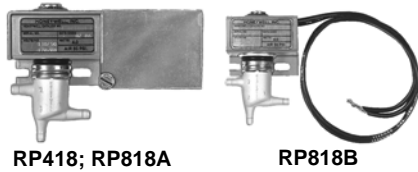


# Pneumatic Relays

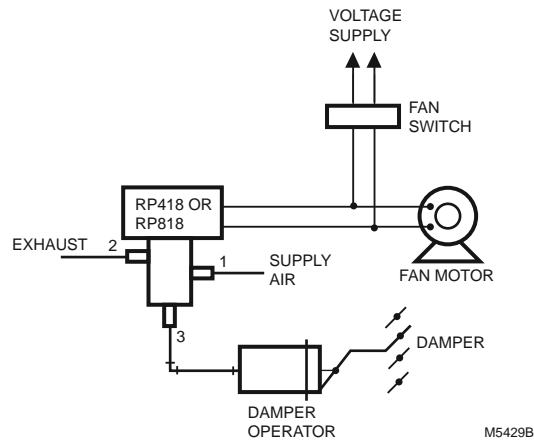
## RP418, RP818 Electric/Pneumatic Relay



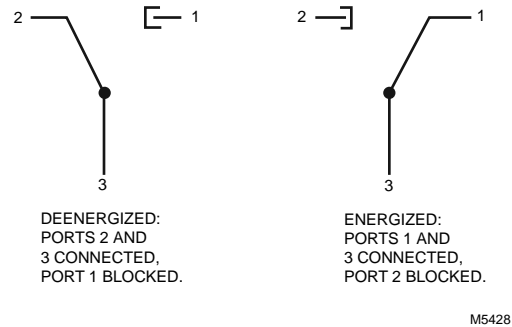
Electrically operated pneumatic switches used to interlock an electrical system and a pneumatic control system. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Usable as a diverting relay, a selector relay, or a stop and bleed relay.
- Mount and operate in any position.
- Available with lead wires or junction box.
- Line or low voltage models available.

### RP418 & RP818 Typical Piping and Wiring



### Internal Connections



**Type:** Electric/Pneumatic Relay  
**Dimensions, Approximate:** 2 7/8 in. high x 3 13/16 in. wide x 1 1/4 in. deep (73 mm high x 97 mm wide x 32 mm deep)  
**Mounting:** Surface  
**Airflow Usage:** 0.42 scfm (200 mL/s) at 20 psi (138 kPa) supply with 1 psi (7 kPa) pressure drop  
**Air Connections:** Barbed fitting for 1/4 in. O.D. plastic tubing  
**Capacity:** 0.075 Cv minimum  
**Operation:** Energized: ports 1 and 3 connected, port 2 blocked  
 De-energized: ports 2 and 3 connected, port 1 blocked

**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** 0 F to 100 F (-18 C to +38 C)  
**Maximum Safe Operating Pressure:** 50 psi (340 kPa)

**Approvals:**  
**Canadian Standards Association:** Listed: File No. LR50900  
**Canadian Underwriters Laboratories, Inc.** Listed: File No. LR50900  
**Underwriters Laboratories, Inc.** Component Recognized File: MP1502, Vol. 11, Sec. 1UL Listed: Guide Y10Z

Product Number	Mounting	Voltage rating at 50 Hz	Voltage rating at 60 Hz	Frequency	Electrical Connections	Includes
RP418A1008	Surface	208 Vac	—	50 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1057	Surface	120 Vac	—	50 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1065	Surface	440 Vac	480 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1073	Surface	—	277 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1081	Surface	—	208 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1099	Surface	220 Vac	240 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1107	Surface	110 Vac	120 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418B1014	Panel mount	208 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1022	Panel mount	240 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1030	Panel mount	120 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1048	Panel mount	440 Vac	480 Vac	50 Hz; 60 Hz	15 in. (380 mm) leads	—
RP418B1055	Panel mount	—	208 Vac	60 Hz	15 in. (380 mm) leads	—
RP418B1071	Panel mount	110 Vac	120 Vac	50 Hz; 60 Hz	15 in. (380 mm) leads	—
RP818A1004	Surface	—	24 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP818B1002	Panel mount	—	24 Vac	60 Hz	15 in. (380 mm) leads	—
RP818B1010	Panel mount	24 Vac	—	50 Hz	15 in. (380 mm) leads	—

