulation, to make two separate connections as shown. This practice allows detection of dislodged connections by supervisory current.

Figure D