



Explosion Proof Alarm and Supervisory Pressure Switches Fig. RDEPSEXP

Important

This instruction manual contains important information about the installation and operation of alarm pressure switches. Purchasers who install switches for use by others must leave this manual or a copy of it with the user.

Read all instructions carefully before installation, following only those instructions that apply to the model you are installing.

Before installing any alarm device, be thoroughly familiar with:

NFPA 72: Installation, Maintenance, and Use of Protective Signaling Systems

NFPA 13: Installation of Sprinkler Systems

Other applicable NFPA standards, local codes, and the requirements of the authority having jurisdiction.

Failure to follow these directions may result in failure of the device to report an alarm condition. Rapidrop is not responsible for devices that have been improperly installed, tested, or maintained.

Operation

As pressure changes, a diaphragm actuates 2 snap action switches. The pressure switch actuation is determined by adjustment settings.

Warning

To prevent ignition of hazardous atmospheres, disconnect circuits before removing cover. Keep cover closed while circuits are live. Conduit runs must have sealing fittings connected within 18" of the enclosure.

Installation

1. Back out cover tamper set screw and remove cover (Fig. 1).
2. Mounting the Switch: The device is designed to be mounted in the upright or horizontal position; side mounting is also acceptable. Locate it where vibration, shock, and mechanical loading are minimal. Refer to piping diagram (Fig. 2 on page 2).
 - a. Mount the device directly to the line via the 1/2" NPT pressure connection. The use of teflon pipe sealant tape is recommended. Be sure the fitting is tight enough to prevent leaks.
 - b. Apply tightening torque to the brass hex portion of device.
3. Wire the device in accordance with the National Electrical Code. Two 1/2" NPT conduit entry holes have been provided in the mounting base to accept explosion proof conduit fittings. If necessary, remove conduit entry plug with 3/8" square wrench.
4. Connect wiring to terminals (see Figure 3 and Table 1).



Specification

Maximum Working Pressure	17.2 bar (250 psi)
Pressure Connection	1/2" NPT male brass fitting
Switch Contact Ratings	Two sets SPDT (Form C) 10.0 A, 1/2 HP @ 125/250V AC 2.5 A @ 6/12/24V DC
Dimensions	241mm H x 124mm W (9.5" H x 4.9" W)
Conduit Enterances	Two openings for 1/2" conduit
Operating Temperature Range	-40°C to 71°C (-40°F to 160°F)
Enclosure Rating	UL Rated 4x, NEMA 4 for indoor or outdoor use
Shipping Weight	2.8 kg (6.2 lbs.)
Service Use	Automatic Sprinkler: NFPA-13 National Fire Alarm Code: NFPA-72

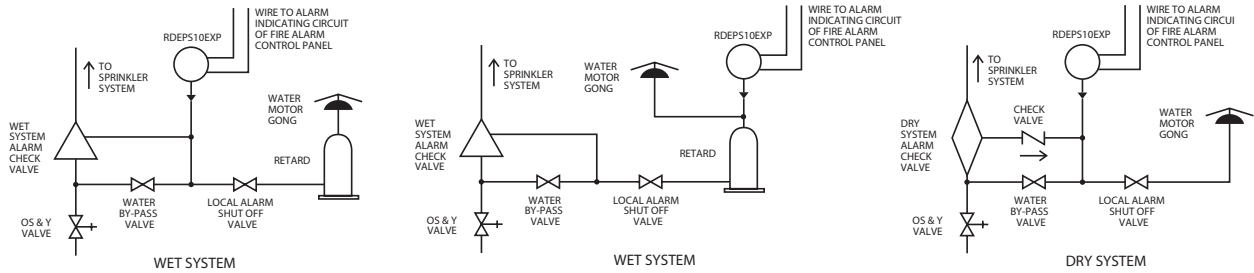
Pressure Ranges

Model Number	Pressure Range	Factory Setting	Differential
RDEPS10EXP*	4 to 20 psi	Operates at increase of 4 to 8 psi	Approx. 3 psi throughout range
RDEPS40EXP	10 to 100 psi	Operates at increase of 50 psi and decrease at 30 psi	Approx. 3 psi @ 10 psi, 6 psi @ 100 psi
RDEPS120EXP	10 to 200 psi	Operates at increase of 125 psi and decrease at 105 psi	Approx. 3 psi @ 10 psi, 9 psi @ 200 psi