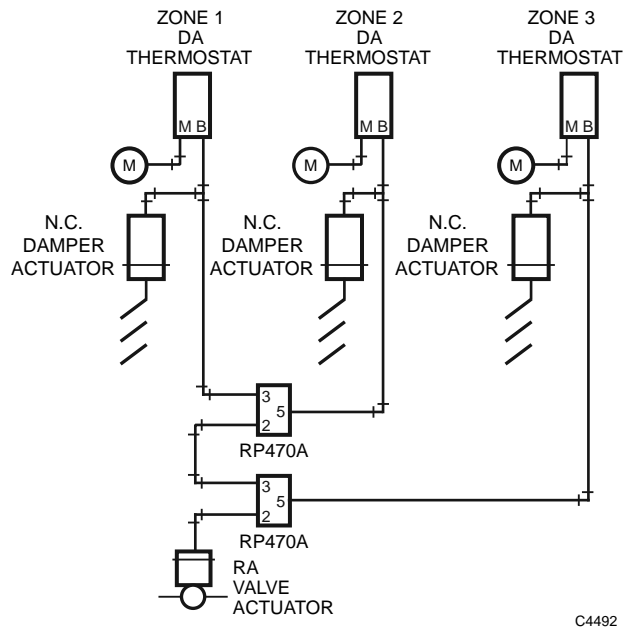
## RP470 Pneumatic Selector Relay



Three-port relays used in HVAC systems to perform a variety of relay functions; transmit the higher of two input signals, lock out one pressure signal when a second signal is higher, or transmit the lower of two pressure signals. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Uses diaphragm-logic technology.
- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### RP470A Higher-of-Two Pressures Application



**Type:** Pneumatic Three-port Selector Relay

**Dimensions, Approximate:** 1 1/2 in. diameter x 1 in. deep  
(38 mm diameter x 25 mm deep)

**Mounting:** Wall or In-line or panel

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

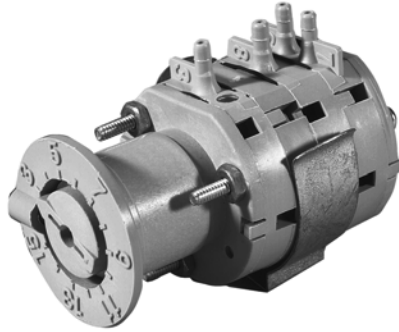
**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

Product Number	Operation	Mounting	Normal Operating Output Pressure		Includes
			(psi)	(kPa)	
RP470A1003	Higher-of-two-pressures selector relay	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP470B1001	Repeater relay; Lower-of-two pressures; Lockout	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

# Pneumatic Relays

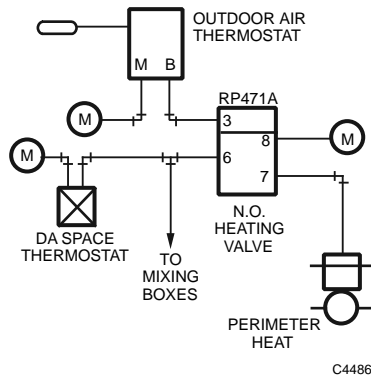
## RP471 Snap-Acting Pneumatic Relay



The four port, snap acting relay converts a proportional air pressure change from a controller to a positive (two-position) pressure change. It can also divert a supply line to one of two branches. Replacement device is available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Manually adjustable switching pressure.
- Sharp barb connections for 5/32 inch (4 mm) O.D. plastic tubing.
- Molded plastic construction with neoprene diaphragms and stainless steel lever.
- Mounts in any position with mounting clip.

