24 Series Delta-Pro Pressure and Differential Pressure Switches

UNITED ELECTRIC CONTROLS

Installation and Maintenance Instructions

Please read all instructional literature carefully and thoroughly before starting. Refer to the final page for the listing of Recommended Practices, Liabilities and Warranties.

GENERAL

BEFORE INSTALLING, CHECK THE SENSOR MODEL SELECTED FOR COMPATIBILITY TO THE PROCESS MEDIA IN CONTACT WITH THE SENSOR AND WETTED PARTS.

The 24 Series pressure switch utilizes a diaphragm sensor to monitor pressure changes. Pressures which exceed the calibrated set point cause an actuator to operate a snap action switch. The differential pressure version utilizes dual diaphragm sensors to monitor the difference in pressure between two sources.

Part I - Installation

Tools Needed
Screwdriver to accommodate customer-supplied mounting screws
Adjustable wrenches (2)

MOUNTING

LOCATE SWITCH WHERE VIBRATION, SHOCK, AND AMBIENT TEMPERATURE FLUCTUATIONS ARE MINIMAL. TO AVOID DAMAGE TO SWITCH, ALWAYS HOLD THE WRENCH ON THE WRENCH FLATS OR HEX PORTION OF THE PRESSURE CONNECTION WHEN TIGHTENING.

The switch can be mounted in any position. Locate where ambient temperature is above 30°F and below 160°F.

Surface Mounting
Insert two #6 screws through mounting ear holes on 2" centers (recommended mounting for maximum vibration resistance).

Pipe Mounting
Mount unit from its port(s). Always hold a wrench on pressure port when tightening pressure connection.

Use a wrench on the pressure port and thread a 1/4" NPT male fitting into the port. Be sure to connect high pressure source to port labeled "HIGH". Similarly, connect low pressure source to "LOW".

NEVER TIGHTEN BY TURNING THE SWITCH INTO THE FITTING.

MODELS 24-011, -012, -015, -016, -017 AND -018 HAVE A *POLYSULPHONE® PORT WITH 1/4" NPS FEMALE THREAD. A 1/4 NPT OR 1/4 NPS FITTING MAY BE USED WITH THIS CONNECTION. HOWEVER, IN BOTH CASES, THE MATING FITTING WILL BOTTOM-OUT IN THE PRESSURE CONNECTION. THEREFORE, WITH THESE MODELS, TEFLON TAPE MUST BE APPLIED TO FITTING FOR A TIGHT SEAL. DO NOT OVER TIGHTEN. CONNECTION TORQUE MUST NOT EXCEED 2 FT. / LBS. OVER TIGHTENING MAY DAMAGE THE PORT.

WIRING

ALL LIVE SUPPLY CIRCUITS MUST BE DISCONNECTED BEFORE WIRING THE SWITCH. CONNECT THE CONDUIT TO THE HOLE IN ACCORDANCE WITH NATIONAL AND LOCAL CODES. BRING WIRES UP TO THE TERMINALS FROM THE REAR. MAXIMUM RECOMMENDED WIRE SIZE IS 16 AWG.

Unscrew terminal just enough to put stripped wire under terminal block clamp. Nominal torque value for terminal block screw is 9.0 in-lbs.

