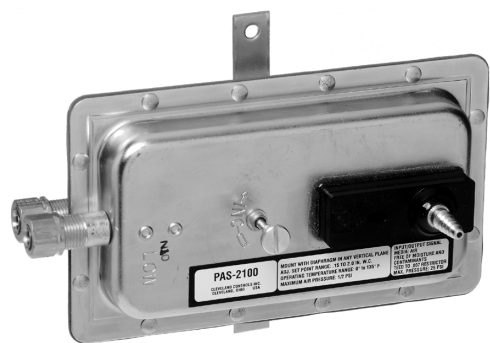


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Switches

CLEPAS Air Pressure Switch



Senses differential air pressure in HVAC systems and provides and on/off output. A typical application is sensing fan shutdown in a unit ventilator to close the outdoor air damper.

- Reliable pneumatic operation.
- Adjustable setpoint (switching pressure).
- Eliminates electrical interlock wiring.

Dimensions, Approximate: 6 1/8 in. high x 4 1/8 in. wide x 2 13/16 in. deep (156 mm high x 105 mm wide x 72 mm deep)
Air Connections: Sensing Inputs: 1/4 in. compression fittings; Control Air: Barb for 1/4 in. (6 mm) or 3/8 in. (10 mm) O.D. plastic tubing

Temperature Range: 0 F to 135 F (-18 C to +57 C)
Switch Type: On/Off Pneumatic Airflow Switch

Product Number	Mounting	Switching Pressure		Switching Action	Description
		(psi)	(kPa)		
CLEPAS2100	Vertical Mount	0.15 to 2.0 in. w.c.; 0.15 to 12.0 in w.c.	0.037 to 0.50 kPa; 0.037 to 2.99 kPa	On/Off	Pneumatic Airflow Differential Pressure Switch, Low Setpoint Range
CLEPAS2200	Vertical Mount	0.15 to 12.0 in w.c.	0.037 to 2.99 kPa	On/Off	Pneumatic Airflow Differential Pressure Switch, High Setpoint Range

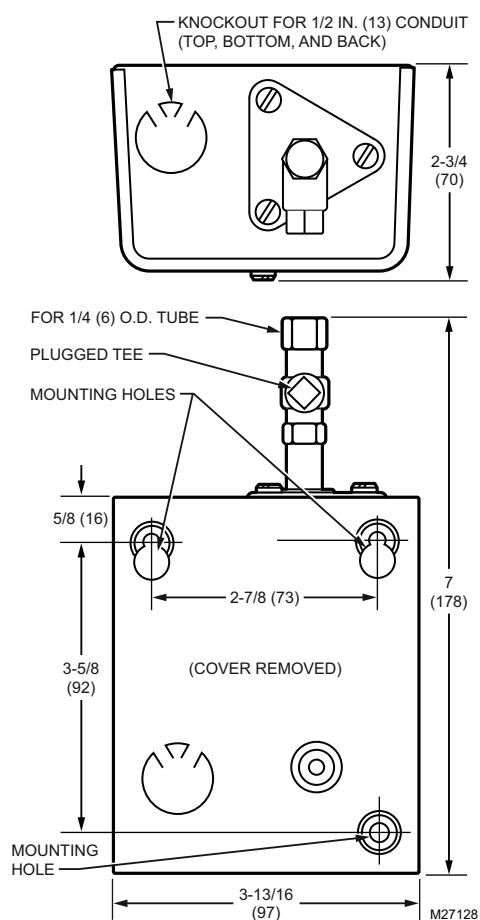
P643 Pneumatic/Electric Switch



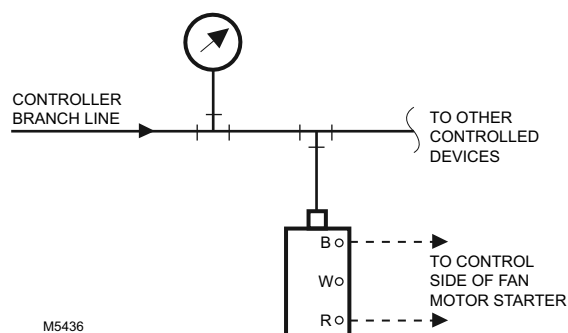
Used to convert a pneumatic signal from a controller to an electrical switching action to provide start and stop control of equipment such as fans and pumps. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic/electric switches. Adjustable setpoint.

