Honeywell

RP970A
Pneumatic Capacity Relay

INSTALLATION INSTRUCTIONS

DESCRIPTION

The RP970A Capacity Relay is a direct acting, proportional relay, with a 1:1 pressure ratio. It is suitable for use in systems to increase the capacity of a branchline signal to a pneumatic valve or damper operator. It is also used to isolate an input, and repeat a pressure.

Fig. 1 shows installation dimensions in inches (millimeters).

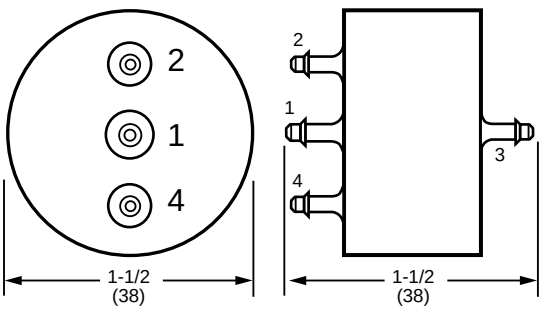

Fig. 1. RP970A Dimensions .

INSTALLATION

Mounting

Suspend on tubing or mount on a surface. See Fig. 2. for surface mounting.

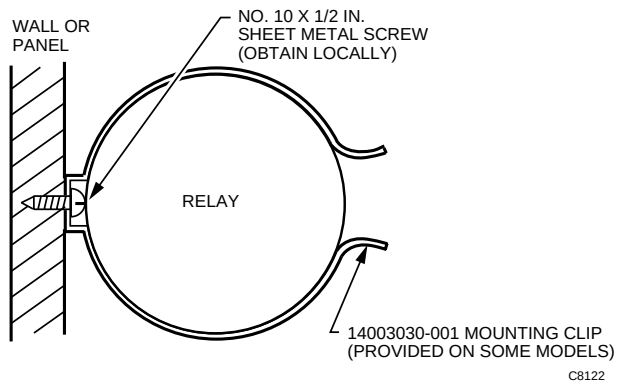

Fig. 2. Typical Surface Mounting.

Piping

Fig. 3 shows adaptation piping. Port 1 (Main, Supply) sharp barb for 1/4-in. (6 mm) O.D. tubing. Ports 2, 3, and 4 (Branch, Output; Pilot, Input; and Exhaust, respectively), sharp barb for 5/32-in (4 mm) O.D. tubing.

CAUTION

To prevent damage to the sharp barb connections, do not attempt to cut or pull tubing. To remove the tubing from the barb connections, cut tubing a few inches from the control device. Use a coupling to reconnect tubing.

NOTE: If the system is other than copper or polyethylene tubing, adapt as shown in Fig. 3. Some models provide parts for adapting.

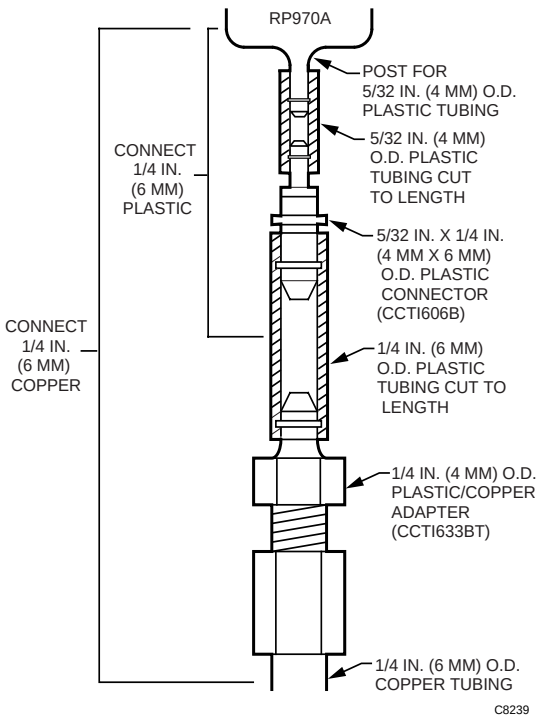

Fig. 3. Adaptation Piping.

Port Identification Table

The shaded area of the following table identifies the ports on older Honeywell pneumatic relays when upgrading installation.

	RP970A	RP904A RO904A	RP95A RO95A
Main	1	M	2
Branch	2	B	3
Pilot	3	P2	1
Exhaust	4	—	—
Plugged Port	—	P1	—

Checkout and Test

The branch output pressure varies to match the pilot input pressure.