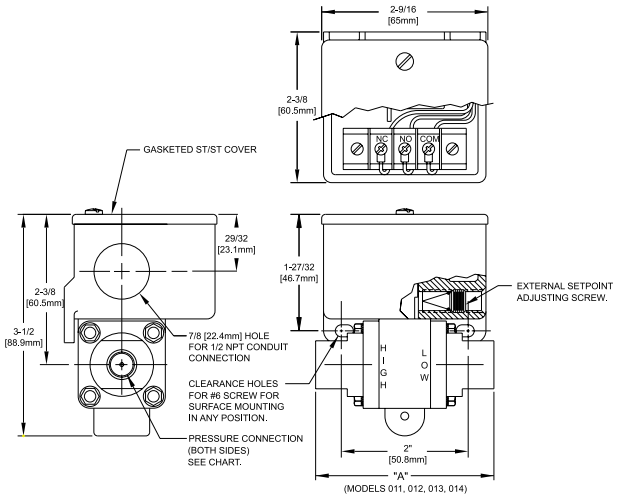
Part II - Adjustments

Tools Needed
Screwdriver

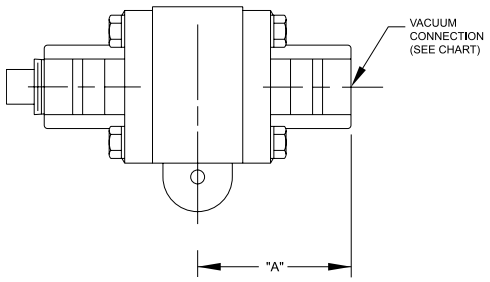
Use screwdriver to turn external adjusting screw, located on the side of the enclosure. Turn "in" (clockwise) to increase setting or "out" (counterclockwise) to decrease setting. For best setting accuracy, set the switch using the actual working pressures encountered in the application.

***Polysulphone®** *is a registered trademark of Amoco.*

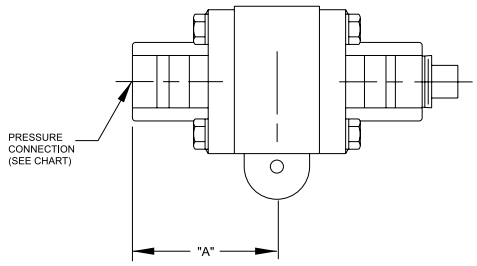
Dimensions



Models 011, 012, 013, & 014



Models 015 & 019



Models 016, 017, 018, 020, 021, & 022

Model	DIMENSION A	Pressure Connection
011, 012	2.75" (69.9 mm)	1/4" NPS (F) Polysulphone
013, 014	3.13" (79.5 mm)	1/4" NPT (F) Brass
015, 016, 017, 018	1.44" (36.6 mm)	1/4" NPS (F) Polysulphone
019, 020, 021, 022	1.56" (39.6 mm)	1/4" NPT (F) Brass

RECOMMENDED PRACTICES AND WARNINGS

United Electric Controls Company recommends careful consideration of the following factors when specifying and installing UE pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and maximum temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to maximum pressure or temperature is acceptable on a limited basis (e.g., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum pressure or temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- The adjustable range must be selected so that incorrect, inadvertent or malicious setting at any range point cannot result in an unsafe system condition.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. When applicable, orient unit so that moisture does not enter the enclosure via the electrical connection. When appropriate, this entry point should be sealed to prevent moisture entry.
- Unit must not be altered or modified after shipment. Consult UE if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point or faulty display. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Overload on a switch can cause damage, even on the first cycle. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temp. exceeding published limits.

LIMITED WARRANTY

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (Ex-works, Factory, Watertown, Massachusetts. INCOTERMS); provided, however, that this warranty applies only to equipment found to be so defective within a period of 24 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives. EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF SELLER'S LIABILITY

Seller's liability to Buyer for any loss or claim, including liability incurred in connection with (i) breach of any warranty whatsoever, expressed or implied, (ii) a breach of contract, (iii) a negligent act or acts (or negligent failure to act) committed by Seller, or (iv) an act for which strict liability will be inputted to seller, is limited to the "limited warranty" of repair and/or replacement as so stated in our warranty of product. In no event shall the Seller be liable for any special, indirect, consequential or other damages of a like general nature, including, without limitation, loss of profits or production, or loss or expenses of any nature incurred by the buyer or any third party.

UE specifications subject to change without notice.

UNITED ELECTRIC CONTROLS
180 Dexter Avenue, P.O. Box 9143
Watertown, MA 02471-9143 USA
Telephone: 617 926-1000 FAX: 617 926-2568
http://www.ueonline.com