- Adjustable differential.
- Externally visible scales.
- Heavy-duty switch.
- Integral gage connection

Dimensions in inches (millimeters)



P643A Typical Piping



Air Connections: Compression fitting 1/4 in. (6 mm) O.D. tubing

Mounting: Holes in back of case

Operating Humidity Range (% RH): —

Temperature Range: -30 F to +125 F (-34 C to +52 C)

Maximum Safe Operating Pressure: 25 psi (170 kPa)

Switch Operation: Converts pneumatic signal to electrical switching action

Switch Type: Pneumatic/Electric Switch

Frequency: 50 Hz; 60 Hz

Current: 120 Vac: 8.0 AFL, 48.0 LRA, 17.0 A resistive

208/240 Vac: 5.1 AFL, 30.6 ALR, 17.0 A resistive

270 Vac: 17.0 A resistive

480 Vac: 3.5 AFL, 21.0 ALR, 10.0 A resistive

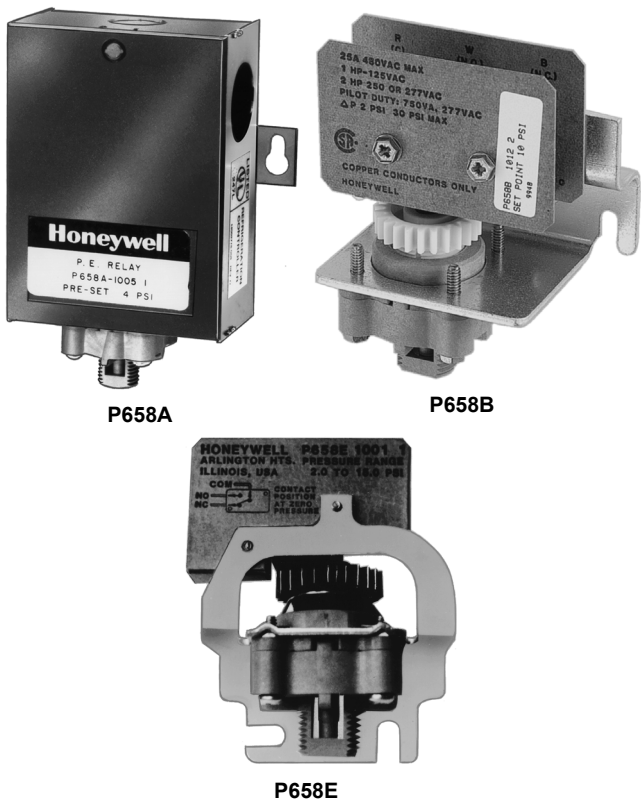
Approvals:

Underwriters Laboratories, Inc. Listed

Product Number	Electrical Connections	Differential Pressure Range		Switching Pressure		Voltage	Description	Includes
		(psi)	(kPa)	(psi)	(kPa)			
P643A1007	Knockouts (3) for 1/2 in. conduit	3 to 13 psi adjustable	20 to 90 kPa adjustable	0 to 22.5 psi	0 to 155 kPa	120 Vac; 208 Vac; 240 Vac; 277 Vac; 480 Vac	Pneumatic / Electric Switch including Spdt switch and adjustable differential	SPDT switch