### RP471A Typical Piping



**Type:** Pneumatic, four-port, snap acting relay

**Dimensions, Approximate:** 1 1/2 in. diameter x 2 3/4 in. deep  
(38 mm diameter x 70 mm deep)

**Mounting:** Wall or Panel

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** Proportional to 2-position converter

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

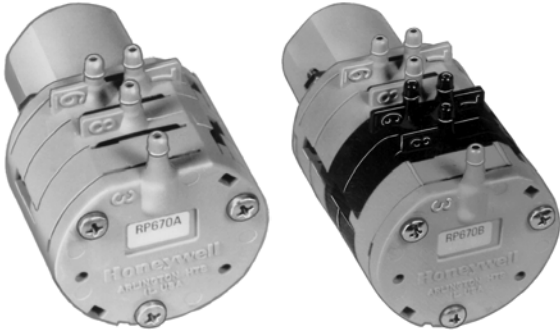
**Setpoint Range:** Adjustable between 3 to 15 psi

(Adjustable between 21 to 103 kPa)

**Nominal Switch Differential:** 0.5 psi (3 kPa)

Product Number	Operation	Mounting	Differential Pressure Range		Description	Includes
			(psi)	(kPa)		
RP471A1002	Proportional to 2-position converter	Wall or Panel	1 psi maximum	7 kPa maximum	Wall or Panel Mounted Pneumatic, four-port, snap acting relay, SPDT	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

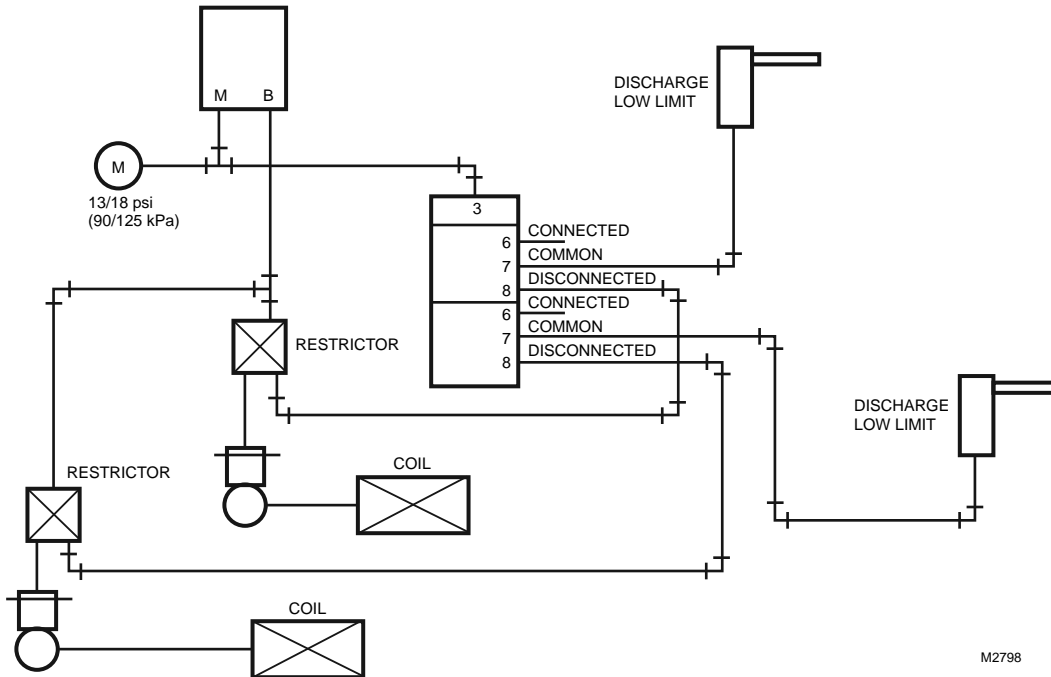
## RP670 Pneumatic Switching Relay



Pneumatic switching relays block, divert, or bleed pneumatic air lines when pilot pressure is changed from one specific value to another. Commonly applied in Day-Night, Summer-Winter, Start-Stop, On-Off-Auto and other multiple condition systems where control sequence is changed as conditions change. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available with either single-pole, double-throw (SPDT) or double-pole, double-throw (DPDT) switching action.
- Second switch on dpdt (RP670B) models molded in natural color for identification.
- Air connections for 5/32 in. (4 mm) O.D. plastic tubing.
- Molded plastic construction with neoprene diaphragms, stainless steel lever.
- In-line mounting, or wall or panel mounting with provided metal spring clip.

