

Type 75 & 75 HR

Air Relays

Features

- Balanced valve design
- High flow capacity
- Field serviceable
- Multiple output ratios
- Negative biasing option

Description

The Type 75 relay uses signal pressure to accurately control output pressure over a wide range of flow and supply pressure variation.

Under varying flow conditions output pressure is maintained by use of an aspirator tube, which adjusts the air supply valve opening in accordance with the flow velocity. A balanced supply valve, utilizing a rolling diaphragm, makes the relay virtually immune to changes in supply pressure. Maintenance is simple due to the unit construction, and the relay can be serviced without removing it from the line. Signal to output pressure ratios of 1:1, 1:2, 1:4 and 1:6 are available. Maximum output is 150 PSIG (10.3 BAR).

Applications

- Volume Boosting
- Dancer Roll Loading
- Calendar Roll Loading
- Cylinder Bucking Control
- Clutch and Brake Controls
- Gas Flow Control
- Tensioning Control

- Valve Motor Loading

Models

Type 75

The basic relay offers excellent precision along with high forward flow rates.

Type 75 High Relief Relays

These relays provide extra fast "blow-down" for very rapid release of output pressure. The extra relief feature makes this relay suitable for cylinder return stroke actuation, air hoists, and similar applications requiring fast exhaust.

Type 75 Negative Bias

The Type 75 Relay is also available with a 4 ± 1 psig (0.3 ± 0.07 BAR) negative bias spring mounted internally. (See cross-sectional drawing on previous page.) This bias spring automatically subtracts 4 ± 1 psig (0.3 ± 0.07 BAR) from any signal pressure introduced. The relay then multiplies the net signal pressure by its ratio value to obtain final output pressure.

This option is particularly useful in obtaining zero pressure from pneumatic devices such as I/P transducers that normally cannot be adjusted this low, as well as obtaining higher outputs from such devices.

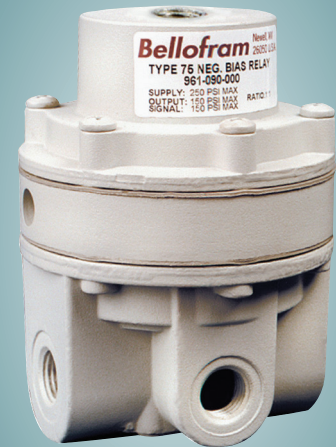
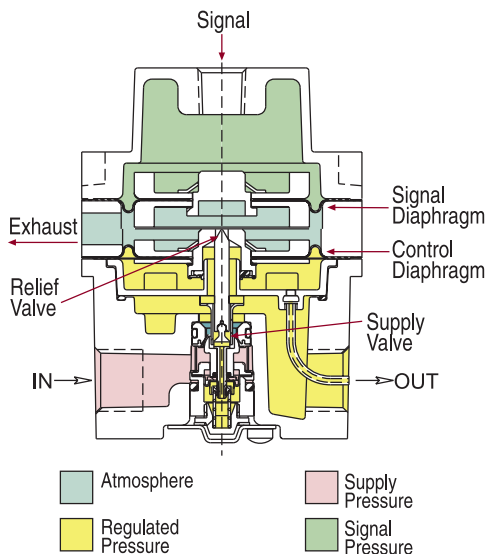
Typical applications of the Type 75 Relay with fixed negative bias include the electronic control of the applications listed for the standard Type 75 Relay.

To calculate relay output:

Relay output = (signal pressure) - 4 PSI bias x (relay ratio factor) where the relay ratio factor is defined as follows:

Relay Ratio Factor

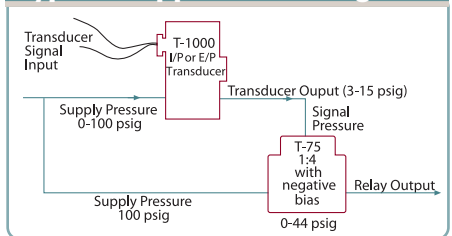
1:1	1
1:2	2
1:4	4
1:6	6



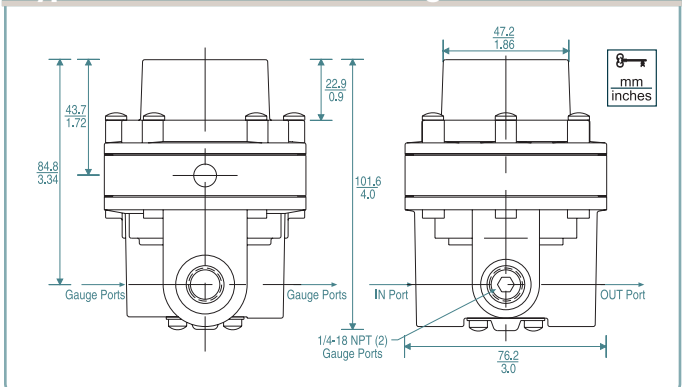
Type 75
Air Relay



Type 75 Application Diagrams

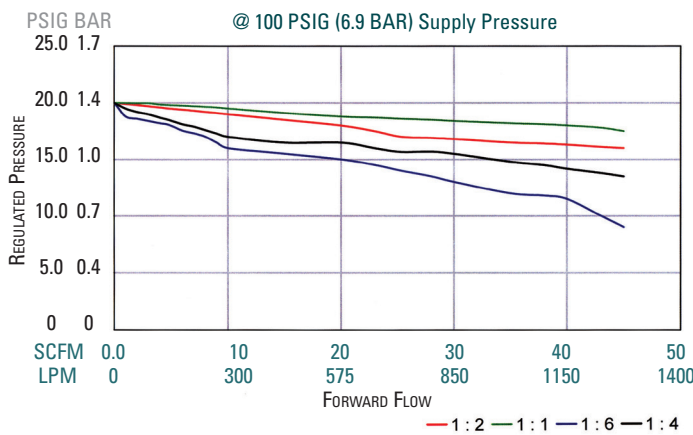


Type 75 Dimensional Drawing



	Type 72	Type 72 HR	Type 75	Type 75 HR	Type 79/79V	Type 79HR
Maximum Supply Pressure	250 PSIG (17.2 BAR)	250 PSIG (17.2 BAR)	250 PSIG (17.2 BAR)	250 PSIG (17.2 BAR)	400 PSIG (27.6 BAR)	400 PSIG (27.6 BAR)
Sensitivity	1/4" H ₂ O (6.4mm)	1/4" H ₂ O (6.4mm)	1/4" H ₂ O (6.4mm)	1/4" H ₂ O (6.4mm)	1" H ₂ O (25mm)	1" H ₂ O (25mm)
Supply Pressure Sensitivity	< 0.6 PSIG (0.01 BAR) per 50 PSIG (1.4 BAR) change in supply pressure	< 0.6 PSIG (0.01 BAR) per 50 PSIG (1.4 BAR) change in supply pressure	< 0.6 PSIG (0.04 BAR) per 50 PSIG (6.9 BAR) change in supply pressure	< 0.6 PSIG (0.04 BAR) per 50 PSIG (3.5 BAR) change in supply pressure	< 0.35 PSIG (0.02 BAR) per 100 PSIG (3.5 BAR) change in supply pressure	< 0.35 PSIG (0.02 BAR) per 100 PSIG (3.5 BAR) change in supply pressure
Flow Capacity	40 SCFM (1150 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply	40 SCFM (1150 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply	40 SCFM (1150 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply	40 SCFM (1150 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply	>125 SCFM (3500 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply	>125 SCFM (3500 LPM) @ 20 PSIG (1.4 BAR) signal and 100 PSIG (6.9 BAR) supply
Exhaust Capacity	6 SCFM (170 LPM) @ 10 PSIG (0.69 BAR) above a 20 PSIG (1.4 BAR) setpoint	15 SCFM (425 LPM) @ 10 PSIG (0.69 BAR) above a 20 PSIG (1.4 BAR) setpoint	6 SCFM (170 LPM) @ 10 PSIG (0.69 BAR) above a 20 PSIG (1.4 BAR) setpoint	15 SCFM (425 LPM) @ 10 PSIG (0.69 BAR) above a 20 PSIG (1.4 BAR) setpoint	31 SCFM (875 LPM) @ 5 PSIG (0.35 BAR) above a 20 PSIG (1.4 BAR) setpoint	39 SCFM (3500 LPM) @ 5 PSIG (0.35 BAR) above a 20 PSIG (1.4 BAR) setpoint
Temperature Limits	-40 to 200°F (-40 to 93°C)	-40 to 200°F (-40 to 93°C)	-40 to 200°F (-40 to 93°C)	-40 to 200°F (-40 to 93°C)	-40 to 200°F (-40 to 93°C)	-40 to 200°F (-40 to 93°C)
Air Consumption	<12 SCFH (5.7 LPM)	<12 SCFH (5.7 LPM)	<12 SCFH (5.7 LPM)	<12 SCFH (5.7 LPM)	<12 SCFH (5.7 LPM)	<12 SCFH (5.7 LPM)
Port Size	1/4", 3/8", 1/2" NPT, BSPP, BSPT	1/4", 3/8", 1/2" NPT, BSPP, BSPT	1/4", 3/8" NPT, BSPP, BSPT	1/4", 3/8", 1/2" NPT, BSPP, BSPT	3/8", 1/2", 3/4", 1" NPT, BSPP, BSPT	3/8", 1/2", 3/4", 1" NPT, BSPP, BSPT
Output Pressure Range	0-150 PSIG (0-10.3 BAR)	0-150 PSIG (0-10.3 BAR)	0-150 PSIG (0-10.3 BAR)	0-150 PSIG (0-10.3 BAR)	0-200 PSIG (0-13.8 BAR)	0-200 PSIG (0-13.8 BAR)
Maximum Signal	150 PSIG (10.3 BAR)	150 PSIG (10.3 BAR)	150 PSIG (10.3 BAR) for 1:1 ratio	150 PSIG (10.3 BAR) for 1:1 ratio	200 PSIG (13.8 BAR)	200 PSIG (13.8 BAR)
Weight	1.75 lb. (0.8 kg.)	1.75 lb. (0.8 kg.)	1.3 lb. (0.6 kg.)	1.3 lb. (0.6 kg.)	4.5 lb. (2.0 kg.)	4.5 lb. (2.0 kg.)
Ratio of Accuracy for a 12 psig span	< 2%	< 2%	< 2% (1:1)	< 2% (1:1)	< 1.5%	< 1.5%

Type 75: Regulated Pressure VS. Flow



Type 79 and 79 HR: Regulated Pressure VS. Flow