Switches

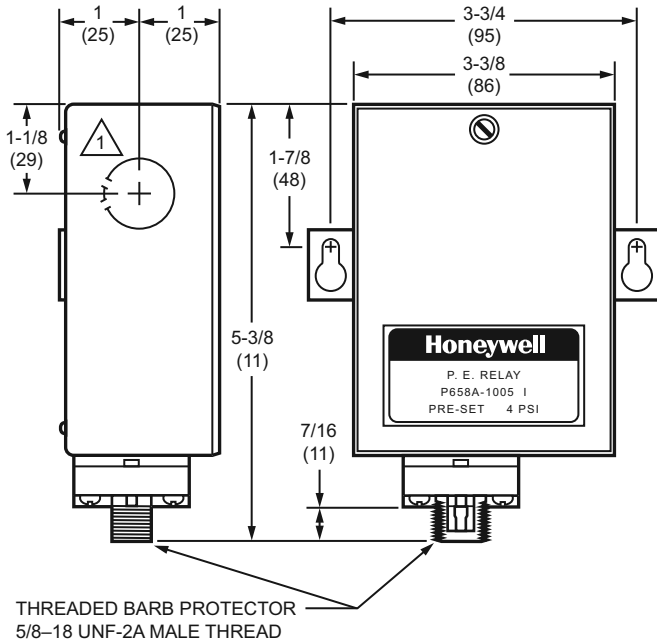
P658 Pneumatic/Electric Switch



Pneumatic-electric switches (P658A,B,E and F) used to convert a pneumatic signal from a controller to an electrical switching action (SPDT) to provide start and stop control of equipment such as fans and pumps. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic/ electric switches.

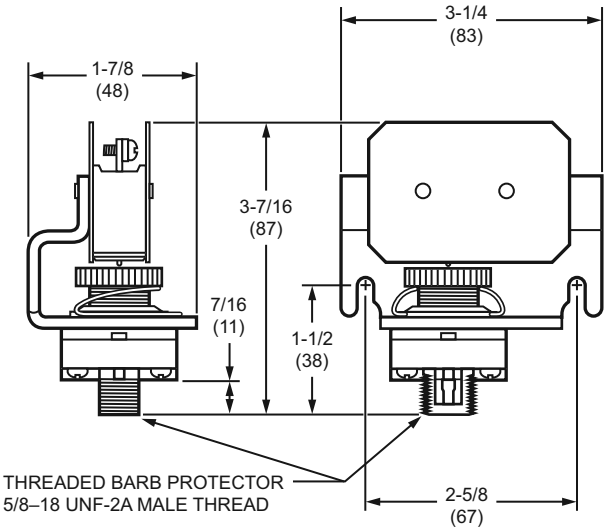
- Models available for surface or panel mounting.
- Barb protected by open cage.
- All ferrous parts plated to prevent corrosion.
- Factory calibrated setpoint field adjustable to meet job requirements.
- Neoprene diaphragm element

P658A Dimensions in inches (millimeters)



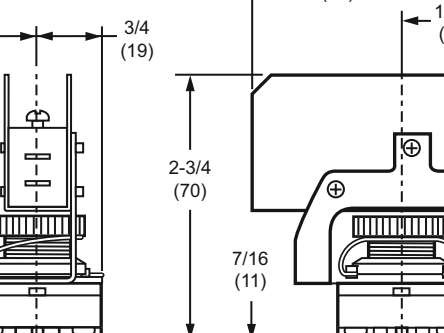
1 KNOCKOUT ON ONE SIDE FOR 3/4 INCH CONDUIT. KNOCKOUTS ON OPPOSITE SIDE, TOP, AND BACK FOR 1/2 INCH CONDUIT.

P658B Dimensions in inches (millimeters)



C7431

Switches

[illegible]

Technical drawing showing two views of the 1000 Series 1/2" (12.7mm) tool. The left view is a side profile showing a width of 3/4 (19) and a height of 2-3/4 (70). The right view is a top-down perspective showing a width of 2-7/8 (73) and a depth of 1-1/4 (32). A detail view of the bottom of the tool is shown at the bottom right, with a height of 7/16 (11) indicated for the base section.