RP670 Typical Piping



M2798

**Type:** Pneumatic Switching Relay  
**Dimensions, Approximate:** 1 1/2 in. diameter x 2 1/4 in. deep  
 (38 mm diameter x 56 mm deep)  
**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing  
**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** SPDT relay  
**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** 0 F to 140 F (-18 C to +60 C)  
**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

Product Number	Operation	Switching Occurs Between Pressures		Includes
		(psi)	(kPa)	
RP670A1001	SPDT relay	3 and 7 psi	20 and 50 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670A1019	SPDT relay	13 and 17 psi	90 and 120 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1009	DPDT relay	3 and 7 psi	20 and 50 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1017	DPDT relay	13 and 17 psi	90 and 120 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1066	DPDT relay	18 and 22 psi	124 and 152 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1074	DPDT relay	20 and 25 psi	140 and 175 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

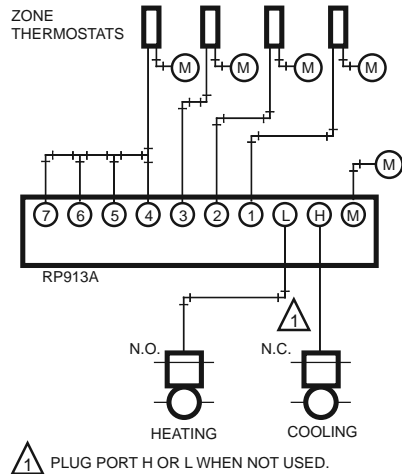
# Pneumatic Relays

## RP913 Pneumatic Load Analyzer



A diaphragm logic pressure selector selects the highest and/or lowest branch pressure input from zone thermostats to operate final control elements in pneumatic control applications.

### RP913A Typical Piping



C4483

Replacement devices are available for Johnson, Powers, Robertshaw, and Barber-Colman devices.

- Seven input manifold containing logic diaphragm, air filter, and restrictions.
- Ten sharp barb connectors for all piping requirements.
- Large integral filter assures clean air to the manifold.
- Requires no field adjustment, and plastic construction results in minimum maintenance.
- Two analyzers can be connected together to increase inputs to twelve.

**Type:** Load Analyzer Relay, 7 input

**Dimensions, Approximate:** 3/4 in. high x 6 1/2 in. long x 2 1/16 in. deep (19 mm high x 165 mm long x 52 mm deep)

**Mounting:** Wall or In-line or panel

**Airflow Usage:** 0.04 scfm (0.019 mL/s)

**Air Connections:** Barb fittings (10) for 1/4 in. (6 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

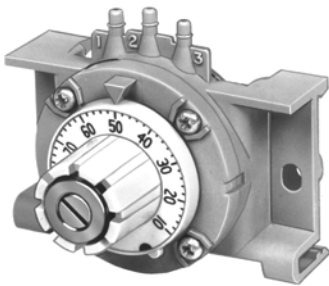
**Maximum Safe Operating Pressure:** 25 psi (172 kPa)

### Replacement Parts:

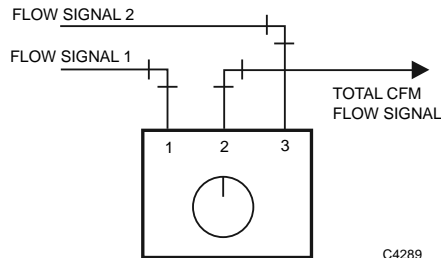
14001865-001 Filter Cartridge Assembly

Product Number	Operation	Mounting	Description
RP913A1008	Selects highest and/or lowest branch pressure input to operate final control elements	Wall or In-line or panel	Wall, in-Line or Panel Mounted Load Analyzer Relay, 7 input

## RP922 Pneumatic Potentiometer



### Typical Wiring Diagram for RP922



C4289

A three-port pneumatic potentiometer can sum two input pressures, average two input pressures, be an adjustable flow restriction, or be an adjustable pressure supply. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- High efficiency integral filters for all ports.
- High reliability, no internal moving parts.
- Compact size.
- High accuracy.

