

## Air Timers Delay Signal

Air timers are used to delay the air signal coming in or out of an air component. Depending on the model, the delay may be adjusted from 0.75 to 30 seconds. Input port is indicated by a yellow dot.

Timers are available in either normally closed (NC) or normally open (NO) models. Normally closed models are used to time in and normally open models are used to time out. Once set, timers are accurate for repeatability to 10% with regulated air pressure.



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### General Specifications

**Filtration:** 40 micron filtration recommended

**Lubrication:** 30 wt. non-detergent oil

**Pressure Range:** 50-150 PSI (NC); 40-150 PSI (NO)

**Mounting:** (2) 11/64 clearance holes

**Life Expectancy:** 1,000,000 cycles

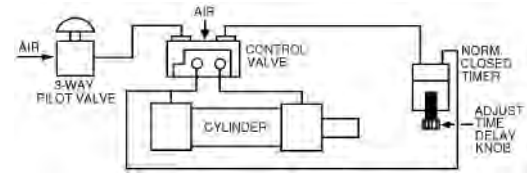
**Temp Range:** 50°F to 120°F

**Port Sizes/Material:** 1/8" / Acrylic

Model Number NC	Model Number NO	Range	Ports	Length	Width	Height
KLC-105	KLH-105	0.75-6 sec.	1/8"	4"	1"	1 1/2"
KLC-110	KLH-110	1-11 sec.	1/8"	4"	1"	1 1/2"
KLC-212	KLH-212	15 sec.-2 min.	1/8"	4 7/8"	1 7/8"	1 1/2"
KLC-230	KLH-230	2-30 sec.	1/8"	4 7/8"	1 1/2"	1 7/8"
KLC-260	KLH-260	10-60 sec.	1/8"	4 7/8"	1 7/8"	1 1/2"

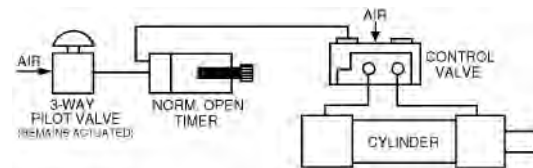
**Note:** NC timers have a green spool; NO timers have a red spool.  
For special timers, consult factory.

## Timing In (Normally Closed) Circuit



In this circuit, the 3-way valve is actuated and air is sent to the control valve. The control valve shifts, sending air through port A to the cylinder, which extends. Air also flows to the timer where it begins to time to the pre-setting. Once reached, the timer opens, allowing the air to flow through to the control valve's other pilot port, shifting the valve back. Air flows through port B, retracting the cylinder.

## Timing Out (Normally Open) Circuit



When the 3-way valve is actuated, air flows through the NO timer to the control valve. The 3-way valve remains actuated. The control valve shifts, sending air through port A to the cylinder, which extends. At the same time, the timer begins to time to the pre-setting. Once reached, the timer closes, blocking off the air flow to the control valve, which spring returns. Air flows through port B, retracting the cylinder.

**414B**  
Pressure Type



**415B**  
Bleed Type



## Pneumatic Impulse Relay Valves

Impulse relay valves allow you to shift a double-pressure piloted or double bleed piloted valve, even though there are overlapping pilot signals. Relay valves convert a sustained air flow from a three-way pilot valve into a momentary pulse or bleed, which shifts a control valve and then closes.

### General Specifications

**Mounting:** Mounts directly to control valve with nipple fitting

**Body Construction:** Aluminum

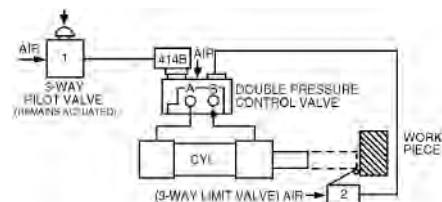
**Pressure Range:** 35 to 125 PSI

**Lubrication:** 10 wt. non-detergent oil

**Note:** Required inlet pressure must be delivered all at once.

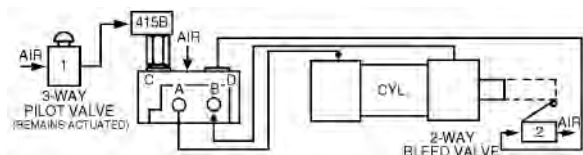
Model Number	Ports	Type	Length	Width	Height
414B	1/8" NPTF	Pressure	1 59/64"	3/4"	1 1/4"
415B	1/8" NPTF	Bleed	1 59/64"	3/4"	3 11/16"

## Sample Circuit Using 414B (Pressure Type)



When actuated, the 3-way valve sends a signal to 414B, which emits a signal to the control valve. The 3-way valve remains actuated. The valve shifts, allowing air to flow through port A, extending the cylinder. 414B senses the back pressure caused by the shifted valve, closes, and exhausts. Since the signal from valve #1 is blocked by the closed 414B, valve #2 (when actuated) shifts the control valve back. Air flows through port B, retracting the cylinder.

## Sample Circuit Using 415B (Bleed Type)



Air enters a double bleed piloted valve, flows through ports C and D, and is blocked by the 415B relay and valve #2. When actuated, the 3-way valve #1 sends an air signal to the 415B. The 3-way valve remains actuated, 415B exhausts, shifting the control valve and extending the cylinder. The 415B senses the back pressure from the shifted valve and closes, blocking off the air flow from valve #1. This allows valve #2 (when actuated) to bleed air, allowing the control valve to shift. Air flows through port B, retracting the cylinder.