C7434

CONTROLLER BRANCH LINE

TO OTHER CONTROLLED DEVICES

Bo

Wo

Ro

TO CONTROL SIDE OF FAN MOTOR STARTER

M5436

Switch Type: Pneumatic/Electric Switch
Motor Load: 1 hp @ 125 Vac, 2 hp @ 250 or 277 Vac
Resistive Load: 25A @ 125, 250 or 480 Vac
Frequency: 60 Hz
Pilot Duty Ratings: 750 VA @ 125, 250 or 277 Vac
Approvals:
Underwriters Laboratories, Inc. Category SDYF

70-6925

Switches

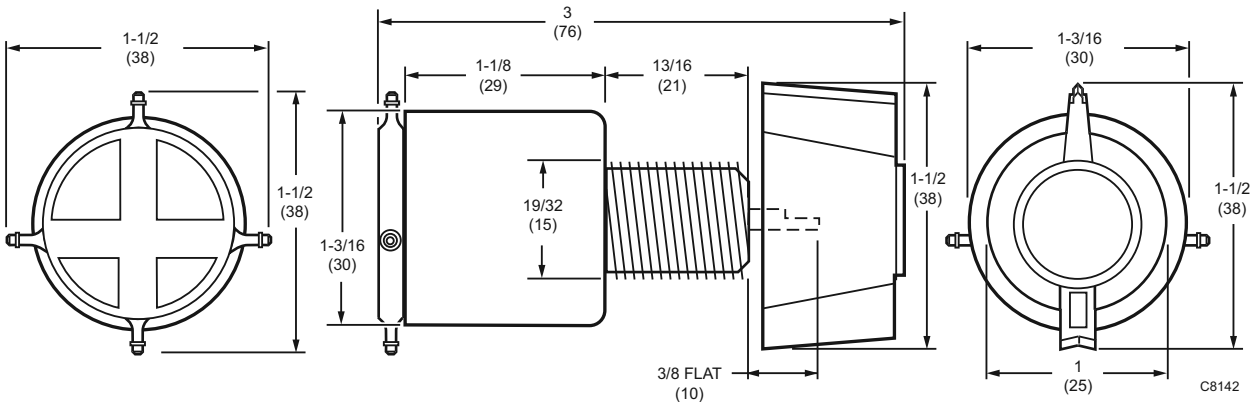
SP470 Pneumatic Diverting Switches



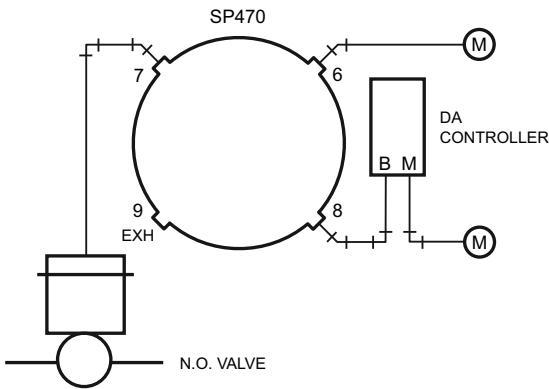
Pneumatic diverting switch used to manually divert, block, or bleed air in pneumatic air lines to revise control sequence with a change in conditions. Commonly applied on Day-Night, Summer-Winter, On-Off-Auto, or Start-Stop functions. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Available in two-position or three-position devices.
- Mountable on a panel up to 7/16 in (11 mm) thick.
- Complete with knob and scaleplate.

Dimensions in inches (millimeters)



SP470A Typical three-position application

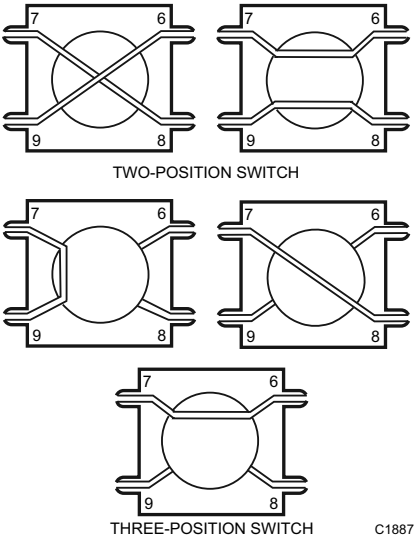


NOTES:

- POSITION 1, VALVES OPEN: PORTS 7 AND 9 CONNECTED, PORTS 6 AND 8 BLOCKED
- POSITION 2, VALVE AUTO: PORTS 7 AND 8 CONNECTED, PORTS 6 AND 9 BLOCKED
- POSITION 3, VALVE CLOSED: PORTS 7 AND 6 CONNECTED, PORTS 8 AND 9 BLOCKED