**Type:** Pneumatic Averaging/Ratio Relay

**Dimensions, Approximate:** 2 7/16 in. wide x 1 5/8 in. deep x 2 7/8 in. high (62 mm wide x 42 mm deep x 73 mm high)

**Mounting:** Wall or panel or Snap onto DIN rail

**Airflow Usage:** Average of two input pressures

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Operation:** Can sum two input pressures, average two input pressures, be adjustable flow restriction or be an adjustable pressure supply.

**Operating Humidity Range:** 5 to 95% RH

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

Product Number	Operation	Mounting	Description
RP922A1007	Can sum two input pressures, average two input pressures, be adjustable flow restriction or be an adjustable pressure supply.	Wall or panel or Snap onto DIN rail	Wall, Snap onto DIN rail or panel mounted Pneumatic Averaging/Ratio Relay

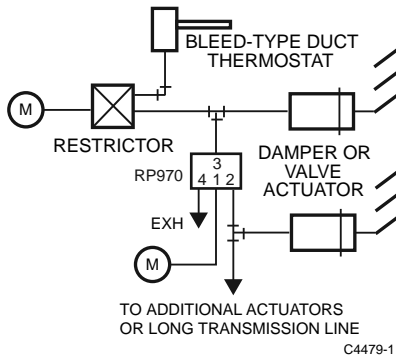
## RP970 Pneumatic Capacity Relay



Direct acting, modulating relay provides increased capacity of the branchline pressure to the final control device. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction with neoprene diaphragms.
- Mounting clip provided.

### RP970 Typical Piping



**Type:** Pneumatic Capacity Relay

**Dimensions, Approximate:** 1 1/2 in. diameter, 1 1/2 in. deep (38 mm dia., 38 mm deep)

**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum

**Air Connections:** Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** Provides increased capacity of branchline pressure to final control device

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

**Accessories:**

**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Normal Operating Output Pressure		Includes
				(psi)	(kPa)	
RP970A1008	Provides increased capacity of branchline pressure to final control device	Direct Acting	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

# Pneumatic Relays

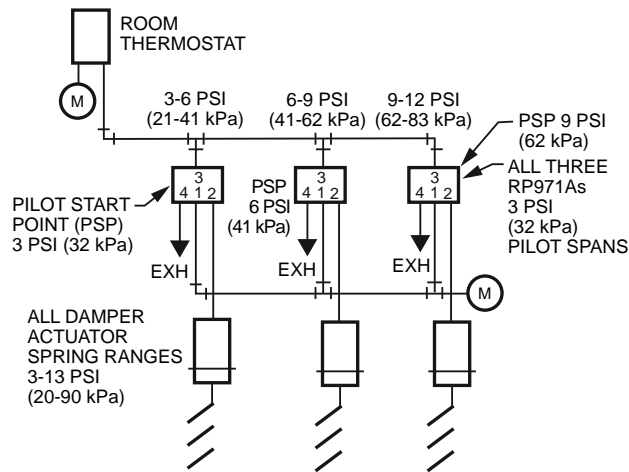
## RP971 Pneumatic Ratio Relay



A four port non-bleed pneumatic relay which produces a modulating pressure output, proportional in a fixed ratio to pilot input changes. It is used to control pneumatic valve or damper actuators in sequence from a single thermostat. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Adjustable pilot start point pressures.
- Two pilot pressure spans available.
- Four sharp-barb air connections.
- Molded plastic construction with neoprene.
- Mounting clip provided.

