



Model 24

Features

- Near Zero Throttling and Pilot Staging result in true snap-action.
- 14 SCFM Flow rate meets requirements for high forward and exhaust capacity applications.
- Pneumatic and mechanical set point allows operation from a remote location.
- Available with Normally Open or Normally Closed Valve Options to meet requirements.

Operating Principles

The Model 24 Snap Acting Relay is a highly accurate differential relay with snap-acting switching. The output of the unit will go to supply pressure when the signal is equal to or greater than the setpoint. The signal pressure must fall below the set point to return the output to zero.

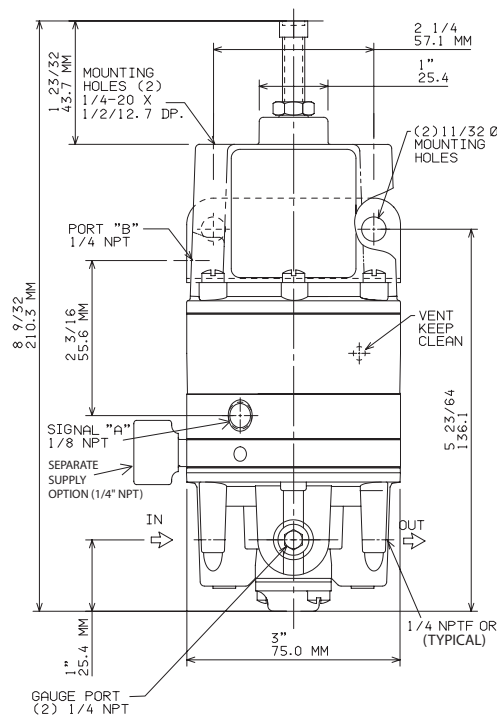


Chart 1

RAnG E			CHAnG E in Sign Al TO OPERATE		
psig	[BAR]	(kPa)	psig	[BAR]	(kPa)
2" W.C. - 10	[2" W.C. - 0.7]	(2" W.C. - 70)	0.2" W. C.		
0.5-30	[.03-2.0]	(3-200)	0.1	[.007]	(.7)
1.0-60	[0.1-4.0]	(10-400)	0.2	[.014]	(1.4)
2.0-120	[.15-8.0]	(15-800)	0.5	[.03]	(3)

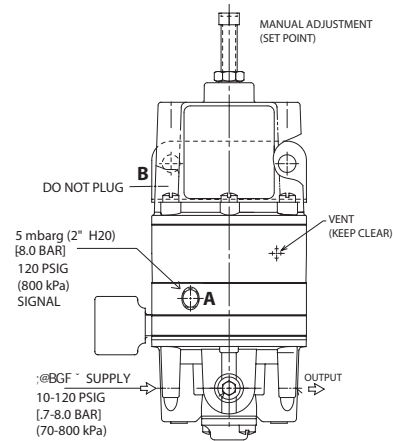
FOR OPERATING SEE PAGE 2

SNAP ACTING RELAY WITH MANUAL SETPOINT

A Model 24 tubed as shown to the right, will operate with one signal. The setpoint (control point) is adjustable from 5 mbarg (2" H₂O) through 8,2 barg (120 psig) depending on the range of the unit. The adjustment is made with the adjusting screw which has a square wrench flat as standard or may be purchased with optional knob adjust.

If output is desired when signal is below setpoint specify **normally open** unit.

A normally closed unit will **not** have an output when signal is below setpoint.



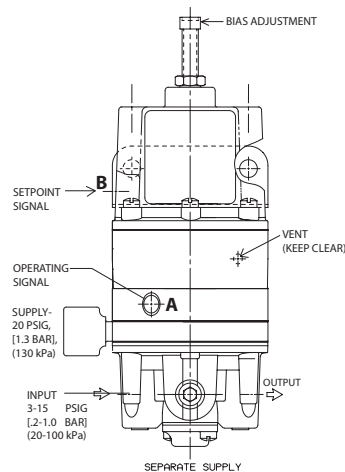
SNAP ACTING RELAY WITH PNEUMATIC SETPOINT & MANUAL BIAS

To the right is a setup which uses a pneumatic signal for the setpoint which may or may not be biased by adjusting screw. The bias adjustment adds to the pneumatic signal in this case. If the setpoint and operating signal were switched the bias would subtract from the setpoint signal.