C4290

SP470A Switches



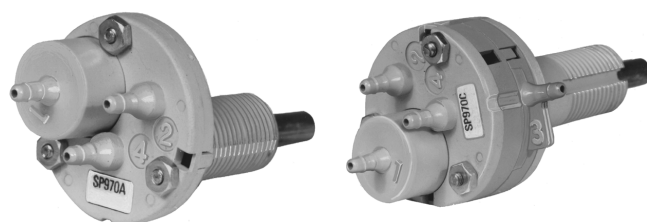
C1887

Airflow Usage: 0.175 scfm (82.6 mL/s) minimum at 1 psi pressure drop
Air Connections: Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing
Mounting: Panel mount
Operating Humidity Range (% RH): 5 to 95% RH

Temperature Range: 20 F to 140 F (-7 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (207 kPa)
Switch Operation: Used to manually divert, block or bleed pneumatic air lines
Switch Type: Two or Three Position Pneumatic Diverting Switch

Product Number	Mounting	Description	Includes
SP470A1000	Panel mount	Pneumatic Manual Switch, 4 port, 2-position interchange	Mounting nuts, knob, and two-position scaleplate
SP470A1018	Panel mount	Pneumatic Manual Switch, 4 port, 3-position, Port 7 is common	Mounting nuts, knob, and three-position scaleplate

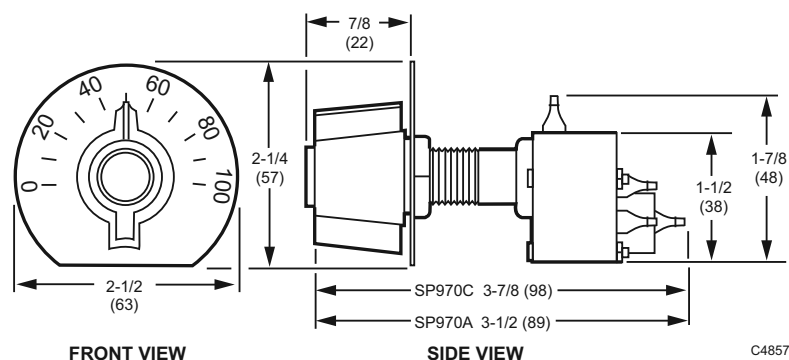
SP970 Pneumatic Manual or Minimum Position Switches



Used to manually position a remote damper actuator or to reset the setpoint of a pneumatic controller. They can also provide minimum damper position by setting a minimum pressure limit in the branchline to the damper actuator. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Two spans available as shipped. Six spans with breakaway stops on knob.
- Pilot bleed and isolated pilot models available.
- Wall or panel mounting.

Dimensions in inches (millimeters)



Airflow Usage: 0.022 scfm (9.8 mL/s)
Air Connections: Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing
Mounting: Panel or Wall
Capacity: 0.021 scfm (9.4 mL/s) below minimum position. Above minimum position, device feeding pilot determines capacity
Operating Humidity Range (% RH): 5 to 95% RH

Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (207 kPa)
Switch Operation: Used to manually position a remote damper actuator or reset setpoint of pneumatic controller
Switch Type: Three-port pneumatic manual or minimum position switch

Product Number	Output Span		Description	Includes
	(psi)	(kPa)		
SP970A1005	10 psi (with 188 degree knob rotation); 13 psi (with 244 degree knob rotation); 16 psi (with 300 degree knob rotation)	69 kPa (with 188 degree knob rotation); 90 kPa (with 244 degree knob rotation); 110 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branchline pressure when used with a high capacity device (like a RP920).	Knob, 0 to 100% scale plate and locknuts
SP970A1013	5 psi (with 188 degree knob rotation); 6.5 psi (with 244 degree knob rotation); 8 psi (with 300 degree knob rotation)	34 kPa (with 188 degree knob rotation); 45 kPa (with 244 degree knob rotation); 56 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branchline pressure when used with a high capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1001	10 psi (with 188 degree knob rotation); 13 psi (with 244 degree knob rotation); 16 psi (with 300 degree knob rotation)	69 kPa (with 188 degree knob rotation); 90 kPa (with 244 degree knob rotation); 110 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branchline pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1043	5 psi (with 188 degree knob rotation); 6.5 psi (with 244 degree knob rotation); 8 psi (with 300 degree knob rotation)	34 kPa (with 188 degree knob rotation); 45 kPa (with 244 degree knob rotation); 56 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branchline pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts