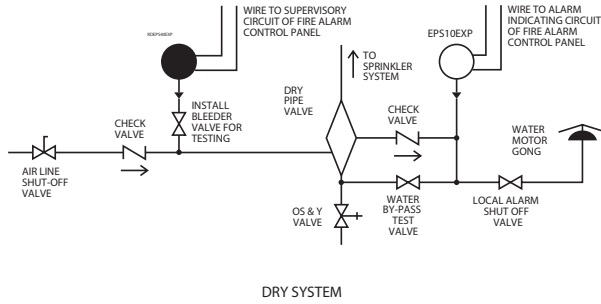
*Not FM Approved

Explosion Proof Alarm and Supervisory Pressure Switches Fig. RDEPSEXP

Typical piping diagram for RDEPS10EXP



Typical piping diagram for RDEPS40EXP



Typical piping diagram for RDEPS120EXP

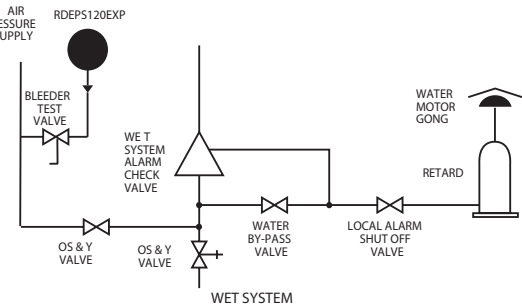


Figure 1. Dimensions

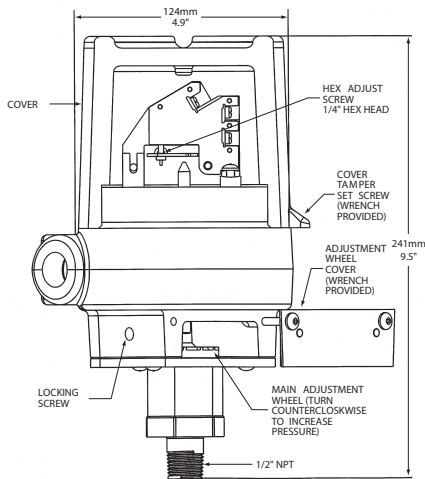


Figure 2. Electrical Connections

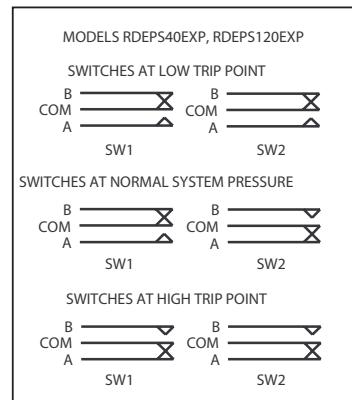
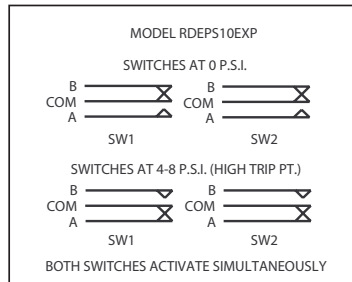
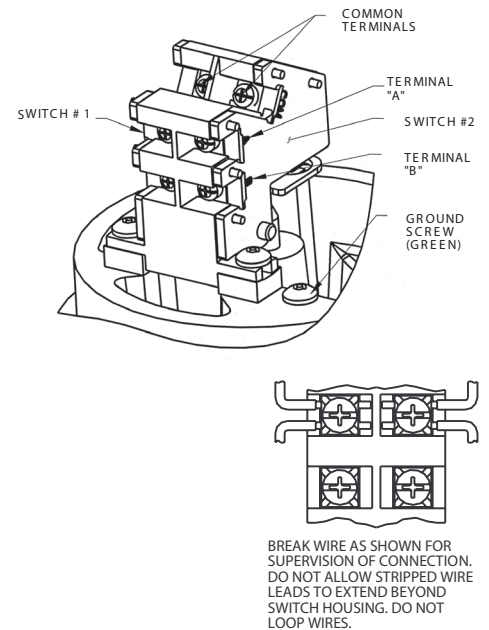


Figure 3. Switch Terminals





Explosion Proof Alarm and Supervisory Pressure Switches Fig. RDEPSEXP

Adjustments To Factory Settings RDEPS10EXP

The RDEPS10EXP device is pre-adjusted at the factory to alarm at 4–8 PSI on rising pressure (see Table 2). Pressure switch settings may be adjusted in the field to obtain a different pressure alarm response from 4 PSI to 20 PSI. The switch has an override feature on the adjustment mechanism to prevent exceeding the 20 PSI max. setting of the switch. This override feature carries with it a tolerance band that may limit the upper adjustment to 16–20 PSI. Care must be used when setting the switch to ensure that the lower limit of 4 PSI is not exceeded. This will allow the switch to reset within the 3 PSI differential stated.