### RP971A Typical Piping



C4478-1

**Type:** Pneumatic, Four Port Ratio Relay

**Dimensions, Approximate:** 2 in. diameter x 2 5/8 in. deep (52 mm dia. x 67 mm deep)

**Action:** Direct Acting

**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum

**Air Connections:** Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** Produces modulating pressure output proportional to pilot pressure input changes

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

**Pilot Start Pressure:** Adjustable 0 to 10 psi (Adjustable 0 to 69 kPa)

#### Accessories:

- 14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches
- 801629T Clip for surface mounting

Product Number	Mounting	Pilot Input Span		Output Span		Includes
		(psi)	(kPa)	(psi)	(kPa)	
RP971A1007	Wall or In-line or panel	3 psi input span for 3 to 13 psi output	—	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with psi markings
RP971A1015	Wall or In-line or panel	5 psi input span for 3 to 13 psi output	—	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with psi markings
RP971A1023	Wall or In-line or panel	—	21 kPa input span for 21 to 90 kPa output	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with kPa markings
RP971A1031	Wall or In-line or panel	—	34 kPa input span for 34 to 90 kPa output	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with kPa markings

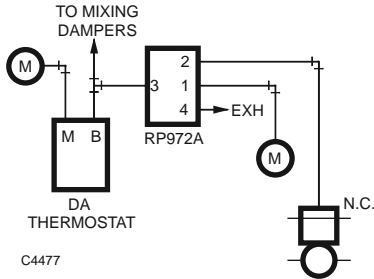
## RP972 Pneumatic Reversing Relay



A modulating relay suitable for all types of heating and air conditioning control systems to reverse and increase the capacity of the branchline pressure to the final control element. The output varies inversely with the input with an adjustable offset. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Reverse acting.
- In-line mounting or can be wall or panel mounted with mounting clip provided.
- Molded plastic construction with neoprene diaphragms.

### RP972A Typical Piping



**Type:** Pneumatic Reversing Relay

**Dimensions, Approximate:** 1 1/2 in. diameter x 2 1/4 in. deep  
(38 mm diameter x 57 mm deep)

**Action:** Reverse Acting

**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum

**Air Connections:** Barb fittings for three 5/32 in. (4 mm) and one 1/4 in. (6 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** Output varies inversely with input with an adjustable offset

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 F to 140 F (-18 C to +60 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

#### Accessories:

**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Includes
RP972A1006	Output varies inversely with input with an adjustable offset	Reverse Acting	Wall or In-line or panel	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel



# Pneumatic Relays

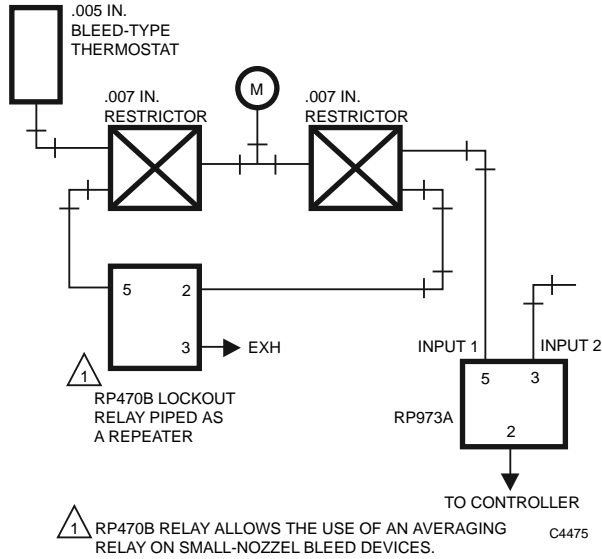
## RP973 Pneumatic Averaging Relay



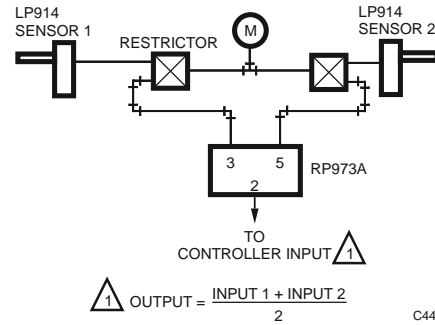
A three-port relay used in HVAC systems averages the signals from two thermostats to control a single device such as a heating coil valve for a multizone unit. The pneumatic averaging relay provides an output pressure equal to the average of two input pressures. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### RP973A Typical Piping



