ControlAir

Mite Series
70/71/73 74/85

Snap-acting, Pneumatic Relays

Compact, rugged and precise "decision-making" switches

The Mite Series of pneumatic relays offer precise control of air or gas service. Their snap-acting design automatically trips on either an increasing or decreasing signal. Mites are rugged, compact units engineered for high density applications. They are constructed to last and "make decisions" with crisp precision, cycle after cycle.

Mite 70
Snap-acting control relay with manual reset
Will either lock-up or vent control pressure to a valve when tripped

Mite 71L/71H
High pass or low pass pneumatic selecting relay
Automatically selects the higher or lower of two input signals

Mite 73
Snap-acting air signal monitor
Accepts up to four inputs and can be reset automatically

Mite 74
Snap-acting control relay with integral 3-way or 2-way valve
Combines a Mite 70 with a precision 3-way or 2-way valve

Mite 85
Snap-acting 3-way valve with two trip points
Automatically activates back up controller if primary fails

ControlAir Inc.

Built to "make decisions" with crisp precision cycle after cycle.

The Mite series of pneumatic relays are engineered to switch, lock or vent various ports based on either an increasing or decreasing pneumatic signal. Their passive design, as well as precise, unerring and immediate decision making abilities make them the ideal solution to critical safety and emergency process controls found in the petroleum, chemical, gas-field or pharmaceutical industries. Their rugged, simple construction provides uncompromising reliability and long term performance with either air or gas service.

SPECIFICATIONS MITE 70, 71, 73, 74, 85

	Mite 70	Mite 71L/71H	Mite 73	Mite 74	Mite 85
Pressure Rating	100 psig max.				90 psig max.
Temp. Limits	-40°F to +180°F				
Port Sizes	Tapped for 1/4" NPT with 1/8" internal ports				
Dimensions	2.5" Dia. x 3.5"	3.375" Dia. x 2.5"	2.5" Dia. x 4.25"	2.5" Dia. x 5"	2.5" x 6.68"
Materials	Aluminum, Plated Steel, Neoprene, Brass and Stainless Steel				
Weights	1.2 lb			2 lb	

Mite 70

Description

Set to trip on either an increasing or decreasing control signal, the Mite 70 will vent one port to atmosphere while it locks up the pressure in a second line. The tripped position is then held indefinitely until the control signal is restored and a manual reset button is pushed. The trip point is adjustable from 1 to 100 psi with a simple screw stem. The Mite 70 can also be tripped on demand from a separate remote signal. Use the Mite 70 to open safety valves in emergency situations, trigger an alarm while locking up a valve or actuate diaphragm motor valves, air cylinders or other pneumatic actuators.

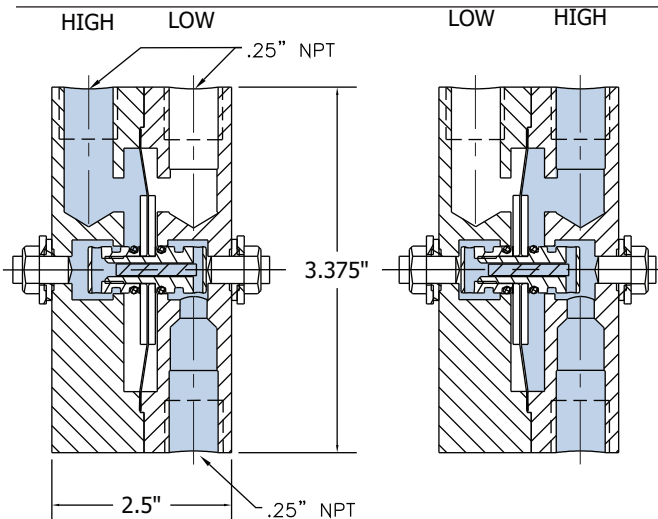### MITE 70 OPERATION
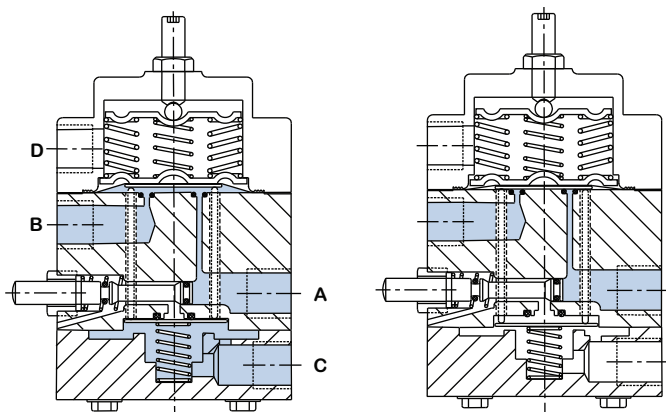
	OPERATING	TRIPPED