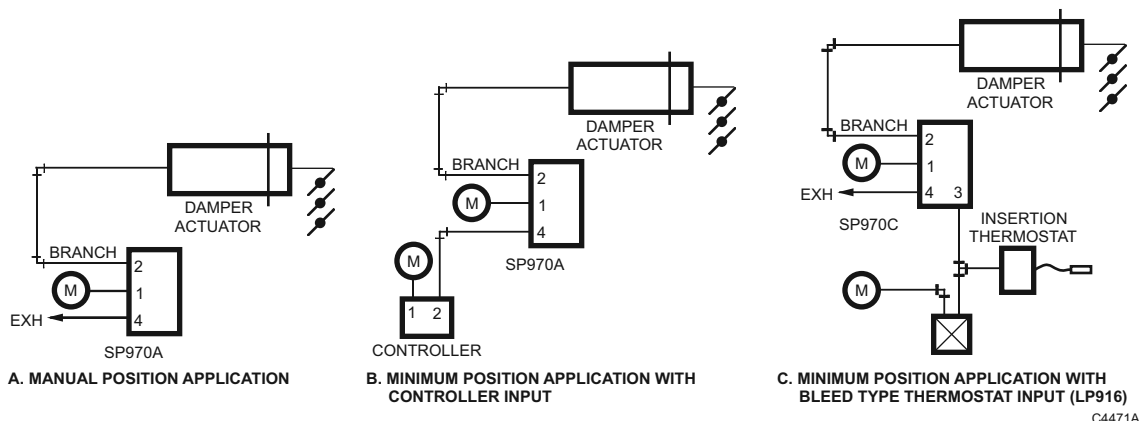
Pneumatic Switch Replacement Parts

Product Number	Description	Used With
14003022-003	Final Assembly, manual and minimum position switch, 10 psi span	SP970A
14003078-003	Pneumatic 2-Position Switch	SP470A
14003199-002	Bag assembly with two scale plates, knob assembly and nuts for SP470A	SP470A

Switches

SP970 Operation

SP970 Typical Piping



Operation

SP970A Three Port Switches

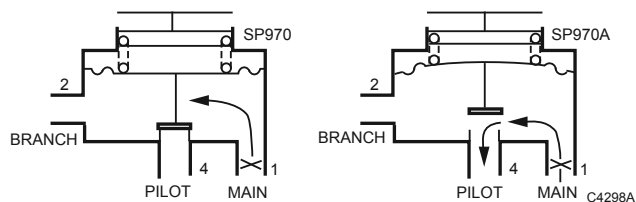
PRESSURE REGULATOR OPERATION

Main line air flows through the restriction into the branchline chamber and out the nozzle. Branchline pressure increases until it is strong enough to compress the spring and lift the diaphragm off the nozzle. Air flow out the nozzle is controlled by the balance between the branchline pressure and spring force. See Typical Piping Diagram A Above.

MINIMUM POSITION OPERATION

See Typical Piping Diagram B above. An external signal is connected to Port 4 (Exhaust Port). When the external signal is greater than the spring load, the nozzle opens and branchline pressure is the same as the external signal. When the external signal is less than the spring load, branchline pressure is controlled as described above. See Operation Diagram below.

SP970A operation



SP970C Four Port Switches

These minimum position devices have a separate dead-ended chamber connected to Port 3 to receive an external signal. When the external signal is less than the spring load, the signal has no effect and functions similar to the SP970A as a pressure regulator. When the external signal is greater than the spring load, the spring load is isolated and the device duplicates the input signal. See Operation Diagram below.

Piping Diagram C above shows a typical four-port SP970C application. The minimum-position switch keeps the pneumatic actuator at a minimum position until the thermostat pressure is greater than the minimum position valves. The thermostat then controls the actuator.

SP970C Operation

