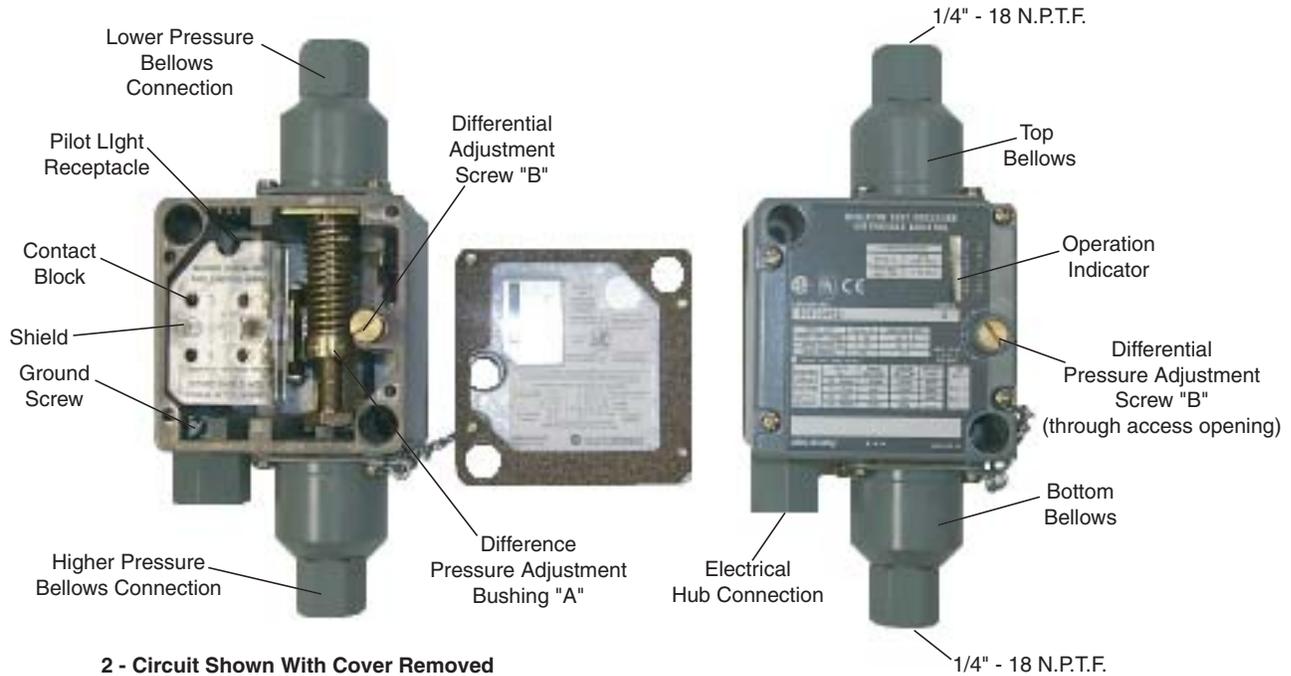




PRESSURE DIFFERENCE CONTROLS



2 - Circuit Shown With Cover Removed

DESCRIPTION - Bulletin 836T, Type 1, 4 & 13 oiltight pressure difference controls are designed for use on applications where a stream of oil or water may flow over the enclosure. Other applications would include areas where it is desirable to resist the entrance of lint, dust, and dirt into the enclosure.

These controls respond to a difference in pressure between two bellows and is independent of the actual gauge pressure of the system. They have a top and bottom bellows which are mechanically linked together. The difference and control differential pressures are adjustable. The front cover must be removed to make difference adjustments. The controls are supplied with either copper alloy or stainless steel bellows.

CAUTION: Copper alloy bellows may be used on water or air and other liquids or gases not corrosive to this alloy. Type 316 stainless steel bellows are available and are used for the more corrosive liquids and gases.

The 2 - Circuit contact block has one set of normally open and one set of normally closed contacts. These contacts may be arranged for single pole double-throw operation or separate circuit operation having the same polarity.

A 4 - Circuit contact block assembly with two normally open and two normally closed contacts is also available. An isolated terminal is furnished to provide a termination point when an optional power source is used. These contacts may be arranged for double pole double-throw operation or two isolated single pole double-throw, electrically isolated circuits. Circuits must be of the same polarity.