A	Variable Instrument Air Signal
B	Signal Output (Locks up when tripped)
C	Signal Output (Vents when tripped)
D	Remote Pneumatic Trip

Mite 71L/71H High/Low Pressure Selector

Description

The Mite 71 will automatically select the higher or lower of two pneumatic inputs and pass it downstream while blocking the other. Capable of almost instantaneous selection, the Mite 71 can separate pressure differentials as low as a tenth of a psi. Although ordered as either high or low pass, the Mite 71 can easily be converted in the field from one to the other. The Mite 71 can be relied on to open or close valves when a signal pressure drops or rises past a determined value. They can also be used to prevent a valve from opening or closing beyond a critical point.

### MITE 71H OPERATION - Selecting High Signal

Mite 73

Description

The Mite 73 is similar in design and function to the Mite 70. A sensitive line monitoring diaphragm and up to four inputs allow even more versatility. When tripped by either an increasing or decreasing signal, one output is vented to atmosphere while the other is locked up. The Mite 73 can be tripped by remote and is also capable of being reset pneumatically for fully automated control.
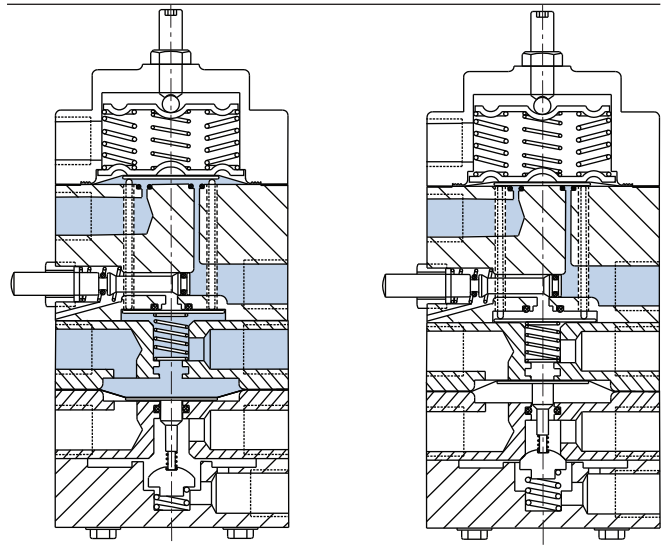
MITE 73 OPERATION
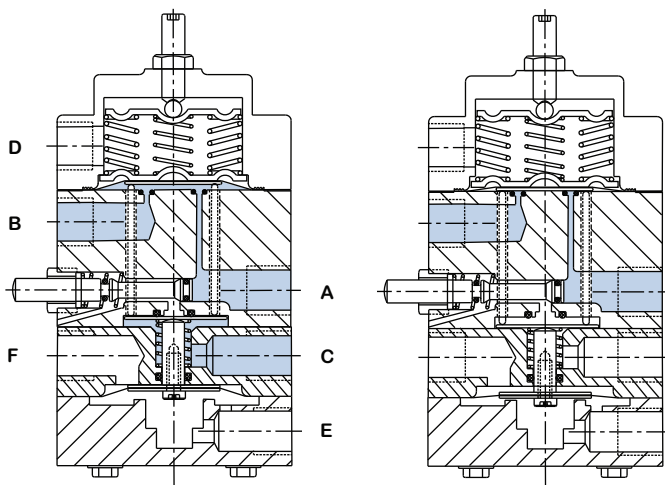
OPERATING   TRIPPED