1. Install pressure switch as stated in "INSTALLATION" portion of instruction manual. Attach pressure test source to system.
2. Remove adjustment wheel cover and back off locking screw (see Figure 1) to allow main adjustment wheel to rotate freely.
3. Test trip point by slowly introducing pressure from the pressure test source. When trip point is found, reduce pressure to zero. Rotate main adjustment wheel (counterclockwise to increase pressure) and retest until switch trip point is at the desired pressure setting (4–20 PSI range). Each tine on the wheel represents an approximate trip point change of 0.2 PSI. One full rotation changes the trip point setting by approximately 2.5 PSI. A reset differential of approximately 3 PSI is typical throughout the entire adjustment range of switch.
4. Retest the set point several times to ensure accuracy of setting.
5. Re-seat locking screw.
6. Re-install adjustment wheel cover.

NOTE: The sensor assembly is not field replaceable. Do not attempt to disassemble these parts. If you have any questions, consult Rapidrop. Rapidrop recommends careful consideration of the following factors when specifying and installing Alarm Pressure Switches. Always refer to the Installation and Maintenance Instruction for specific recommendations on individual devices before installing the unit.

- Electrical ratings stated in literature and on nameplates should not be exceeded.
- Overload on switch can cause failure on the first cycle. Always wire devices according to national and local electrical codes.
- Install units away from shock and vibration. Proper electrical fittings should be used to prevent moisture from entering the enclosure via the conduit.
- Test all devices for proper operation after initial installation. Perform preventive maintenance and periodic testing as required by the applicable NFPA standards but not less than bi-monthly.
- Install a back-up control for all critical applications where control failure could endanger life or property. A backup control to serve as a high or low limit control is especially recommended for applications where a runaway condition could result.
- Do not mount unit where ambient temperatures will exceed published limits.
- Avoid impact or mechanical loading.

Dual Switch Model for RDEPS40EXP and RDEPS120EXP

1. Install pressure switch as stated in "INSTALLATION" portion of instruction manual. Attach pressure test source to system.
2. Remove adjustment wheel cover and back off locking screw (see Figure 1) to allow main adjustment wheel to rotate freely.
3. **Option 1:** To adjust the nominal setting of the pressure window (low switch setting to high switch setting) without affecting the size of the window, adjust the main adjustment wheel, Figure 1, to the desired setting using the pressure source to verify each switch setting. Each tine on the wheel represents an approximate window shift of 1.8 PSI for the RDEPS40EXP and 6.6 PSI for the RDEPS120EXP. For each 1/2 rotation of the adjustment wheel, the window changes by approximately 11 PSI for the RDEPS40EXP and 40 PSI for the RDEPS120EXP.
Option 2: To adjust the pressure window size and the nominal setting of the pressure window, adjust the main adjustment wheel, Figure 1, until the high switch (SW1) trips at the desired pressure using the pressure test source. Decrease the pressure until the low switch (SW2) trips. Note pressure and determine how much change is desired on the low switch. Adjust the 1/4" hex screw, Figure 1, to either increase (counterclockwise) or decrease (clockwise) the window size. (The low switch will be affected.) The approximate sensitivity of the hex screw adjustment: 1/2 turn = 5 PSI. An approximate maximum window size of 30 PSI is obtainable. Retest the high switch after adjusting the low switch.
4. Retest the set points several times to ensure the accuracy of the settings.
5. Re-seat locking screw.
6. Re-install adjustment wheel cover.

Factory Setting

Model	Fall Switch 2 (Low Switch)	Nominal	Rise Switch 1 (Hi Switch)
RDEPS10EXP	/	6 psi	4 - 8 psi
RDEPS40EXP	30 ± 1.5 psi	40 psi	50 ± 2.5 psi
RDEPS120EXP	101.5 - 112.5 psi	115 psi	117.5 - 128.5 psi