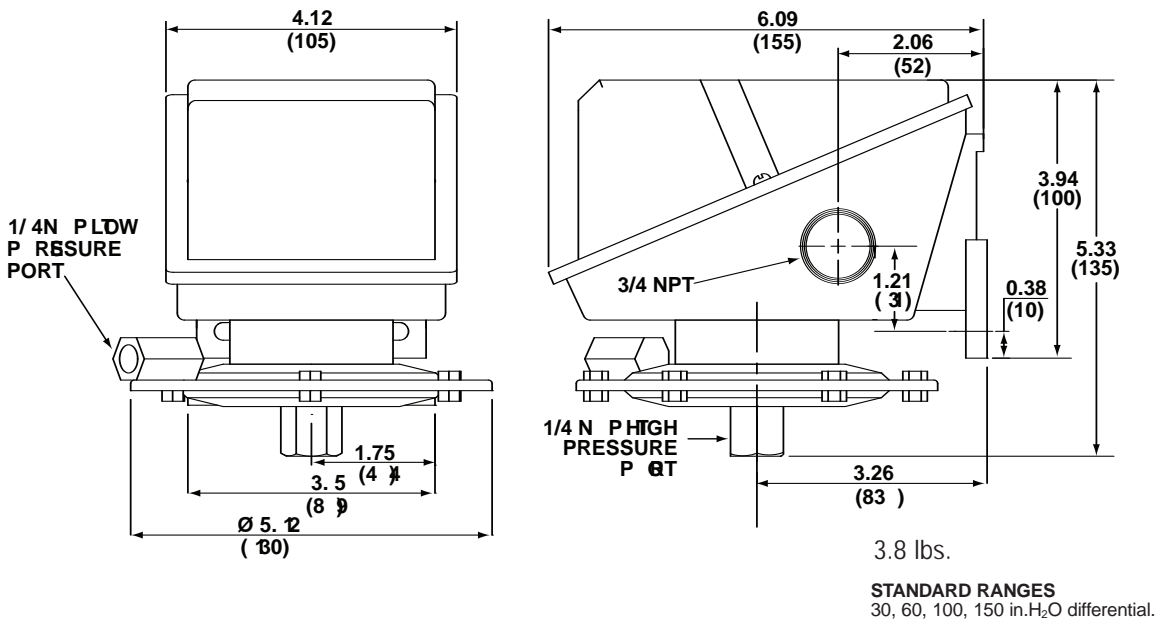


# Installation and Maintenance Instructions for ASHCROFT® L-Series Snap Action Switches for Low Range Differential Pressure Control



## OPERATION

The ASHCROFT® differential pressure control is a precision device which features a snap action switch. Fixed dead band is available with single or dual SPDT independently adjustable switches with various electrical ratings. Adjustable deadband is available with a SPOT switch with various electrical ratings. Several wetted material constructions for compatibility with pressure media may be obtained.

Series LD-S switches have a fixed deadband which will be within the limits noted on the nameplate.

Series LD-D switches may be set to operate simultaneously or up to 85 percent of the range apart. The deadband of each switch will be within the limits noted on the nameplate.

Series LD-A switches may be set to operate with any deadband within the limits shown on the nameplate.

## MOUNTING

The "L" Series ASHCROFT® snap action differential pressure switch has a NEMA-4 enclosure which is an epoxy coated aluminum casting.

Two holes in the integral bracket are used to surface mount the control. Location of these holes is shown on the general dimension drawings. An optional pipe mounting bracket is also available. Mount on a vibration free surface or pipe in any orientation.

## CONDUIT CONNECTIONS

One 3/4 NPT hole fitted with a shipping plug, and two additional knock outs are provided. The knockouts may be removed by placing a screwdriver in the slot and rapping sharply with a hammer. It is recommended that Teflon tape or other sealant be used on conduit bushing or plug threads to ensure integrity of the enclosure.

## PRESSURE CONNECTIONS

For operation as a pressure control, connect the pressure source to the lower port marked "H." If venting is required, connect vent line to side port marked "L." If no venting is required, port "L" must be left open.

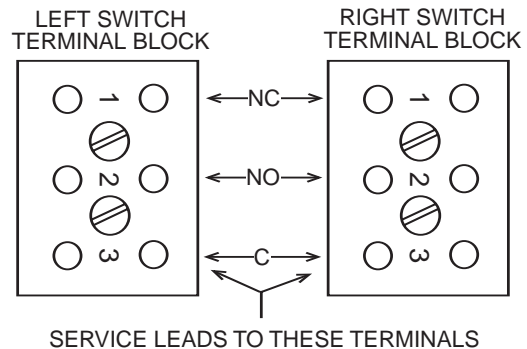
For operation as a differential control connect the high pressure to the lower port marked "H" and the low pressure to the side port marked "L."

