



ASHCROFT D400 Snap Action Switches for Differential Pressure Control Instruction Manual

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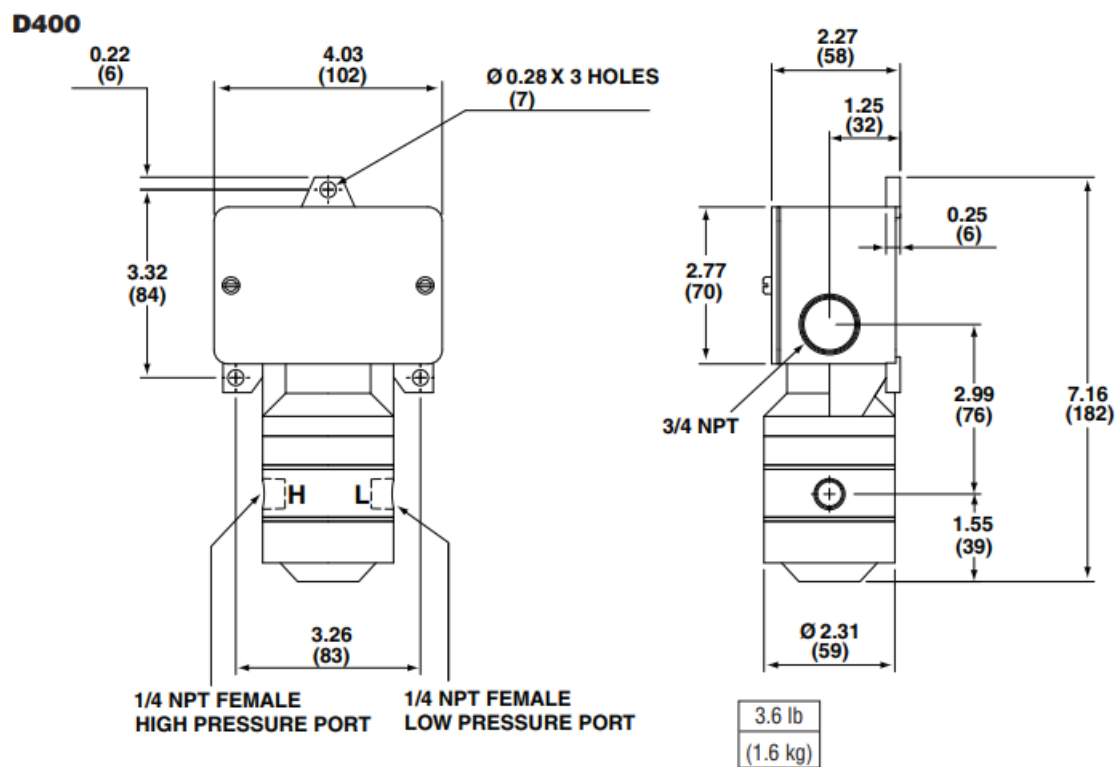
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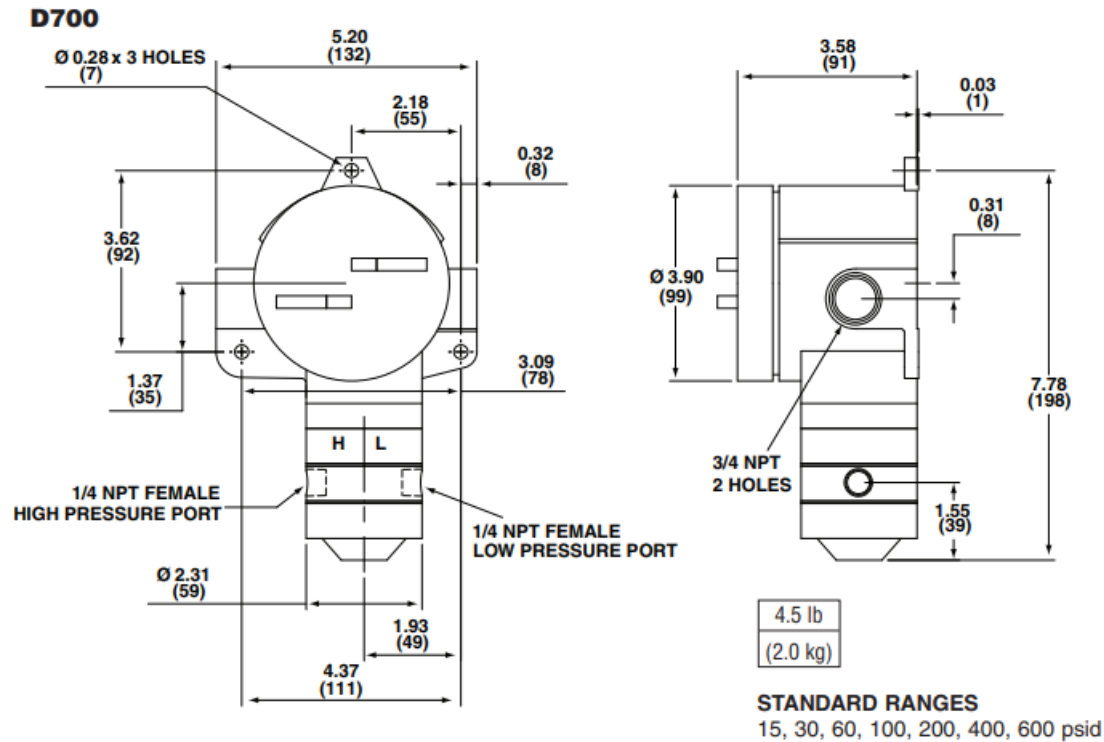