ENGINEERING DATA

Specifications

Models:
RP970A Pneumatic Capacity Amplifier

Operating Pressure Range:
Normal Main: 18 psi (124 kPa)
Maximum Safe Main: 30 psi (207 kPa)
Pilot: 3 to 15 psi (21 to 103 kPa)

Operating Air Pressures:
Pilot: 3 to 5 psi (21 to 34 kPa)
Main: 18 psi (124 kPa)

Action:
Proportional (branchline pressure increases with pilot signal at 1:1 ratio)

Air Handling Capacity (Feed and Bleed):
0.039 scfm at ± 1.02 psi droop (18.3 ml/sec at 7 kPa droop). Conditions: 18 psi (124 kPa) Main and 9 psi (62 kPa) Pilot

Air Consumption:
0.002 scfm (1.0 ml/sec) maximum

Construction:
Molded plastic with neoprene diaphragm, stainless steel valve seats, and 100-mesh stainless steel filters in main and branch ports

Operation

Figs. 4 and 5 show typical operation. When pilot pressure increases, the exhaust tube raises the diaphragm off the branch chamber port and main air flows into the branchline, pushing against Diaphragm 2, (Fig. 4A). This pressure forces the exhaust tube down and closes the branch chamber port. Branchline pressure now equals pilot pressure (Fig. 4B). As pilot pressure drops, the branchline pressure against Diaphragm 2 forces the exhaust tube down, which opens the exhaust port (Fig. 4C). This function allows branch air to bleed out through Port 4. When branchline pressure equals pilot pressure, the exhaust tube rises and the exhaust chamber port closes (Fig. 4D).

You can use Exhaust Port 4 in other ways. For example, if Port 4 is fed with a regulated pressure, the branch does not bleed below the switch setting.

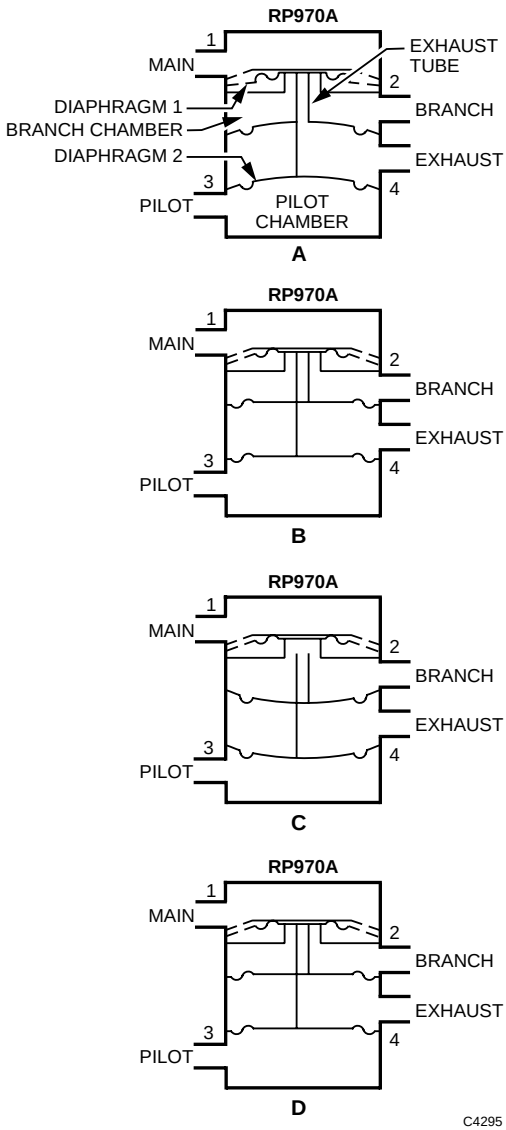

Fig. 4. Typical RP970A Operation.

Application

Fig. 5 shows a typical RP970A application. The device increases and repeats the output signal from the bleed-type duct thermostat, improving signal response over a long transmission line or high-capacity load (additional actuators).

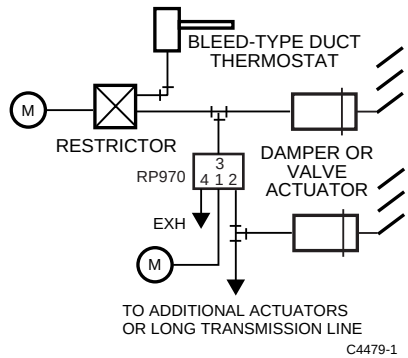

Fig. 5. RP970 Typical Application.

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