A	Variable Instrument Air Signal
B	Signal Output (Locks up when tripped)
C	Signal Output (Vents when tripped)
D	Remote Pneumatic Trip
E	Remote Pneumatic Reset
F	Pneumatically Nullifies E

Mite 74

Description

The Mite 74 combines the Mite 70 control relay with a precision 2-way or 3-way valve in a single compact package. Either an increasing, decreasing or remote signal can be used to channel air as needed. The Mite 74 can also be used in combination with either of the Mite 71's so that it will trip when either of two signals drops or rises beyond a set pressure. Once tripped, the Mite 74 will hold its settings until the proper control signal is reestablished and the reset button is pushed.
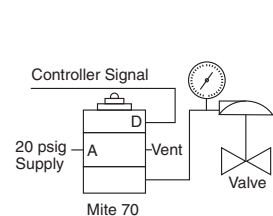
MITE 74 OPERATION

OPERATING   TRIPPED

|	
A	Variable Instrument Air Signal
B	Signal Output (Locks up when tripped)
C	Signal Output (Vents when tripped)
D	Remote Pneumatic Trip
G	Trip to Open
H	Common
I	Trip to Close

TYPICAL APPLICATIONS

Actuate an on-off valve when controller signal increases to set point. Supply pressure at "A" is transmitted to valve from "C" when Mite is operating. When trip occurs, valve is vented to atmosphere.
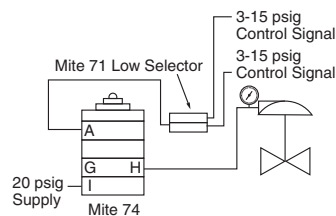
Close an on-off valve when either of 2 signals drops to a set point. Lower of 2 control signals is constantly fed to "A". Supply pressure at "I" is transmitted to valve from "H" when Mite is operating. When trip occurs, valve is vented to atmosphere from "G".
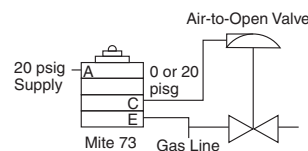
Close an on-off valve in a gas line when line pressure drops below a set point. Supply pressure at "A" is transmitted to valve from "C" when Mite is operating. When gas line pressure –monitored at "E"–drops below set point, trip occurs, and valve operator is vented to atmosphere.
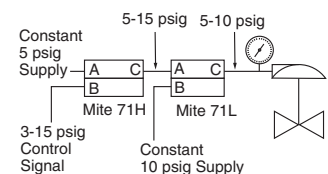
Set 2 pneumatic pressure limits (high and low) within the range of a control signal, i.e., a double pneumatic stop. Output from Mite 71H must stay within 5 to 15 psig when connected as shown. Output from Mite 71L to valve must stay within 5 to 10 psig.