OPERATION - A toggle mechanism operates the snap action switch at a predetermined difference pressure setting. For the 2 - Circuit snap switch the pressure causes the normally closed circuit 1-2 to open and normally open circuit 3-4 to close. Similarly, for the 4 - Circuit snap switch, both normally closed circuits, 1-2 & 5-6 would open and both normally open circuits 3-4 & 7-8 would close. This occurs under one of the following conditions:

1. The pressure in the bottom bellows is higher by the difference pressure setting than the pressure in the top bellows.

- (or)
2. The pressure in the bottom bellows remains constant and the pressure in the top bellows decreases by a value equal to the difference pressure setting.

This is known as the difference pressure "trip" setting.

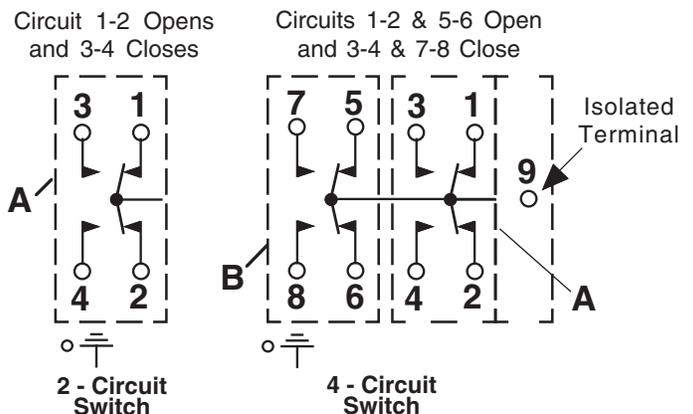
When the difference pressure returns to the predetermined normal setting, the circuit 1-2 will close and circuit 3-4 will open. For the 4-Circuit snap switch circuits 1-2 & 5-6 will close and circuits 3-4 & 7-8 will open. This occurs under one of the following conditions:

1. The pressure in the bottom bellows is lower than the top bellows.
- (or)
2. The pressure in the bottom bellows remains constant and the pressure in the top bellows increases.

This is known as the differential setting.

The difference between "trip" and "reset" pressure is the differential.

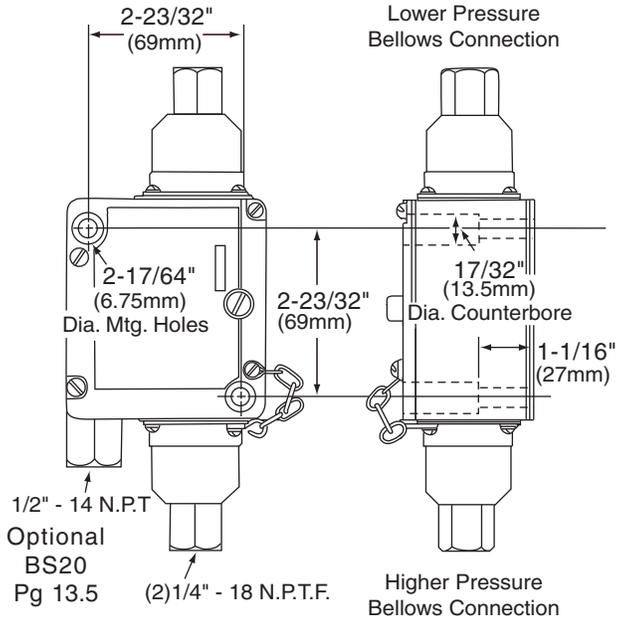
CONTACT BLOCK WIRING SYMBOL (Increase in "Higher Pressure Line" Operation)



A or B circuits must be the same polarity.

MOUNTING - The pressure control should be mounted securely to a firm base using two mounting screws. The mounting holes (see sketch) are easily accessible without removing the front cover assembly.

CAUTION: The control should not be supported by only the electrical and pressure connections. A support wrench should be used when tightening the electrical hub and pressure connections.