ASHCROFT D400 Snap Action Switches for Differential Pressure Control



DIMENSION





INTRODUCTION

The Ashcroft® differential pressure switch is a precision-built U.L. and C.S.A.-approved control device that features a mechanical snap action switch. Controllers are available for operation on various pressure differentials with fixed or variable switching differentials. Also, manual reset types are available for operation on increasing or decreasing pressure. The manual reset types remain tripped until reset by pressing a button on the top of the enclosure. The standard electrical switch is SPDT and is available with various electrical characteristics. Two SPDT switch elements mounted together are available except on variable deadband and manual reset types. Various wetted material constructions for compatibility with a wide range of pressure media may be obtained. The Ashcroft snap action temperature switch is furnished in the standard NEMA 4 and explosion proof NEMA 7 and 9 enclosure styles. Both enclosures are epoxy coated aluminum castings.

INSTALLATION

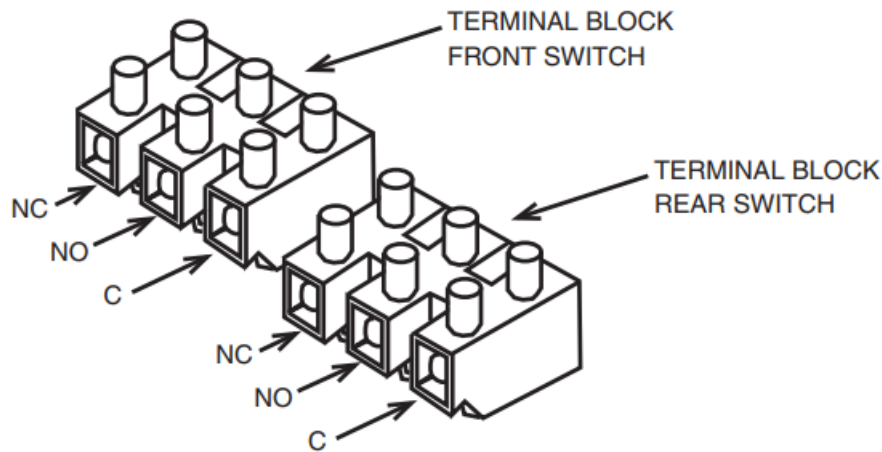
These controls are precision instruments and should never be left with internal components exposed. After installation ensure that covers are in place and conduit openings are closed.

MOUNTING D400 AND D700 SERIES

There are three holes external to the enclosures for surface mounting. The locations of these holes is shown on the general dimension drawing. The controls may also be mounted directly on the pressure line using the pressure connections.