To decide whether a N.O. or N.C. valve is required:

Remember that when "B" plus spring bias is **greater** than signal at "A" port, a N.O. unit will have an output, a N.C. unit will **not**.

In this case is shown the unit with the separate supply option (SS) to indicate how a unit may be used when the input is a control signal such as 0,2 - 1 barg (3 - 15 psig.)



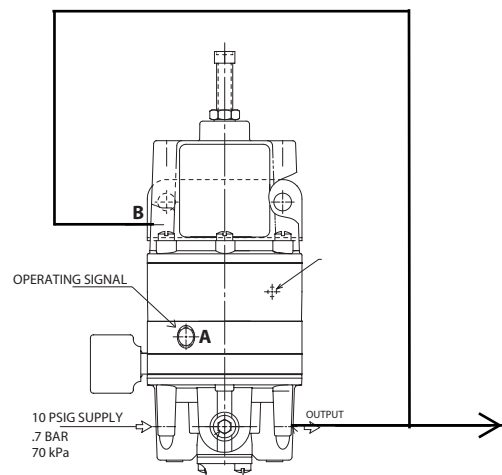
SNAP ACTING RELAY WITH ADJUSTABLE DEAD-BAND

Many applications require some dead-band (signal change) between open and closed operations. The configuration to the right is one way to accomplish this with a **Model 24**.

Assume for the application that an output is desired until The operating signal reaches 14 psig at which point we want to turn it off until the operating signal drops to 4 psig, where we want to turn it on again and stay on until it increases to 14 psig.

In this setup we have 10 psig supply and manual set the bias for 2,7 barg (4 psig) and the unit is **N.O. catalog number 244122**.

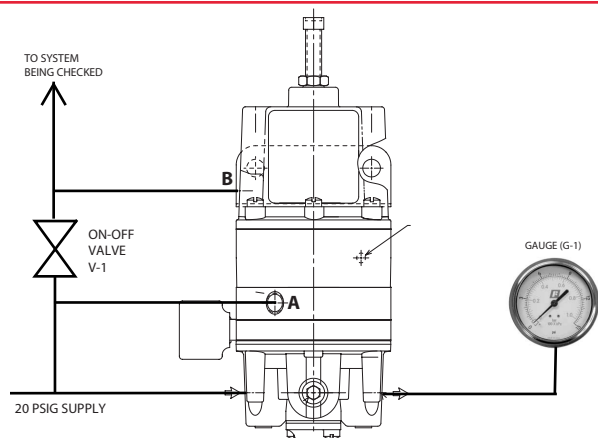
If the operating signal is 0,2 - 1 barg (3 - 15 psig) it would have to reach 14 psig to turn output off which will exhaust "B" chamber which now reduces the setpoint to 4 psig and the unit will not turn on until the operating signal drops to 4 psig.