Mite 85

Description

The Mite 85 allows you to establish two adjustable trip points between 3 and 15 psig. Span capabilities are 6 psig maximum (e.g. 3-9 psig, 9-15 psig) and 1.5 psig minimum (e.g. 3-4.5 psig). These trip points control flow through a 3-way valve. While the signal pressure at port 'A' is below the high trip set point, the supply pressure (3 psig minimum, 50 psig maximum) at port 'I' is blocked and port 'H' is open to port 'G'. Upon reaching the high trip set point, supply at port 'I' will then be open to port 'H'. This state will remain until the signal pressure at port 'A' decreases to below the low trip set point. Port 'I' will then close and pressure at port 'H' will vent to port 'G'. The switching action between the two states is crisp, quick and repeatable without having to manually reset. The Mite 85 can be used to directly control valves or be coupled with other Mite decision valves for pneumatic logic systems.
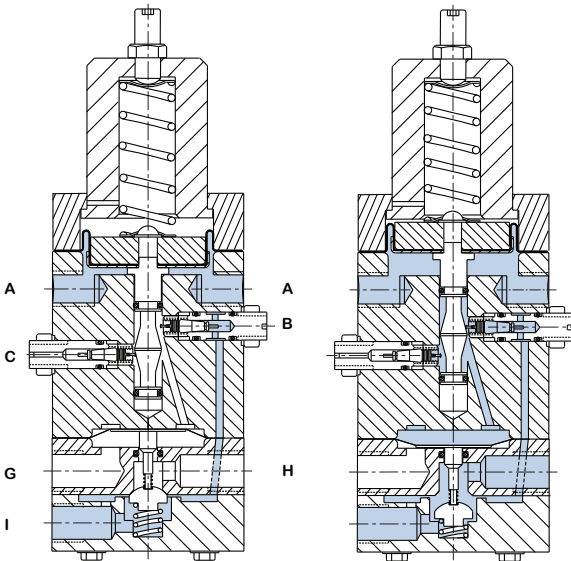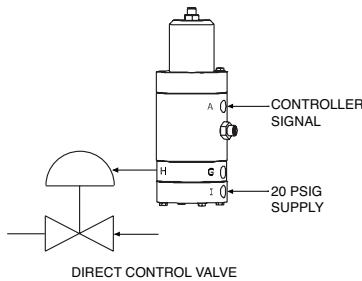

TRIP CLOSE   TRIP OPEN

A	Operating Signal
B	Supply Adjustment
C	Vent Adjustment
G	Vent
H	Common Outlet
I	Supply

TYPICAL APPLICATION - MITE 85

CONTROLLER SIGNAL

20 PSIG SUPPLY

DIRECT CONTROL VALVE

Mite 70 & 73

Mite 70
Mite 73

Reset Button
Std Normal
Lng Long

Signal
Hi Signal > 50 psi
Lo Signal ≤ 50 psi

Mite 71

Pressure
Hi Higher of 2 pressures
Lo Lower of 2 pressures

Mite 74

Supply
Hi Supply > 50 psi
Lo Supply ≤ 50 psi

Valve
2 way 2-way valve
(H port locks on trip)
3 way 3-way valve
(H port vents out G port on trip)

Reset Button
Std Normal
Lng Long

Signal
Hi Signal > 50 psi
Lo Signal ≤ 50 psi
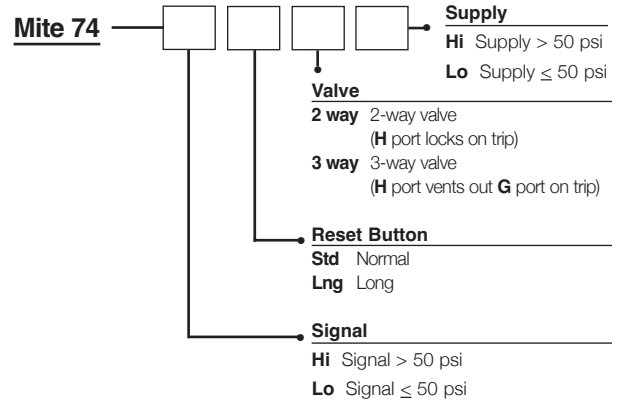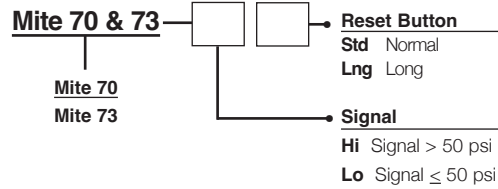
Mite 85

Warranty

ControlAir, Inc. products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir, Inc. recommended usages. ControlAir, Inc.'s liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir, Inc.'s sole option, of any products proved defective. ControlAir, Inc. reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user.

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