### Typical Averaging Application



**Type:** Pneumatic Three-Port Averaging Relay  
**Dimensions, Approximate:** 1 1/2 in. high x 7/8 in. wide x 15/16 in. deep (38 mm high x 22 mm wide x 24 mm deep)  
**Airflow Usage:** 0.007 scfm (3.303 mL/s) maximum  
**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing  
**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)  
**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** 32 F to 125 F (0 C to 52 C)  
**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

Product Number	Operation	Mounting	Normal Operating Output Pressure		Normal Operating Input Pressure		Description
			(psi)	(kPa)	(psi)	(kPa)	
RP973A1005	Output pressure equals average of two input pressures	Wall or In-line or panel	3 to 15 psi	21 to 103 kPa	3 to 15 psi	21 to 103 kPa	Output is the average of the two inputs. Pneumatic Three-Port Averaging Relay.

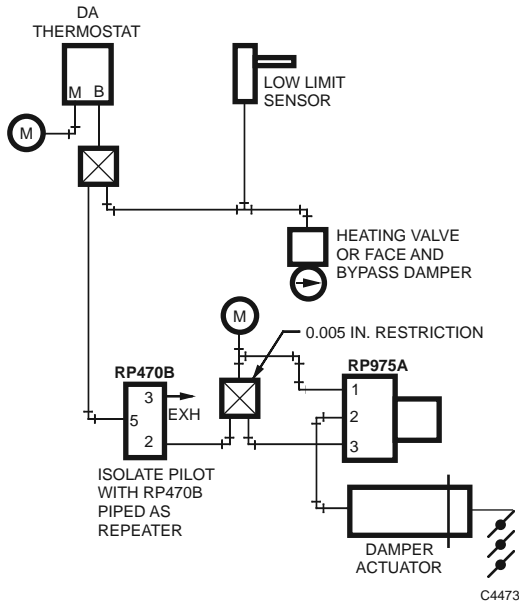
## RP975 Pneumatic Hesitation Relay



A three-port hesitation relay provides minimum outside air damper position plus controlled ventilation for large volume unit ventilators. Replacement devices are available for Johnson, Powers, and Barber-Colman devices.

- Manually adjustable minimum position. In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### Typical Piping With Isolation Circuit



**Type:** Pneumatic Three-Port Hesitation relay

**Dimensions, Approximate:** 2 1/4 in. high x 2 1/2 in. wide x 3 3/4 in. deep (57 mm high x 63 mm wide x 96 mm deep)

**Airflow Usage:** 0.022 scfm (10 mL/s)

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.003 scfm (1.65 mL/s)

**Operation:** Provides minimum outside air damper position

**Knob Rotation:** Knob has two (2) internal breakaway stops that limit rotation to 188 degrees. Each stop, when removed, adds 56 degrees of rotation. Maximum rotation is 300 degrees.

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 32 F to 125 F (0 C to 52 C)

**Maximum Safe Operating Pressure:** 30 psi (205 kPa)

### Replacement Parts:

14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Mounting	Description	Includes
RP975A1003	Provides minimum outside air damper position	Wall or In-line or panel	Pneumatic Three-Port Hesitation Relay	14003030-001, 1 1/2 in. Mounting Clip for mounting relay to wall or panel. Also includes scaleplate and knob, factory mounted and calibrated. Use with MP909 or MP918 Damper Actuator having a 7 to 13 psi (50 to 90 kPa) spring range

## Pneumatic Relay Accessories and Replacement Parts

Product Number	Description	Used With
14003030-001	Mounting Clip	RP470, RP471, SP970
14003638-001	Bag Assembly, Mounting Hardware for RP418	RP418