ELECTRICAL CONNECTIONS

- Remove cover
- D400 Series – two screws hold cover to enclosure
- D700 Series – cover unscrews



CONDUIT CONNECTIONS

- **Note** – It is recommended that Teflon® tape or other sealant be used on conduit, bushing or plug threads to ensure integrity of the enclosure.
- **D400 Series standard** – one 3/4 NPT conduit hole right side.
- **D700 Series standard** – two 3/4 NPT conduit holes with one permanent plug. NEMA 7 & 9 enclosures require proper conduit seals and breathers as per the National Electrical Code.
- **D400 & WT700 Series** – XJL variation – two 3/4 NPT conduit holes with two 3/4 to 1/2 NPT reducing bushings.
- **D400 Series** – XJK variation – two 3/4 NPT conduit holes.

D400 SERIES

- **SPDT** – Wire directly to the switch according to circuit requirements. On controls with pilot lights, wire lights according to circuit diagram on the inside of the cover. See the special wiring instruction tag for single switches with two pilot lights and dual switches with one or more pilot lights.
- **2-SPDT** – Dual switching elements consist of two SPDT switches mounted together in a bracket. The switches are calibrated to have simultaneous operation within 1% of the range either on increasing or decreasing pressure, but not in both directions. Wire directly to the front and rear switch according to circuit requirements. Leads provided on rear switch and leads provided for hermetically sealed switch components are color coded as follows:
 - Common – White
 - Normally Closed – Red
 - Normally Open – Blue

See SPDT instructions for pilot light hook-up.

D700 SERIES

- **SPDT** – Wire directly to the switch according to circuit requirements.
- **2-SPDT** – Wire to front switch terminal block (left) and rear switch terminal block (right) as marked. Strip insulation 5/16", insert in proper terminal connector and tighten clamping screw to secure.

ADJUSTMENT OF SETPOINT

- **D400 & D700 Series** – A single setpoint adjustment nut (7/8") is located centrally at the bottom on the inside of the enclosure. The direction of turning is indicated on a label affixed to the inside of the control enclosure. A typical calibration procedure would be as follows:
 - Static Working Pressure – 600 psig
 - Adjustable Differential Range – 30/200 psid
 - Differential Setpoint – 150 psi above static working pressure

Simultaneously raise the high and low side pressure to 600 psig. Maintain the low side pressure at 600 psig. Raise the high side pressure to 750 psig to obtain 150 psi differential. Turn the adjustment nut until the switch changes mode at 150 psi differential. When the setpoint has been achieved, raise and lower the high side pressure to ensure that the differential setpoint is correct.

D450 and D750 VARIABLE DEADBAND SWITCHES

Deadband is varied by rotating the wheel on the precision switch. When viewed from the front of the enclosure, rotation to the left increases Deadband – rotation to the right decreases dead band. Letters on the wheel may be used as a reference. Deadlands obtainable will vary from 2% to 9% of the pressure range depending on range segment and the type of diaphragm.

ADJUSTMENT OF SETPOINT

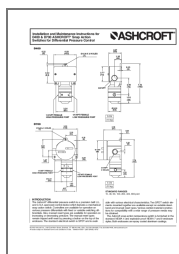
As received, the differential pressure switch will normally be set to approximately 90% of range. Rotate the wheel on the MICRO SWITCH all the way to the right. This will provide the smallest dead band. Pressurize the system to the required setpoint and turn the adjustment nut until the switch changes mode. Lower the pressure to reset the switch. Rotate the wheel on the MICRO SWITCH until the desired dead band is obtained. The upper setpoint will be changing upward with this adjustment. Lower the pressure to reset the switch. Increase the pressure to the desired setpoint and turn the adjustment nut until the switch changes mode. Lower the pressure and check the reset point and dead band.

Note – As indicated above, adjustment of setpoint is made by use of 7/8" nut. The precision switch element mounting screws and bracket adjusting screw are factory sealed and should not be tampered with.

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Documents / Resources



[ASHCROFT D400 Snap Action Switches for Differential Pressure Control](#) [pdf] Instruction Manual

D400 Snap Action Switches for Differential Pressure Control, D400, Snap Action Switches for Differential Pressure Control, Action Switches for Differential Pressure Control, Differential Pressure Control, Pressure Control, Control, D400 Snap Action Switches for Differential Pressure Control

References

- [Pressure Instruments - Temperature Instruments | Ashcroft](#)