SNAP ACTING RELAY USED AS A LEAK DETECTOR

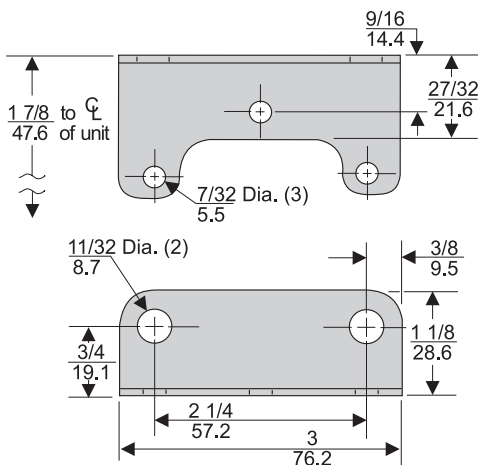
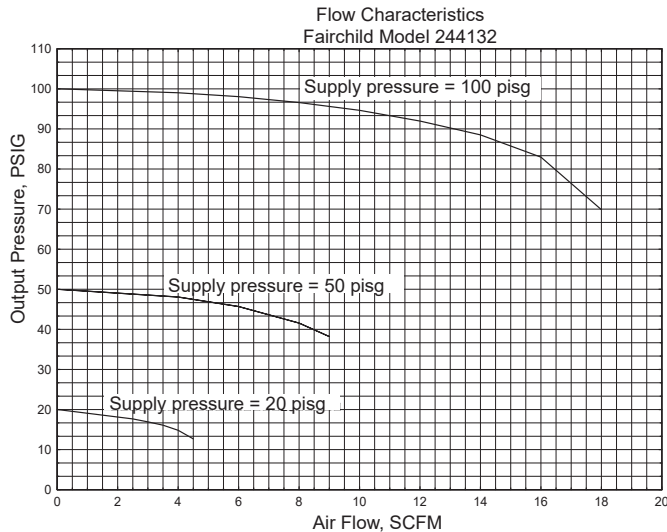
To calibrate unit a gauge and needle valve (for venting) must be attached to point of "system to be checked" as shown in sketch. Turn on supply pressure, open valve V-1 and close vent valve until both gages read the same.

Then close valve V-1 and open vent valve (which is simulating leak) until pressure difference read on gages is cor-rect, then close vent valve and adjust setpoint. To check calibration close vent valve and open valve V-1, until presssure equal-izes. Then close V-1 and open vent valve slowly. Unit should switch at setpoint indicating leak.



Model 24 Snap Acting Relay

Technical Information



Mounting Bracket: 09921

Model 24 Relay Kits & Accessories

Mounting Bracket Kit 09921 (sold separately).....

Catalog Information

Catalog Number

2 4 4

Switch Position

Normally Open
Normally Closed.....

1
2

Pressure Range

psig	[BAR]	(kPa)
2" W.C. -10	[0.006-0.7]	(0.63-70)
0.5-30	[0.03-2]	(3-200)
1-60	[0.1-4]	(10-400)
2-120	[0.15-8]	(15-800)

2
3
4
6

Pipe Size

1/4" NPT
3/8" NPT
1/2" NPT

2
3
4

Options

Tapped Exhaust
Fluorocarbon Elastomers
Knob Adjustment
Tamper Proof
BSPT (Tapered)
Separate Supply to Pilot

E
J
K
T
U
SS

Specifications

Maximum Supply Pressure

120 psig, [8.0 BAR], (800 kPa)

Minimum Supply Pressure

10 psig, [0.7 BAR], (70 kPa) (use separate supply option if inlet pressure is less than 10 psig, [0.7 BAR], (70 kPa))

Flow Capacity (SCFM)

14 SCFM (23.8 m³/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply

Exhaust Capacity (SCFM)

14 SCFM (23.8 m³/HR) @ 100 psig, [7.0 BAR], (700 kPa) drop

Signal Range

2" (5 cm) W.C. to 120 psig, [8.0 BAR], (800 kPa)

Change in Signal to Operate

See Chart 1.

Repeatability

0.2" (.5 cm) Water Column

CV Rating

0.23

Mounting

Pipe or Panel

Air Consumption

Less than 0.015 SCFM (.03 m³/HR) for 100 psig, [7.0 BAR], (700 kPa) inlet

Ambient Temperature

-40°F to +200°F, (-40°C to 93.3°C)

Materials of Construction

Body and Housing Aluminum Casting
Trim Stainless Steel, Zinc Plated Steel
Diaphragms Buna N and Dacron

*The "E" option and "SS" options are not compatible and only one can be chosen.