NOTE: Do not connect until control has been set in accordance with instructions. See "Setting Control"

SETTING CONTROL - Unless otherwise specified, controls shipped from the factory are set at the maximum operating difference pressure and minimum differential as specified on the nameplate. This would position the difference pressure adjusting bushing "A" approximately one inch from the bottom of the enclosure. Use a pressure gauge to make the following adjustments:

DIFFERENCE PRESSURE SETTING: The difference pressure adjustment sets the control to "trip" the contacts at the desired difference in pressure between the two bellows as required for the application.

With no pressure (open to atmosphere) applied to the top bellows, apply a constant pressure to the bottom bellows equal to the desired difference in pressure at which the contacts are to "trip" during operation of the system. Insert a 1/8" diameter rod into a hole in the adjusting bushing "A" and turn bushing to the left. Continue to turn bushing until the mechanism "trips", circuit 1-2 will open. At this point, the difference pressure is set at the pressure which is being applied to the bottom bellows.

DIFFERENTIAL ADJUSTMENT: The differential adjustment will permit setting the control to "reset" the contacts to their normal position.

When the differential screw "B" is up against the underside of the differential access opening in the cover the control will operate at minimum differential. To increase the differential, turn adjustment screw "B" clockwise. This will decrease the lower setting only. The higher setting will not change. Similarly, to decrease the differential turn the differential adjustment screw "B" counterclockwise. This will raise the lower setting only.

NOTE: The use of a pressure gauge is desirable when setting the control.

To set the control to a given differential, turn adjustment screw "B" clockwise approximately 12 turns. Apply the difference pressure to "trip" the control as in the "Difference Pressure Setting" paragraph. Lower and maintain this pressure at the desired differential. Turn the adjustment screw "B" counterclockwise until the switch just "resets". For the 2 - circuit snap switch contacts 1-2 will close. For the 4 - circuit snap switch contacts 1-2 & 5-6 will close. Repeat these steps between "trip" and "reset" several times to insure proper setting. The adjustment screw "B" should never extend above the base of the enclosure.

The setting procedure is now complete. Connect the top bellows, lower pressure, into the system. The control will operate as a difference pressure control with the differential as set per instructions.

After the desired settings have been accomplished and the installation complete, mount the cover and tighten the four cover screws 6-8 in.-lbs to insure a good seal between cover and base.

Operating variables in a system may cause changing pressure requirements. It is recommended that a periodic inspection of the gauge pressure be made and the pressure control adjusted to compensate when necessary for these changes.

CAUTION: The adjustment screw "A" should not be forced beyond the range of the control indicated on the calibrated scale. The adjustment screw "B" should not be adjusted beyond the maximum specified differential of the control.

PILOT LIGHT OPTION - A high intensity neon glow pilot light is available for 120 volt, 60 hertz applications and can be installed at the factory or in the field. To order pilot light kit specify catalog number of existing control and add N9 to this number. Optional pilot lights are available on special order.

WARNING: To prevent electrical shock, disconnect from power source before installing or servicing.

The pilot light is wired to the contact block as follows:

A. 2 - Circuit

Always connect lamp wires to same set of terminals used for the load. To light on increasing pressure connect across 1-2. To light on decreasing pressure connect across 3-4.

B. 4 - Circuit

Consists of 2 electrically isolated single pole-double throw circuits. Connect lamp wires to same set of terminals used for load. To light on increasing pressure connect across 1-2 or 5-6. To light on decreasing pressure connect across 3-4 or 7-8.

(or)

An isolated terminal, 9, is provided as a termination point when an optional power source is used. This provides a convenient means for various circuit connections when separation of the load and pilot light is required. Circuits must be the same polarity for pilot light connections and switching of auxiliary equipment.

PAINTING - Standard controls are supplied with a removable paint mask on the nameplate. Remove the mask on final installation.

CONTACT BLOCK REPLACEMENT - To order Bulletin 836T Contact Block 2 - Circuit (SPDT-DB) Replacement Kit specify Catalog Number 836T-N1. For the 4 - Circuit (DPDT-DB) Contact Block Replacement Kit specify Catalog Number 836T-N2.

REPAIRS - Due to the integral construction of the Bulletin 836T Pressure Difference Control, it is recommended it be returned to the factory for repairs (excluding contact block replacement). The control will be adjusted for optimum performance and tested to specifications.