Installation and Maintenance Instructions for B400 & B700 ASHCROFT® Snap Action Switches for Pressure Control

INTRODUCTION
The Ashcroft pressure switch is a precision built agency approved control device which features a mechanical snap action switch. Controllers are available for operation on pressure or vacuum with fixed or variable differential. Also manual reset types for operation on increasing or decreasing pressure. The manual reset types remain tripped until reset by pressing a button on top of the enclosure. Standard electrical switch is SPDT, 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 range of pressure media may be obtained.

The Ashcroft snap action pressure switch is furnished in the standard NEMA 4 and explosion-proof NEMA 7 & 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. During installation insure that covers are in place and conduit openings are closed except when actually working on the control.

MOUNTING B400 AND B700 SERIES
Three holes external to the enclosure for surface mounting. Location of these holes is shown on the general dimension drawing. They may also be mounted directly on pressure line using the pressure connection. When tightening control to pressure line, always use the wrench flats or hex on the lower housing.

ELECTRICAL CONNECTIONS
Remove cover
B400 Series – two screws hold cover to enclosure
B700 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.
B400 Series standard – one 3⁄4˝ NPT conduit hole right side.
B700 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.

B400 & B700 Series – XJL variation – two 3⁄4˝ NPT conduit
holes with two 3⁄4˝ NPT reducing bushings.
B400 Series – XJK variation – two 1⁄2˝ NPT conduit holes.

B400 SERIES

SPDT – Wire directly to the switch according to circuit require-
ments. On controls with pilot lights wire lights according to circuit
diagram on inside of cover. See special wiring instruction tag for
single switches with two pilot lights and dual switches with one
or more lights.

2 SPDT – Dual switching elements consist of two SPDT switch-
es mounted together in a bracket. Switches are calibrated to
have simultaneous operation within 1% of 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 are provided on rear switch color coded as
follows:

Common – White
Normally Closed – Red
Normally Open – Blue

See SPDT instructions for pilot light hook-up.

When hermetically sealed switch elements(s) are supplied, the
lead color coding is as follows:

Common – White
Normally Closed – Red
Normally Open – Blue

B700 SERIES

SPDT – Wire directly to the switch according to circuit require-
ments.

2 SPDT – Wire to front switch terminal block (left) and rear
switch terminal block (right) as marked. Strip insulation ½˝,
sert in proper terminal connector and tighten clamping screw
to secure.

ADJUSTMENT OF SETPOINT

B400 & B700 Series – A single setpoint adjustment nut (7⁄8˝)
is located centrally at the bottom on the inside of the enclosure.

For accurate setpoint calibration, mount the switch on a cali-
bration stand, a pump or catalog No.1305 deadweight gauge
tester. A suitable reference standard such as an Ashcroft
Duragauge or Test Gauge is necessary to observe convenient
changes in pressure.

As received, the pressure switch will normally be set to
approximately 90% of the indicated range. Pressurize the
system to required setpoint and turn the adjustment nut until
switch changes mode. Direction of turning is indicated on a label
affixed to the inside of the control enclosure. When setpoint has
been achieved raise and lower pressure to insure that setpoint is
correct.

SETPOINT LOCKING SCREW (B400 ONLY)

Once setpoint has been determined, tighten setpoint locking
screw using a ¾˝ allen (hex) wrench. Do not over torque;
setpoint locking screw only needs to be hand tight.

When performing calibration or changing the setpoint, the setpoint
locking screw should be loosened before turning the setpoint
adjusting nut. Once calibration is complete, re-tighten the set-
point locking screw.

After installation of the control replace cover to insure electrical
safety and to protect internal parts from the environment.

B450 and B750 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
deadband. Letters on the wheel may be used as a reference.
Deadbands obtainable will vary from 0.5% to 9% of pressure
range depending on range segment and type of diaphragm.

ADJUSTMENT OF SETPOINT

As received, the pressure switch will normally be set to approxi-
mately 90% of range. Rotate the wheel on the MICRO SWITCH
all the way to the right; this will provide smallest deadband.

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 deadband is obtained. The upper
setpoint will be changing upward with this adjustment. Lower the
pressure to reset the switch. Then increase the pressure to the
desired setpoint and turn the adjusting nut until the switch
changes mode. Lower the pressure and check resetpoint and
deadband.

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

Recommended Practices

Ashcroft recommends regular inspection of the operation and
setpoint of the switch in critical applications to prevent issues
that could cause severe damage to personnel or property.