When tightening control to pressure lines, always use the wrench flats or hex on the pressure connection. NEVER TIGHTEN BY TWISTING THE CASE.

## ELECTRICAL CONNECTION

Remove cover held in place by two screws.

On all units except one with terminal blocks – wire directly to the switch according to circuit requirements. Units with terminal blocks – wire directly to terminal blocks as required. Terminals are marked common (C), normally open (NO) and normally closed (NC).



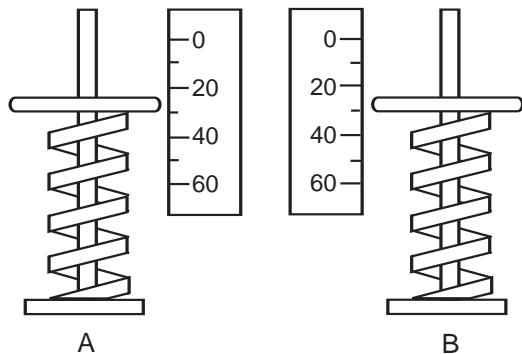
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## SETPOINT ADJUSTMENTS

Setpoints are changed by means of the setpoint adjusters. The LD-S single switch has one adjuster and the LD-A adjustable deadband and LD-D dual switch each have two adjusters. On switches with two adjusters, the one on the left is referred to as "A" and the right one is referred to as "B"; see illustration. Setpoints can be adjusted from 20 to 100 percent of full range on increasing pressure.

**Note** – Due to the sensitivity of this control it is imperative that the *Low* pressure side volume be large so that there is no increase in *Low* pressure when shut off and *High* side pressure is applied. If this is not possible, approximate setpoint under operating conditions can be obtained by setting operating point with *Low* side open to atmosphere. Then make final setpoint adjustments after installation.



## SERIES LD-S SINGLE SWITCH

Remove cover. For setpoint adjustment on either increasing or decreasing differential pressure to within  $\pm 1\%$  of nominal range, mount the switch on a calibration stand and use a suitable reference such as an ASHCROFT® Duragauge or test gauge. Monitor switch with a light or meter.

Apply *Low* pressure. Then apply *High* pressure to the required setpoint.

If setpoint is on increasing differential pressure, turn adjuster so that switch operates (if common-normally closed circuit is being monitored light goes off). If setpoint is on decreasing differential pressure, turn adjuster so that switch resets (if common-normally closed circuit is being monitored light comes on). When the setpoint has been achieved, raise and lower the *High* pressure to ensure that the setpoint is correct.

The deadband (difference between the operate and reset pressures) may be verified at this time to be between the values noted on the nameplate label.

## SERIES LD-D DUAL SWITCH

Remove cover. For setpoint adjustment to within  $\pm 1\%$  of nominal range, mount the switch on a calibration stand and use a suitable reference such as an ASHCROFT® Duragauge or test gauge. Monitor switch with a light or meter.

Apply *Low* pressure. Then apply *High* pressure to the higher of the two required setpoints. Turn adjuster "B" until the switch operates or resets as required. See discussion of increasing or decreasing differential pressure setpoints and deadband verification under Series LD-S Single Switch. When the setpoint has been achieved, raise and lower the *High* pressure. Then reduce the *High* pressure to the lower setpoint differential pressure and turn adjuster "A" until the switch operates or resets as required. Verify this setpoint by raising and lowering the *High* pressure. Now increase the *High* pressure to the higher setpoint and make final adjustment on "B."

## SERIES LD-A ADJUSTABLE DEADBAND SWITCH

Remove cover. Adjuster "B" controls the operating point of the switch on increasing pressure. Adjuster "A" controls the reset-point of the switch on decreasing pressure.

For accurate setpoint adjustment, mount the switch on a calibration stand and use a suitable reference such as an ASHCROFT® Duragauge or test gauge. Monitor switch with a light or meter. Apply *Low* pressure. Then apply *High* pressure to the required setpoint pressure.

Turn adjuster "B" until switch operates. Then lower differential pressure to the re-setpoint and turn adjuster "A" until the switch resets. Now increase pressure to the operating point and make final adjustment on "B." Raise and lower pressure to ensure that the setpoint and re-setpoint are correct.

## SOME PRECAUTIONS TO OBSERVE

Do not loosen the screws holding the precision switch element(s) or mounting bracket in place.

Nameplate *PROOF* pressure should not be exceeded. Intermittent operation up to proof pressure is permissible, however, some change of setpoint may be noted.

Operation and correct setpoint actuation should be routinely tested.